BITS ECHO

PILANI | DUBAI | GOA | HYDERABAD

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BITSians SHAPING EDUCATION AROUND THE WORLD

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BITS ECHO

In these challenging times, we are all navigating through uncertainty for ourselves, our loved ones and our community. The world gets more complicated with every passing day. We get involved with our families and work and suddenly we've lost touch with those outside the close circle. We hope you have stayed healthy and safe in this pandemic period.

On behalf of the BITSAA Delhi NCR Chapter, apparently one of the oldest, having around 3000 members, I congratulate all for the work that we have done to strengthen our alumni community. Our institution remains the very foundation upon which we have built our careers. Amongst us, we have entrepreneurs, scientists, performing artists, educators, public servants and businessmen.

We share core values – a commitment to service, a belief in access and opportunity, drive to make a positive difference, and these values unite us. We, at the Delhi Chapter have had continual support and participation of members in various events being organized regularly in and around Delhi to stay connected with the Alumni. We have organized picnics regularly and have held musical events with attendance surpassing 800 members at times. We have also conducted entrepreneurship programs, held interactions with BITSIAN IAS officers, hosted Bindaas BITSian, and organized Marathons. We have had the opportunity to organize and host the 1st BITSAA Global Meet, and have been celebrating BITSIAN Day regularly for last many years with attendance crossing 500 in 2019, attended by VC and Dean Alumni Relations. It gives me immense pleasure to share that we have already celebrated Diamond Jubilee of our chapter. Let's take a pledge to stay connected with alumni across the globe and take BITSAA to greater heights.

Alok Garg
President, BITSAA Delhi NCR Chapter

Dear BITSians,

BITS Alumni have always been closely associated with their Alma Mater. I wish to express my gratitude for your continued support towards grooming the young BITSians. On a personal front, BITSians have achieved success in their careers, and we take immense pride in sharing your success stories and achievements with the world. BITS Pilani has started an initiative of reaching out to its alumni through emails, social media and Almaconnect for better engagement and bonding. Today, I take this opportunity to request you all to keep this BITSian bond strong, and help elevate the brand "BITS Pilani" to greater heights.

Excellent academic performance together with high-quality mentoring by the alumni can help us enhance this facet of BITS Pilani.

Prof. Trupti Gokhale
Faculty-in-Charge, Alumni Relations, Dubai Campus

Dear Alumni,

These are tough times! The Corona pandemic is testing the will of nations and the mental strength of people around the world. It is also testing our emotional resilience, which is extremely important.

Emotional resilience is very important; it's an art of living combined with self-compassion and enhanced cognition. As an emotionally resilient person, you can manage not only your own emotions, but also of others! Emotional resilience is an important life skill and has four components:

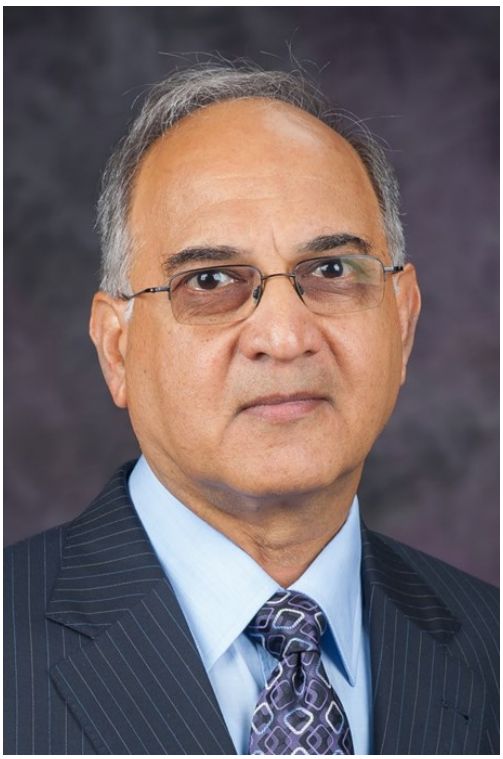
Self-awareness: the ability to identify, recognize and understand your own emotions. This is also the foundation for your thoughts, which defines your character, actions and behavior. So, be a spectator of your thoughts and focus on positivity! **Self-Regulation**: Emotionally resilient people can control and regulate their emotions. As Buddha says, "Your mind is your great friend if you can control it; and your mind is your greatest enemy if it controls you!" So, take control of your mind! **Gratitude:** Gratitude is one of the powerful emotions which we are capable of developing. So, learn to appreciate the things that we have, rather than the things that we lost during this crisis! "Gratitude should be the attitude!"

Social Cognitive Skills: Emotionally-resilient people can build trust with others, and are good in networking. We all need support in life and not just in the times like these. So, let us focus on building a support system with the right kind of people. Stay in touch. God bless you all.

Prof. Veeky Baths
Associate Dean, Alumni Relations, K. K. Birla Goa Campus

BITSians
Shaping Education Around the World

Our alumni do wonders whichever field they choose to pursue their careers in, and make our world a better place. In this issue of BITS ECHO, we feature those alumni who have been trailblazers in Academia and Research. We hope you'll enjoy reading the stories of these scholars, whose profound ideas have transformed academic thinking and paved a progressive path for themselves and so many others.



Passion Takes You Places

Prof. Anil Pahwa *(Pilani, '75 | DAA Recipient) is a faculty member in the Electrical and Computer Engineering department at Kansas State University, since 1983. He is also the lead faculty member in electrical power and energy systems at the university. He was awarded BITS Pilani Distinguished Alumnus Award 2014 in the category of Academic Teaching and Research.*

You have collaborated with faculty members within Kansas State University, as well as other universities for research, and you have lead 38 funded projects with about $8.8 million in total funding. Do you recommend that an interdisciplinary think tank should be formed to gradually put pressure on disciplinary boundaries and do good quality research?

The engineered systems have become complex that requires multidisciplinary teams to do quality research. However, there is no need to create a think tank to eliminate disciplinary boundaries. It is a natural process and good researchers will recognize this aspect to leverage it for their research. The funding agencies should encourage such research by initiating special programs to promote these ideas.

As an expert in electrical power and energy systems, what do you think India should do to meet the increased demand for electricity?

India is a country that faces a lot of challenges when it comes to providing electricity to its

population. A part of the population aspires to use electricity to elevate their lifestyle. However, there is a sizable population that has no access to electricity. The challenge for meeting the two needs should be guided by balancing the Energy Trilemma as defined by the World Energy Council. Providing Energy Security is the first aspect of the Trilemma; second is Energy Equity, and the third is balancing the first two with Environmental Sustainability. Considering these three aspects, India should start focusing on wind and solar as the sources of energy as they are competitive and have massive potential for providing electricity to India. India enjoys sunshine all year round, which makes it an attractive source of energy. It requires large space, and the electric utilities are still looking for the right answers to operate the power systems with massive solar energy deployment. The space requirement issue for solar energy is challenging, but it can be partially addressed by encouraging solar photovoltaic installations on the rooftops of buildings, and homes. Even an unproductive land is a good option for solar installations.

What are the ideas to scale the NSF-Cyber Physical Systems (CPS) project at a community level?

In our NSF-Cyber Physical Systems (CPS) project, we investigated system operation with massive integration of distributed solar energy in power distribution systems. Unlike a traditional power grid, we found that these resources could create reverse power flow in the system, causing voltage control problems. Also, intermittent clouds create power and voltage fluctuations. Our research investigated some solutions to these problems. Deployment of smart inverters, which allow fast control of real and reactive power will provide solutions for wide-scale deployment at the community level.

How did BITS Pilani help in shaping you as a professional?

BITS Pilani provided me with a holistic education that solidified my foundation. Helping students become better human beings was the prime focus at BITS and the environment of BITS Pilani is very conducive in achieving these goals.

Passion and confidence are the two most important things that I learned at the campus. Passion for doing the best in whatever I chose to do and confidence to do it right in any setting. The core values and discipline I acquired in BITS Pilani have helped me in higher studies and later in my academic profession.

Keep Your Mentor Close to Your Heart, Always!

Dr. Surendra Pal *(Pilani, '70 | DAA Recipient) is a renowned former ISRO scientist with 42 years of experience, and has brought many laurels to his country and his alma mater. In this article, he talks about how he wants to contribute to the education sector, and how inspired he was by his mentor and great leader Prof U. R. Rao to keep trying new things.*

Education is one of the six sectors you wish to offer your services in. Please share how you wish to contribute to the education sector what motivated you for the same?

One area that I'd like to contribute is to the practical knowledge of the students that should include simulations and experimental verification of the simulated or analytical results. For a practical engineer and designer, deep mathematical theories are not important. We need to train engineers who design and realize products and systems. The technologists go into detailed theory, mathematical formulations with deep knowledge of software and solution of engineering integral equations. I pursued B.Sc, M.Sc (Physics), and M.Sc (Tech) / M.E from BITS, and all the practical knowledge that I gained, helped me a lot during my professional journey. While working at ISRO, I met a few students who had no practical knowledge and did not know how to prepare drawings. They weren't taught the practical aspects of any engineering subject with almost no experimental background. Mathematics as a subject was taught like it is taught to everyone. I believe that the students who wish to become scientists or engineers, should be taught mathematics by engineers or physicists and not by pure mathematicians. I believe that books are good for clearing the exams and getting good grades. However, what matters in the long run is the practical knowledge attained by the students.

I have been a Vice Chancellor of DIAT (Defence Institute of Advanced Technology), and there I was able to implement my ideas of focusing more on practical knowledge, project designs and assimilations. Even the fundamentals of the students regarding the subject should be clear because at certain times, both fundamentals and practical implementation knowledge of mathematics become the key for a successful engineer or a scientist.

You have a diverse professional experience as a scientist, and as a researcher / professor. Which role has given you the maximum satisfaction - being a professor or being a scientist and bringing laurels to the country?

In the 50 years of my service, I have worked as a scientist for 42 years, 3 years as a Vice Chancellor and 3 years as the President of IEEE. I realized the shortcomings of the education system as a Scientist, and desired to change the various things related to education when I was the VC. Working for my country as a scientist and contributing significantly to India's satellite programme starting from the first satellite Aryabhata, all INSAT and IRS series of satellites leading to Chandryaan-1, Mars Orbiter *etc.* gave me a sense of accomplishment. I'm the Father of India's Navigation Program, NAVIC and GAGAN that provided me the maximum satisfaction. NAVIC is a unique constellation first designed by ISRO. Many others are following the Indian footsteps. Talking about the National Education Policy 2020, I think it is too idealistic for a country like India. However, the practical knowledge that the students will be provided under this system may balance things out. It needs very detailed planning . Earlier to this, the GOI's National Vocational Skill Development programme (NVEQF) was a non-starter.

You were part of the one of the initial batches of BITS Pilani. How do you think has the campus and the education system evolved ever since?

Being one of the pioneering batches, the teachers during our times were fantastic and very dedicated. During the exams, they would come to our hostels to clear our doubts.

Libraries were fantastic and the environment was relaxed and easy. We had the freedom of doing curricular activities. However, the freedom we had was very limited and far less than the freedom the students enjoy today. At that time, extracurricular activities were very traditional as compared to the present generation, which enjoys a large bouquet of activities. In our time, student-teacher interaction was more of a teacher and taught with a personal touch. I get an impression that because of the large student strength, this aspect is lacking to an extent.
I have visited the three Indian campuses: Pilani, Goa, and Hyderabad. Visiting these campuses, I realized that the outlook towards the students is very balanced, and there is a unique concept of sending students to industries under the practice school programme. It provides an opportunity for students to get acclimatize with the real world. The students now have a choice-based-credit-system which I too introduced as a Vice Chancellor at DIAT Pune. This gives the students a chance to make something new and unconventional. Even the concept of a dual degree is unique. Students with dual degrees are preferred over other students.

When you look back at your 50 years of professional journey and the time that you spent at BITS Pilani, what are the three key things that come to your mind which substantially contributed to your professional growth?
People of my age working at ISRO might have gotten various opportunities to work abroad. But these people were driven by the passion to work for the country that is why they decided to stay back and advance their motherland in the field of science and technology. Moreover, the dedication for their work despite being paid less salaries was also a contributing factor to work for the country. I feel if the jobs are challenging enough then money does not matter. I made various trips to USA but during a trip for a conference, I met a few of my old friends. They questioned our country's plans to launch satellites.
Not feeling inferior, I maintained my calm and responded to their questions with a pride and a smile, that my working will put the country on space technology map of the world. I was confident and proud of what I was working for. In 2015, I was invited by Stanford University to talk about India's Navigation program and happened to meet some of these friends there as well. While talking to them, I told them that none of them had gotten the opportunity to do the kind of work which I did and though I did not have dollars in my pocket, still managed to buy my family a house and a small car, besides putting India in the 'Global Space Club'. So, if one is passionate and dedicated, and if his job is challenging enough, then money does not make much of a difference.

To Excel, Pursue the Field Which Interests You

You are named as the pioneer when it comes to tribology and mechanics of magnetic storage devices. How did you develop an interest in the field?
I started at IBM in 1981. Tribology was considered a critical technology to the development of the magnetic storage industry. Given my tribology background, I launched systematic fundamental studies in the magnetic storage industry. My published work was followed and developed by industry at large.
I wrote the first book on tribology and mechanics of storage devices in 1990 and 1992, which became a reference for the industry. I later pioneered the field of nanotribology and nanotribology of bio-& nanotechnology and beauty care.

You have received a Certificate of Appreciation for serving on President Reagan's Commission investigating the space shuttle challenger accident. How was your experience working with NASA?
I was invited by President Reagan's Commission investigating the Space Shuttle Challenger Accident. For my work, I was given a Certificate of Appreciation to recognize the critical tasks performed in support of President Reagan's Commission investigating the Space Shuttle Challenger Accident. Valuable contributions assisted in identifying the actions required to return the National Space Transportation System to flight status.

In 2019, you delivered a TED Talk where you shared how nature has inspired you in making various products of commercial interest. Can we hear a new product coming up which has been inspired by nature as well?
We have licensed our technologies to various organizations and hope to see a product come out soon.

What advice would you like to give to our students who aspire to innovate and build their own start-up?
My advice to the young BITSians is to pursue a career in a field of your interest. Think outside the box. Dream as big as wish, work hard, and do not give up. It will help you excel and reach new heights.

Prof. Bharat Bhushan *(Pilani, '70 | DAA Recipient) is an Ohio Eminent Scholar and The Howard D. Winbigler Professor at the Ohio State University. He was honored with the BITS Pilani Distinguished Alumnus Award 2015 in the category of Academic Teaching and Research*

Online Learning is a Temporary Norm

Professor at the University of Wisconsin-Madison, ***Gurindar S. Sohi*** *(Pilani, '83 | DAA Recipient) is a Vilas Research Professor in the Computer Sciences Department. He is the recipient of the BITS Pilani Distinguished Alumnus Award in the category of Academics Teaching and Research.*

You have done extensive research on the design of the highest performance uniprocessors. According to you, what are the future applications of current research future processors?

We are at an especially critical time in the evolution of computer hardware. Continuous improvements in performance and energy efficiency have enabled an ever-increasing use of processors and computing devices and powered the information technology revolution. Everyone is used to faster, cheaper, more energy-efficient computing devices. But one of the key enablers, improvements in semiconductor technology, is slowing significantly. The other enabler is improvements in the processor microarchitecture. So, we have to develop micro-architectural innovations to get performance and energy (and now security) improvements. I am working with my students on this aspect.

Often it is said that the majority of research is mediocre, expensive, and unnecessary. Do you subscribe to the view? If so, what do you suggest to improve the quality of research?

Well, if only we knew how the future would unfold, we could only carry out research that is "high quality" and relevant. However, we can rarely determine what research will be relevant and "necessary" in the future. There is a lot of fundamental research that sets up the foundation for other research that may appear to be more significant. Many times research leads to discovering something vital that you weren't looking for in the first place. Computer Science is full of research results that are considered niche and esoteric when done, but have had a significant and transformational impact. If we only work on problems that are considered important and relevant at a given point in time, rarely will we generate transformational ideas.

As a Professor of Computer Science, what do you think, is the prospect of virtual classes in the coming times? We would also like you to share your views on how the courses in which experiments are conducted in labs or practical sessions are held, can be handled in the online education system?

Remote learning is not new. It has been around for decades, but the technology has changed. With widespread broadband connectivity and the emergence of MOOCs, and with an increase in the number of learners, it came to the forefront about a decade ago. Now with the ongoing COVID-19 pandemic, a lot of learning has become remote, which is just a temporary norm. I think a lot of it will go back to in-person learning when the situation allows. Learning is not only difficult to do remotely but interacting and getting inspired by others are also critical aspects of learning. Various hybrid models have emerged, and new ones will come up. However, I think that in-person instruction will continue to be the dominant model, especially for disciplines where you will be using your education to work in teams later.

Change is the Only Constant

Prof. Krishna Saraswat *(Pilani, '68 | DAA Recipient) is a Professor in the Department of Electrical Engineering, Stanford University, USA. He is also ranked among the 250 highly cited researchers. He has been awarded the BITS Pilani DA Award in the category of Academics, Teaching, and Research.*

You are a recipient of IEEE's Andrew S. Grove Award for "seminal contributions to silicon process technology". According to you, what are the drawbacks of silicon as nano-electronics and the potential new materials which could replace silicon?

Silicon will never be replaced by another material. However, it will be augmented with heterogeneous integration of other materials such as Germanium, Carbon nanotubes, and Transition Metal Dichalcogenides (TMDs) *etc.* on a Silicon platform. This integration will also depend on the applications, *e.g.*, electronics (digital and analog), photonics, photovoltaics, sensors, biotechnology, *etc.*

You pioneered in the technology for Aluminium/ Titanium and also an interest in economics and technology of single wafer manufacturing. How did this shift happen?

By staying in the same field, a good researcher becomes stale. So, it is best to foresee future challenges and change the direction accordingly. I did my research from the point that it should have certain applications, even if it is very futuristic. I did my Ph.D. at Stanford by working on high voltage MOSFETs for a reading aid for the blind. After graduation, I developed models for Silicon fabrication technology. Our research resulted in a CAD tool SUPREME which became the industry standard for designing new fabrication technology. The work on interconnects and Aluminium/Titanium/Tungsten took place in 1978 when I realized that the limits of digital chips would be in signal transmission.

I shifted my area to the manufacturing of semiconductors in the 1980s. Later, I collaborated with Texas Instruments on single wafer manufacturing tools with real-time sensing and control that has become an industry standard. When Moore's Law was being questioned, I started working on new materials like Germanium, III-Vs, Carbon nanotubes. I recently started working on the Transition Metal Dichalcogenide electronic devices, and photonic interconnects for scaling MOS technology to sub-10 nm regime. My group has pioneered new concepts of 3-dimensional ICs with multiple layers of heterogeneous devices allowing the continuity of Moore's Law. Seeing the impact of global warming, I have now started working on low-cost solar cells.

Venture Into New Waters Without Hesitation

__Prof. M Balakrishnan__ (Pilani, '77) is the Vice Chancellor of Satya Bharti Institute of India (On Leave, Professor, CSE Department, IIT Delhi). He has worked as a Scientist at IIT Delhi's CARE and during this time, he was engaged in designing and implementing real-time DSP systems. After a stint abroad, he switched to teaching and research as a Professor. Apart from his own teaching and the research, he has started various programs at IIT Delhi that promote research and start-ups.

You worked as a Scientist at CARE, IIT Delhi. What motivated you to switch your career from a Scientist to a Professor?

After completing my education from BITS Pilani in 1977, I planned to join IIT Kanpur for studying M.Tech in Computer Science. Most of the top graduates from BITS preferred to go abroad for higher studies, but I was very clear that I wanted to study and contribute to India. I joined CARE, IIT Delhi because it allowed me to register for a Ph.D. while working as a Scientist.

I was the first non-IIT hire in the signal processing group at CARE, IIT Delhi. We worked on defence projects and along with R&D, we were also engaged in installing and testing our devices on the ships.

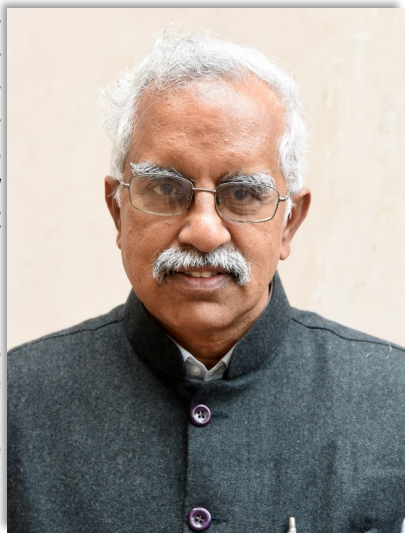
Later, I played an important role in developing and installing a digital control system named "Deck Landing Mirror Sight" for aiding landing of aircraft on INS Vikrant, the only aircraft carrier in the Indian Navy at that time. These were exciting times and life was full of technical action. However, it was very clear that I would be an academician in the long run. But the eight years I spent at CARE, IIT Delhi changed my outlook to research. As a researcher, I was never satisfied with only focus on "pushing the state of the art" and publishing. The joy of making something that works in the field played an important role in my ASSISTECH journey and my initial start-ups.

You have been honored with the 2018 ACM Eugene L. Lawler Award for Humanitarian Contributions in Computer Science and Informatics for your research and development of cost-effective embedded-system and software solutions addressing mobility and education challenges of the visually impaired. What was the motivating factor behind taking up research in this field?

A meeting with Mr. Dipendra Manocha, a blind but tech-savvy person changed my direction of research. Mr. Manocha came up with the need for "knee-above obstacle detection" for the safe mobility of blind people in the weak public infrastructure of countries like India. There are a lot of things that overhang, both outdoors and indoors, which are not detected by the white cane, causing injuries to the upper bodies. From the initial conception to mass production and dissemination, SmartCane was a nine-year-long journey in which many people played an important role. However, the biggest source of inspiration was the launch and acceptance of SmartCane by the blind and also in the world of design. The ASSISTECH journey has been widely recognized with various national and international awards. This includes three national awards and an invitation to give an inspirational talk in the Gates foundation meeting in London. The ACM Eugene L. Lawler Award was special because it was given at the ACM annual awards ceremony in San Francisco along with the Turing Awards of that year.

You've initiated numerous programs for promoting research and start-ups. Have such programs also been affected because of the COVID-19 lockdown?

In early 2000s, IIT Delhi had just established an incubator on the campus and an interactive session with the head of this incubator was organized. This session resulted in a group of graduating students joining hands with faculty which eventually led to the formation of the first faculty-student led start-up company in 2002- KritiKal Solutions Private Limited (KSPL). In retrospect, the KSPL journey is all about learning what one should not do in a start-up. Still, the passion and perseverance of the students made it survive and it also led to the successful offshoot under the name - Vehant Technologies.



During the COVID-19 lockdown, our start-ups have not been affected much because working from home was always an option. Vehant Technologies has created a lot of COVID related solutions by repurposing and modifying their other vision-embedded products.

The only organization affected by the pandemic is the Raised Lines Foundation, the non-profit company that produces books for the blind by incorporating tactile graphics with Braille. The need for physical production and the closure of the blind schools for a long period has affected both ends - operation as well as demand.

Has BITS Pilani played some role in developing your passion and dedication for the work that you are doing for the differently-abled people?

I had cleared JEE with a good rank and could have taken admission at IIT Delhi. My decision to join BITS Pilani that too in the unassigned system where one was not even sure of getting Engineering would today seem like a crazy decision. This happened because of my affinity towards BITS through the growing years in Pilani and the cost of education. At that time, the tuition fee at both Institutions was the same, but in IIT Delhi, my parents would have to pay for the hostel while in Pilani I stayed at home.

The interdisciplinary nature of education at BITS has provided a solid background including towards my work for the differently-abled. One develops healthy respect towards other engineering streams and to HUSS elective subjects which is critical for any systems research.

Now I am involved in building a new private institute named Satya Birla Institute of Technology as a Vice Chancellor. The founders of AIRTEL are funding Rs. 7000 crore for the project. On looking back, it is amazing to realize that BITS nearly five decades ago could implement so many unique flexibilities in its academic programs while maintaining the quality of its undergraduate education.

If You'll Do What You Love, You'll Succeed

***Prof. Rahul Telang** (Pilani, '93) is Professor at the Carnegie Mellon University (CMU). He is famous in the Information Systems (IS) and Economics community. He is also a Senior Editor in the top IS journals, including Information Systems Research, MIS Quarterly, and Management Science. He co-founded the Institute for Digital Entertainment Analytics at Carnegie Mellon. In 2012, he was a Visiting Scientist at Microsoft's laboratory in Cambridge, England.*

You conducted your research for ten years; during these years, technology has drastically changed. Did the change in technology impact your research work?
My research is about how technology affects business and society. So, change in technology is actually beneficial for my research.

How did you develop an interest in the field of economics of digitization especially when the internet was not even evolved the way it is now?
When I finished my Ph.D., the internet was just establishing itself, and firms like Amazon were already trying to make inroads. E-Commerce was starting to boom. There was significant internet piracy, and during the times of Napster, which affected the music business significantly. So, it was evident that digitization was going to be the way of the future.

You've published in various top journals like Management Science, Marketing Science, Information Systems Research, MIS Quarterly, and Journal of Marketing Research. Were there times when you doubted your capabilities? What kept you going in those tough times?
No, I never doubted my ability. Being in CMU, I was able to work with brilliant colleagues who played a big role in my growth. We also have smart students who make your work easy.

How did your education here at BITS help you shape your career?
As students, we used to complain about courses that were not main for the degree. But today, I see how that education and exposure of different ideas made a huge difference in what I have been able to accomplish. Education at BITS makes a huge difference, and you can see it only when you are working as a professional and are applying those skills taught during the 'non-main-elements' at the institute.

Trust Your Heart and Internal Judgement

***Prof. Nasir Memon** (Pilani, '82) is a Professor at the Computer Science department at New York University. He pioneered the Cybersecurity studies to NYU and is also the co-founder of NYU's Centre for Cyber Security at New York and Abu Dhabi.*

You introduced Cybersecurity Studies at New York University Tandon School of Engineering. What drove you to the introduction of these studies?
The passion and the spirit of wanting to learn more by the students made me introduce this program. I realized that you can't teach security by talking about it, you have to engage in it. Cybersecurity being an adversarial discipline, students enjoy learning by attacking and defending in a game-like setting. Hence, I created a lab and developed the program with a hands-on focus. In 1998, cybersecurity was not thought to be an important topic, but twenty years down the line, it has become a key priority for industry and government agencies throughout the world.

You are the Vice Dean, Academics, and Student Affairs besides being a professor. During these stressful times of COVID-19, how should the students keep moving forward with a positive frame of mind and the desire to keep learning more?
I can understand that the students find the situation very frustrating and they want to be in an environment where they can interact, socialize, and learn. Education cannot happen in isolation. But I'm also someone who has struggled with online programs and understand the challenges involved and what needs to be done to provide a superior education. I've seen that once you digitize the content, it proves to be more beneficial. You can provide flexibility in learning and create engagement and online communities for learning. Though today it is not an ideal situation, that doesn't mean learning can't happen in the new environment of virtual education. Students and faculty should focus on learning and not let anything that's happening right now prevent young minds from pursuing their aspirations and goals, and achieve what they wish to achieve in their lives.

Considering India's education system, how successful do you think would be the culture of virtual classes, and what measures India should take to help its students in these COVID times?
There is a concept in India that virtual classes are in some sense an inferior means of providing education. I somehow disagree with that. If you do it right, online education can provide superior learning by utilizing modern pedagogical techniques such as active learning and adaptive learning. In a classroom, a student cannot rewind a professor. But once the content is digitized and packaged into modules, students can consume content in different ways based on their learning needs.
When preparing a lecture for a regular class, typically the professor thinks about what he's going to teach. However, when designing an online class with pedagogical experts, the focus turns to learning. The design begins by asking what will the student learn and how will this learning be assessed and the approaches that can be used in achieving the learning outcomes. So with the shift in focus, the entire teaching-learning process becomes more learner-oriented.

What role did BITS play in helping you achieve the milestones in your life?
I was a student with a GPA of 5.5, which is considered terrible. I was distracted. I had no idea what I wanted to do or where I wanted to be. Some people are fortunate enough to have a clear sense of what they wish to pursue in their life. I found my way by not accepting something that I did not like. After completing my education at BITS, I started working with my father in his business and somehow didn't enjoy it. At that time, I remembered how much I liked the computer programming class. So I decided to go for higher education and scored well in my GRE, which helped me get admission despite my poor GPA.

Biting the NEP 2020 Bullet

Sound Vision, But Implementation to Decide the Fate

***Madhukar Banuri** (Pilani, '07) the founder CEO of 'Leadership For Equity' who is working to change the public education system at the fundamental level. He shares his insight about the NEP 2020 that has been aligned with the 2030 Agenda for Sustainable Development.*

The Indian government collated the data from 2.5 lakh village level stakeholders to two national parliamentary level committees, over more than 50 months of consultations and workshops. What remains unknown is the extent to which the policy has incorporated the recommendations.

Helping us understand the NEP 2020 for school education is Madhukar Banuri, Founder and CEO, Leadership for Equity. Madhukar is an education sector practitioner who is constantly engaged in disseminating quality education at scale. We provide you with a summarised version of his detailed analysis of NEP (the full version can be read here https://idronline.org/nep-2020-hits-and-misses/

- According to the NEP 2020, every child aging 3 to 18 years will have the Right to Education, the previous age bracket of Right to Education being 3 to 14 years. However, what has not been cleared is whether every *anganwadi* or pre-primary learning center will have a professional and a worker *(sevika)*.
- The NEP 2020 aims to achieve 100% Gross Enrolment Ratio across all levels by 2030 and to make this possible, children will be tracked through a technology-based platform. In addition, Public-private partnership school models are encouraged to reduce the number of dropouts. To address the dropout concern, teachers, counsellors will be deployed to counsel the students up to class 12. But the basis on which such professionals will be appointed has not been cleared.
- The local languages will be the medium of instruction up to class 5, which would help in promoting the bi-lingual education model of learning. The recommended 5+3+3+4 system would focus on the learning at an important juncture. This would minimize the content by targeting core learning competencies. Subjects like coding and computational thinking would be introduced at middle school level and the students will be able to choose subjects in secondary school. The unintended consequence of these points could confuse the teachers as to how to orchestrate the process of teaching-learning in the classroom.
- The NEP 2020 not only impact the students and their studies but also the teachers. The policy has proposed a minimum requirement for the teachers to undergo a four-year B.Ed undergraduate program by 2030, which is currently a two-year degree D.El.Ed/B.Ed degree.
- Excessive transfers of the teachers would be put to a halt and teachers would be promoted on merit and not on seniority or teaching level. For the continuous professional development of the teachers and school principals, teacher training courses would become mandatory every year with at least 50 hours of CPD. In order to improve the support for special education a strong commitment needs to be in place. Though the policy talks about the step-up course for the current special educators, it is not enough unless the number of special educators is increased in ratio with the students.
- Trying to give equal and inclusive education to all, the government has constituted a 'Gender Inclusion Fund' which will support the female and the transgender students by developing sufficient infrastructure for safety and targeted boarding. SEZs and KVs will be set up in aspirational districts for improving the quantity and quality of learning. What the policy missed out here is the deteriorating educational outcomes of religious minorities, especially Muslims. The issue of female safety and sexual abuse has not been mentioned at the boarding schools level or Gender Inclusion Fund.
- Even the school complexes would be changed under the NEP 2020. Small schools with low enrolment will be reorganised into a School Complex Structure which will connect 10-15 such schools. This will ensure better usage of teaching-learning resources, better governance and accountability, especially in rural/tribal India.
- Development, performance and accountability will be three key pillars of supporting officers and teachers in the system. This will promote greater alignment and clarity in the job roles, periodic performance measurement structures and times feedback mechanisms.
- To bring in transparency and accountability across the schools through State Schools Standards Authority has been envisaged which incorporates learning related indicators and student feedback into school ratings.
- However, multiple monitoring and overseeing frameworks by different institutions might lead to over-bureaucratization and redundancy in the regulation of the education system

All in all, the NEP 2020 policy definitely makes clear the government vision to usher in some landmark changes to the education sector. As with any other policy, a lot will depend on transparent and swift implementation.

Will Changes Become The Norm?

No one is spared by the current pandemic, but for some sectors, there was a need to reboot and come online very soon. Education, as we knew it, has changed forever with online delivery of instruction. Research is no different, and Academics are also trying to wrap their heads around continuity in operations. We spoke to two young BITSian academics as to how they have been bracing with the challenge.

***Vaishnavi-Ananthanarayanan** (Goa, '04) is an Assistant Professor in the Centre for BioSystems Science and Engineering at the Indian Institute of Science (IISc), Bangalore.*

***Shareq Mohd Nazir** (Goa, '05) is an Assistant Professor in Chemical Engineering at KTH Royal Institute of Technology, Stockholm, Sweden.*

Given the current challenges faced by universities and the switch to digital platforms, what according to you would be the future of academia?

Vaishnavi: Teaching has become online because that is what the current times demand. In terms of research, the number of people coming to labs has been restricted. This will go on till normalcy returns. So there are a few changes now which will be mitigated in the future. However, in the long run, online classes will likely prove to be a more inclusive mode of instruction due to its larger reach and accessibility. On the other hand, alternatives to bench research are difficult to implement since wet-lab experiments cannot be carried out remotely.

Shareq: Giving lectures in the class made me feel connected to the students. I could ask questions to them anytime. However, with the switch to virtual classes, that connection is lost. We'll have to live with it because the current times demand it to be like this. Surprisingly, the students are happy with online mode of education. They receive pre-recorded lectures, and we follow it up with a discussion on the topics presented.

How your research methods have been affected by the COVID-19 pandemic?

Vaishnavi: We are having online meetings of course, but rather than discussing the results of our experiments, we have been focussing on having conversations, and hands-on training on research-related activities like writing a manuscript, data analysis *etc*. However, our research methodology cannot be modified since we rely on high-end microscopes for our experiments. We are trying to make up for the slowdown in our research by concentrating on skill-building on these research-related activities which will come in handy in the future.

Shareq: I work mainly with modelling and simulations and for me, I don't see a big difference. There are some challenges concerning meetings and discussions. However, people involved in conducting experiments might be affected more doing research.

Do you think technology will reshape pedagogy and carry forward research pursuits in the times of social distancing?

Vaishnavi: A majority of the educational institutions in India and elsewhere in the world have already switched to online mode of teaching, which is something we will have to continue with until the end of the year at least. Whether online teaching is as effective as in-person teaching is the real question. Without having the direct feedback from students, it can get challenging. Additionally, the process of assessing comprehension, which has typically involved test-taking in the in-person mode, will have to be re-evaluated for the online mode.

Shareq: Organizations need to step up their infrastructure. In the last 8 months, I have just been using Zoom for teaching, discussions, and giving remote access to the students to certain software which has been working well with them and me as well.

How should a student today chart his or her way into entering the research field?

Vaishnavi: Students could explore the courses available online: if there is a particular field of research you are interested in, train yourself in that area. Having said that, these are challenging times, so, be kind to yourself. Your mental and physical health are of utmost importance. Work on what is best for you, even if this means doing nothing.

Shareq: During bachelors, the decision to pursue research or work in the industry is very difficult. It takes time for the students to understand their area of interest. During bachelors, all one can do is understand the fundamentals and participate in projects. It helps to a great extent.

Keeping PACE with Mitesh

*Newly minted Google India CTO, **Mitesh** (Pilani, '99) has served as the Vice-President and CTO at Oracle India. He talks to us about his unique recruitment approach, "PACE", and how his time at BITS helped him develop this approach.*

Finding great people is a top concern for companies today. We usually see many companies proclaim - "We hire only the best". In true BITSian style, I coined an acronym and the expansion of the acronym evolves with every learning opportunity.

P - Passion, Purpose, People, Profit, Personal, Potential

I think every single individual is a leader, and they display it by bringing their passion to the job. I look for their potential and not their current ability. Every BITS event has seen BITSian toiling through night-outs and engaging in laccha sessions' well past midnight over a plate of ANC's Paneer Maggie. Organizing and managing events bring out the best of every BITSian.

A - Attitude, Approach, Ambiguity, Agility, Awesomeness

A great manager once told me, 10 times out of 10, he'd pick someone with a great attitude over someone who is more skilled and experienced with a poor attitude. And his reasoning was 'What you know, can change, but it's hard to change who you are'.

C - Customer, Collaboration, Credibility, Clarity, Communication

All organizations proclaim being "customer-centric". This happens because of the collective efforts of every employee/stakeholder. It is simply impossible to become a great leader without being a great communicator and not a great talker. At BITS, we were clear about making time table. Various platforms like DOPY, Backstage, ELAS, EDC, HDC, PTM, etc allowed opportunities for collaboration and working side-by-side to make sure everything goes fine, and in turn, made us great communicators.

E - Empathy, Enthusiasm, Elevate, Engage, Eleven

A great leader once said - The difference between confidence and arrogance is empathy. I look actively at this aspect while hiring and also in my existing team. Also, the old BITSian adage NED—No Enthu Da/Di—is again something that I recall every day. While on the campus, we always had enthu for a late-night laccha. We always engaged in friendly banter at our bhawans. BITS taught me this great lesson to never bring NED to work or when I speak to a colleague.

Making a Career in Technology

__Abhinav Gaur__ (Pilani, '16) is a freelance tech consultant who has worked as a software developer at BookMyShow. Armed with a Civil Engineering and a M.Sc degree in Chemistry, he opens about his journey of pursuing a career and being a freelancer .

A lot of students at BITS from non-CS branches have growing interests in the tech field. How do you think they can go about pursuing a career in this field?

To develop my knowledge and skills, I started with the Fundamentals of Computer Programming, as it's the most important aspect. You must read about coding practices. In addition, you can start solving problems on any competitive programming website using any language (C, C++, or Java). To really hone your programming skills, you'll have to make time for it at least 4-5 days a week. Participating in competitions like TopCoder SRMs, Codeforces contests is helpful too. If you can, start working on a real project that would give you a chance to develop a software from scratch. This would be a good kick start to your journey towards a career in tech.

Do you think being an ACM (Association for Computer Machinery) member on the campus helped you discover your passion for software development?

ACM helped a lot as I got the opportunity to interact with like-minded individuals who are passionate about Computer Science, Software Development, or Coding. The kind of knowledge that comes on the table, through clubs, is abounding.

As a freelancer, what challenges do you see in a post-COVID world?

Firms are already downsizing the workforce for reducing human cost. As the companies are cutting on full-time opportunities, many people have become self-employed. Many firms are also using a mix of full-time and contracted employees to fulfil their requirements. So the chances for the freelance market to become competitive have increased.

Alumni Success Story

Learnings from Failures

Pivoting to Passion at 54

***Utkarsh Rai** (Pilani, '88) is a Leadership Coach and Consultant. He is the former head for Infinera India and China, a leading global provider of disruptive optical networking systems, headquartered in the US. He is the author of multiple popular management books and runs YouTube channel "Professional growth stories and talks". He is a proud recipient of the Udyog Rattan award, as well as a committed fitness freak. He learnt acting recently and debuted in Bollywood film "Batla House". He is constantly learning, and travels the globe to learn more about culture and world history. Utkarsh has written – "Faster Smarter Higher: Managing Your Career", "101 Myths and Realities @ the office", "The Fitness Currency: at any stage at any age", "Offshoring Secrets".*

After you left BITS Pilani, could you briefly trace your journey?

After earning my Computer Science and Mathematics degree from BITS Pilani, I worked at Siemens. Later I shifted to Adaptec in the USA. During the boom of the late nineties, I came back to India and joined Motorola in Bengaluru. Gaining experience, I joined a small start-up Infinera which went public and grew manifold. I was the Vice President, Software, and the Head of India and China. My desire to share experiences made me write some books which were appreciated by the readers. However, at the peak of my career in 2018, I quit. Today, I am an internationally certified coach, motivational speaker, author, and an actor.

What inspired you to take up writing? What would you call the biggest obstacle on that path and how did you overcome it?

My mother who is a Hindi litterateur inspired me to write my experiences. Having certain critiques around is necessary for balanced growth. After writing my first chapter of the first book, my friend did not appreciate it much which was demotivating. However, I improved my content and writing style. Writing a book is easier than getting a publisher to publish it. However, after my first book was published in the USA, Jaico, Penguin, and Rupa Publications have published my books. After publishing four books, I would say that grit, patience, and self-belief helps in the process of writing a book.

Venturing into something new ("right-brained") after over 30 years of experience in something "left-brained", as you put it, what's your experience with acting?

In one of my books and YouTube videos, I have shared how lifespan triggers the change in the mindset about career and life. I applied this in my life when I felt the desire to try Bollywood and cricket. Unable to venture into cricket, I decided to give Bollywood a shot. I joined an acting school in Mumbai and gave various auditions in Mumbai and was called by a casting agency to work in John Abraham's film, 'Batla House'. When the dates arrived, I was shown my vanity van, costume, and given the script. After seeing the set, I realized that my dream materialized. I was able to manage the long working hours on the set because I was physically fit. My debut movie was released last year and got rave reviews.

What keeps you motivated/how do you stay motivated?

Touching the lives of thousands of people keeps me motivated. For that, I have to keep gaining knowledge. Every journey is full of setbacks, and winning those setbacks gives a kickstart. I have self-disrupted myself in various ways but these self-disruptions were better than boredom. These helped me enrich life with diverse lessons.

Facets of Leadership

Becoming a Leader

***Sandeep Girotra** (Pilani, '86) is the Sr. VP of Strategic Sales Transformation for Nokia, a Board Member on the Board of GCX, and an Executive Coach. With an eye for opportunities coming out technology, business model, financial, Sandeep likes building teams that are fearless and punch above their weight.*

Could you briefly trace your journey ?

I started as a sales executive in a test equipment company after graduation in Dec 1986. The economic liberalization of 1991, opened never before seen opportunities for early-career professionals like me. However, to make this opportunity work for me (to move into the growing Telecom Sector). I did not have the right credentials. To build the credentials, I decided to move from the top MNC from to a small (ish) telecom equipment company. From there, I moved to Nokia in 1996, where I currently am Sr. Vice President. I started as a product specialist, to sales roles to heading India and then APJ. I also am a Board member of GCX.

The biggest obstacles you faced and how you were able to get past them?

I have to say I have not faced many obstacles. My graduating with a Five pint something CGPA, or that I got my first performance rating which was one level above dismissal could be seen as obstacles or development opportunities. I was fortunate that I received candid even if painful feedback. Instead of being defensive, I let the feedback sink in. This process added resourcefulness, creativity, and helped me amplify my latent strengths. I learned the value of fair and unbiased feedback that I offer to my teams.

How do you handle underperforming teams ?

The key for the leader is to create an environment where people work in teams and function above their potential. As a leader, I believe that nobody wants to fail. Wrong attitude, not taking action, not fully using resources at hand not making the change is the main reason for failure. I give my teams honest, simple, actionable feedback, which is not 'what they are not doing well', but 'what and how they could do better'.

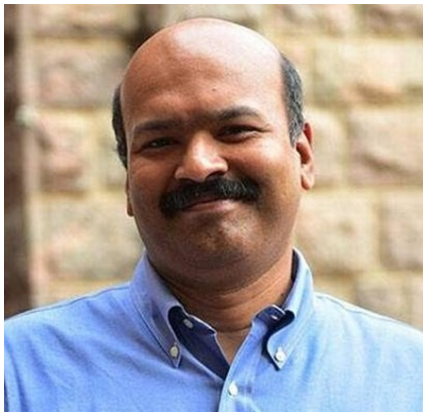
How to overcome self doubts?

Doubts creep up and that is normal but being persistent was the key for me. The best person to push yourself is you. I always sought opinions, advice from my friends, colleagues, superiors, team members. They were always forthcoming. I processed the advice to help me push during these times.

Alumni Success Story

Grit, Guts, Glory

Eyeing the Top Prize



S. Nagarajan (Pilani, '00) is in the Indian Administration Services, Government of Tamil Nadu. His journey is an inspiring tale for everyone, including those eyeing Civil Services Exam. Determination and strong will is what kept him going – Here's a snippet of our conversation with the All India Rank #1 holder in UPSC 2004.

We all feel proud of your achievements – talk to us about your journey. How did your family and loved ones react to your amazing feat?

It is a long process of 18 months comprising of three stages of examination and interview. I started as early as I finished the college, and my family was right beside me. However, in my first attempt I wasn't able to get a rank. This was a big setback for me. In addition, every time the result was out, I had to write the next preliminary exams within the next 3-4 days.

One attempt after the other, things were getting better. Meanwhile, I had joined Indian Railways through Civil Services, which helped me improve my rank. The entire community around shares the happiness when one clears such a prestigious exam.

For example, the staff of a bank – not known to us in anyway - located 50 km away, came all the way to congratulate my parents. Such events compensate for all the stress caused by the setbacks. This is also the response of the public for any good work done within the service.

You were fourth time lucky in your attempts at UPSC – What kept you going and motivated? How will you summarize your learning in the whole process?

I took some time to understand the pattern of the exams and strategies. The civil services exams expected high-level of proficiency in two different subjects of one's choice (optional) apart from general studies. I had an instrumental view of these options and did not mind changing them with every attempt based on my understanding of being successful, given my background and the changing exam pattern.

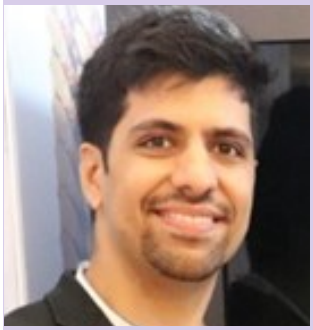
As I went through the examination process my motivation to clear the IAS only strengthened seeing the good work being done by service peers. One must realize that the exam tests one's grit to the maximum, making him/her realize that the exam is more like a marathon than a sprint. I never thought that I could persevere for the period and that aspect of my personality was brought forth during the preparation for the exam.

What would be your advice for current BITSian's who are preparing for UPSC?

My advice to the BITSians is to start early and build your strength in the subjects. The Internet is a great source for preparation. Some social media groups of BITSians are preparing for the exam and these can help in enriching each other. It's good to share and prepare together in this marathon.

As I mentioned, clearing the exam might take a long time. It is alright to feel anxious because of the low success rate. For BITSians, despite a gap of a few years, the job market remains the same although may be with a reboot in a different career. If one decides to exit the exam preparation, even then the 'worst-case scenario' isn't bad.

3D Printing: The Next Big Thing in Low-Cost Manufacturing



*In the world of Software and Technology, **Mohit** (Pilani, '15), kept his promise to the core engineering - his interest in building machinery made him opt for Mechanical Engineering. He has converted his interest to passion by starting up a venture in 3D printing. Let's dive into the world of 3D printing with Mohit.*

How did 3-D Printing pique your interest?

I was introduced to 3D printing in a seminar that I attended in New Delhi. The desire to pursue my career in it arose when I helped set up a 3D printing lab on the campus. During my final year thesis, I learnt a lot more about the technology and arenas where I could add value. That is when Anish (my batchmate) and I, decided to incorporate our venture. Fast forward to today, we are a team of 18 people, with 2 offices in Mumbai and with sales in over 19 cities in India, Germany, China and Nepal. We are now aiming towards expanding into the European market.

Is 3D printing a difficult business to setup?

Like any other startup, one has to start with an idea and figure out the target market, revenue, and the finances. I built my first 3D printer by assembling a kit and began making small prototypes. In the beginning, we conducted workshops at BITS and other colleges to generate some revenue. However, it wasn't something we aspired for in the long run. In 2017, we invested in the line of jewellery, and pivoted ever since.

How do you see 3D printing progressing in the future?

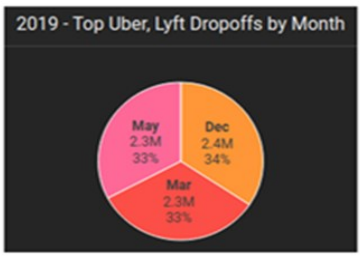
I would say that 3D printing is getting more accessible and accepted as a manufacturing process because the production using 2D Printing can be scaled up faster than any other methods. This would mean we will see digitization/inventory in the coming years. The machines and the materials have become cheaper, faster and more reliable. Technological know-how of when and where to use 3D Printing needs to be addressed. During the current pandemic, one can see that 3D printing has risen to the forefront because it requires minimal human labor and zero tooling. Hence, products can be brought to market faster compared to conventional methods.

While human labor has its value it also has its own challenges. Moreover, switching to 3D Printing and Automation would only improve people's roles in the value chain. This is exactly what we saw with the jewellery industry where the karigars ended up becoming digital sculptors.

5 Continents, 35 Countries 100 Cities & Counting

Life of Amit :-Around the world in 80 Datasets!

***Amit** (Pilani, '99) is the Director of AI/ML/DS at Inseego, and his current mission is to advance 5G applications of AI, Data Science, and Edge Computing. Looking back, he feels Life is a non-linear journey, whatever the next destination is, one must make the most of it by acquiring transferable skills.*



Goa Medical College or BITS Pilani was the first major decision I had to make - I'm glad that I chose BITS, as an education here provides you real-world survival skills. I did my Masters in Computer Science with a focus on Artificial Intelligence from the University of Michigan, but as fate would have had it, I started my career in Medical Devices. As I progressed in my career, it was time to choose again – doing an MBA from ivy league (Kellogg / Wharton) or sticking to my job at Hewlett Packard. Once again, I chose good and got early opportunities to apply data science and AI before moving to an exciting intersection of 5G-AI-ML-Data Science at Inseego.

My other passion – travel – took me places. 100 cities in 35 countries across 5 continents to be precise. This became an inspiration for the concept of "Around the world in 80 datasets", my technology blog, which is a way to analyse local datasets using breakthrough in GPU acceleration, real-time data science, visualizations and edge computing.

Here's a sample on what you can find on my blog:

- What's the busiest month at NYC Airports in 2019? December. Using massive 45 dataset of Uber and Lyft, I ran queries using Python, GPU and GPU-accelerated database, and prepared dashboard to show my analysis.
- How do you monitor security, safety, and structural stability of Burj Khalifa? On-premise GPUs that generate real time visualization.

You get the drift. For more such interesting analysis, you can visit to my linkedin profile where I post the links to the blog posts of this ongoing series (***https://www.linkedin.com/in/amitmarathe1/***)

10 BITSians in USPC-19 Top 315

Rank	Name	Batch	Campus
58	C jayasharadha	2008-2012	Pilani
66	Saurav pandey	2009-2013	Pilani
79	Divya shakti	2011-2016	Pilani
172	Mayank mishra	2012-2016	Pilani
193	Samir ahmad	2012-2016	Goa
198	G chandeesh	2011-2015	Pilani
199	Krishan lalchandani	2010-2014	Pilani
250	C Chaitanya kumar reddy	2006-2010	Goa
302	Ashutosh k r pandey	2012-2016	Pilani
314	A venkateshwar reddy	2011-2016	Goa

10 BITSians have managed to clear the UPSC 2019 (Union Public Service Commission) examinations, securing ranks within AIR 315.

Expressing deep happiness, Prof. Arya Kumar, Dean, Alumni Relations, congratulated the BITSians for their success and said, "these results reflect the glory that merits BITSian pride. These achievers have proved that with sheer determination and passion, one can create their own future. I am confident that these youth icons will selflessly serve society and the humanity at large, contributing to a greater cause and purpose."

Journey from Corporate World to Astrology

*After graduating from BITS, **Ananth Hariharan** (Pilani, '75) pursued his MBA in the UK. Later he had a successful career in Engineering and Management in India and abroad, but he decided to follow his passion and become a full-time astrologer.*

I hail from a family of astrologers which meant that I had the opportunity to learn and practice astrology in Parasar, Jaimini, and also Prasna Marg (Horary Astrology). It was my passion since childhood and the first prediction that I was destined to study engineering materialized.

Exposure to students coming from varied backgrounds and cultures made me feel like a fish out of water. Eventually I adapted to the regime and the campus life. This experience enriched me with confidence to face the real world and accept challenges.

Continuous learning and researching into the unknown areas, facing subtle competition, positive pressure to perform, only made me mentally tough to face the realities of the 'career road'.

Practicing in the final school semester was innovative and gave me the glimpses of what real life at work is like. Towards the end, I left the campus as a confident engineer ready to take on the challenges head-on.

As an amateur, I gave predictions to many before I decided to pursue astrology full-fledged in 2015.

My core competence is 'Research' inculcated by BITS. I credit the BITS way of education 100% in this regard.

Research being my core competence has resulted in predictive tools in the individuals' Varga charts, medical astrology, financial astrology etc. This has led to successful predictions in eclectic fields, high and mighty of the society and even global clients in a consistent and sustained fashion for decades. I credit my alma mater for providing me a liberal and conducive atmosphere where I could hone my skills.

When a 'Nobody' Became 'Somebody' Great!

***Pradeep Kashyap** (Pilani, '69 | DAA Recipient) is the CEO and Founder, MART. He shares his journey of becoming the pioneer of rural marketing in India. He also shares some life lessons which helped him become successful.*

I was a young and a naïve boy who had stepped into a world where people from diverse backgrounds, cultures came together only to go out with a completely changed personality. Though, I could not achieve any awards as a student, the Distinguish Alumnus Award received is one of the most prized possessions to me.

By the time I left campus, I developed a sense of respect for each and every one, which only helped me later when I decided to shift to rural marketing.

For the first 20 years, I worked with the top MNCs but because of the spiritual emptiness that I felt often, I quit my corporate job, and all the perquisites that came with it. Though it seemed like a big decision at that time, but it was a calculated risk that we were taught in the institute.

Five years after quitting, I started MART with the aim of 'sharing and caring'. I hardly knew anything about the sector. So, I educated myself and kept learning it all. I learnt the spirit of not giving up at the campus which later gave me the recognition as the 'Father of Rural India'.

In the 50 years as a professional, there are various lessons about life and career that I've learnt, and I wish to share the same with you.

I had resigned in 1988 to start my own trading business in which I failed miserably. After launching MART, I realized that when you work for yourself, you only work alone but when you work for others, the world works behind you.

MART only emerged as the industry leader because of the passion to work for a great purpose. Having retired, now when I look back, I pat myself on the back for grabbing the opportunity I took without having any second thoughts.

With MART, I learnt that the aim of the firm should be serving the customer. Moreover, customers only become loyal when the company takes good care of them. You see, cooperation and not exploitation leads to sustained profits.

On the road of my career, I also learnt that each one of us is unique so there's absolutely no reason to imitate someone else. Why would God create duplicates? Each of us is special; the only challenging part is finding the quality which makes us standout.

Analyzing and understanding information become knowledge. But, we only get wise by living and experiencing. The best way to gain knowledge is approaching any situation and person with a seeking spirit. Always remember, 'cooperation and not competition' is the ultimate success mantra. BITS shaped me in ways I didn't even realize. Now that I know, I would like to express gratitude to my alma mater for a significant contribution to my successful life.

Beacons of inspiration

The Radiant story of a Shining BITSian

Art & Colour Blindness

*Colour blindness and art - sounds oxymoronic? Dispelling such notion is **Aditya Chawla** (Pilani, '17), who is amongst the few colour blind artists in the world. We got chatting about his foray into art and how he defied the norm.*

From playing with numbers to now playing with colours, how did the shift happen? How did your family react?

I started painting in January 2018 along with some friends at BITS, which then continued for several weekends. Soon, my room became an art studio, and painting was all I did after coming back from office. Painting became a monastic practice - something you can't not do once you've begun. When I mentioned painting to my family, they were amused. For a while, they thought of it as my hobby. But, when they saw that my art was being accepted by prestigious galleries for exhibition, they started supporting it.

When did you know – this is it! This is what I wish to do from now on.

The transition to becoming an artist was an iterative process. I went for a surfing trip in 2019, and I made sure that I carried my paints and canvas alongside. It was on that trip that I discovered my style and language of expression. Soon after, The Bombay Art Society exhibited my artwork where for my art, I got an overwhelming response by art curators, interior designers, and other professionals. This success motivated me, raising a ray of hope that I could make a place for myself in the field of art.

Did colour blindness come in the way of your expression? How did you overcome it.

"What you call a handicap can instead be your greatest weapon you are yet to wield." I could genuinely embrace colour blindness only after I started painting. Ironically, my style is completely based on a vibrant colour composition. With some research and hard work, one can perceive and recognize most colour tones within the brain. So, I usually resort to colour theory and CMYK scales for colour reference.

How can one view or buy your art?

All of my latest work can be viewed at my website. Please drop in a message to me personally, if you're interested in buying my artwork. I'd be happy to help you with the details.

A Note from Nawaz and Krishna's Playbook

***Mohammed Nawaz** (Dubai, '19) and **Tarun Krishna** (Dubai, '19) founded Trift. It is a 'conscious travel' platform with trip itineraries, guides and stories curated by travellers along with local businesses. We spoke to them about their journey.*

Did you always dream about being an entrepreneur? What led you to start Trift?

Being an entrepreneur was something that we chose for ourselves. I wanted to discover unique hidden niches and places frequented by travel influencers. Basic idea was to create a platform to share trip ideas from them, but things changed over time. It has been an amazing learning experience every step of the way. We had no knowledge about the basics. A major change was when our perception towards the problems changed.

Were you ever tempted towards making a career in the corporate sector?

We experienced corporate sector as interns. So there's never been a strong temptation because we've grown to love a frugal way of spending.

What is the next big milestone for Trift?

Our aim is to grow online presence in the next year and approach a few tests before launching hidden niche experiences.

What advice would you like to give to budding entrepreneurs at BITS?

We would suggest the young entrepreneurs to "Fail Fast". As a student you don't have to worry about taking care of family or earnings, so taking risks and learning from them is the key. It might not be the time to have a successful journey but the lessons learnt are used later in life. Grab as many opportunities as you can and eventually start prioritizing your focus and reducing the number of activities you're involved in. The environment and the students are the key drivers of entrepreneurship at BITS. Though the institute supports you, it all comes down to individual choices and efforts.

Beacons of inspiration

Hey VoiceQube!

Let's Take Everyone to a New Reality

__Vishnu Saran__ (Hyderabad, '16) started his career as an entrepreneur immediately after graduating. His vision of learning from mistakes and failures as a young entrepreneur, and bringing those lessons to life has brought him up to the position he's currently at.

What was your inspiration behind VoiceQube?

Augmented Reality, Virtual Reality, and Mixed Reality sectors are the sectors that are not complete without a voice. We wanted to be experts in this particular domain because it's very challenging. It's very new and is going to shape the world that we will live in the future.

Before VoiceQube, you'd been working with Alexa apps and a couple of other start-ups as well. What led to this transition?

Ever since I've left BITS, I've been an entrepreneur. We started a company, made all possible mistakes, and learned a lot in the process. I explored new opportunities and the problems that I could solve. During that time, I met an investor from the US, who wanted to start something in the voice space. We built applications that could run on various platforms. Building a team from scratch in a different domain was challenging. Working with Amazon was a mix of creative and technology processing. But, it slowly became Alexa centric and that was not how I saw the industry growing. So, we parted ways and I started my own company, VoiceQube.

As the founder of the company, what were the major challenges you faced? What was the hardest decision you've ever made so far?

You shouldn't try to seek every opportunity too quickly. There are many opportunities and a lot of problems to solve. The most difficult part is recognizing the passion and working towards it. This made me refuse various lucrative opportunities. Such situations one will encounter very often in entrepreneurship. So in other words, I'd say the hardest decision is always one cookie now or maybe two cookies later.

What skill sets do you look for while hiring new people into the company? What does a fresher learn in the initial few months of working at VoiceQube?

Unlearning is the first thing that people learn when they join VoiceQube, and it is our primary focus. It's very important for people to know that whatever they've learned so far, can be wrong the next day. So, when major events happen, one should be able to unlearn all the things they've already learned. To tackle such situations, one needs to be very bottom oriented..

What advice would you give to aspiring entrepreneurs at BITS?

BITSians who aspire to be entrepreneurs have a huge safety net in the form of talent, connections, and a supportive alumni network. BITSians are definitely in a much better position compared to non-BITSians in this regard. I would suggest all aspiring entrepreneurs connect with alumni who are already entrepreneurs. They'll definitely guide you much better. At the same time, you need to learn to be okay with uncertainty. There will be times when you'd have to make difficult decisions for yourself but don't let that deter you from leveraging your network or discourage you. Take all the criticism positively, learn from your mistakes, and never lose your self-confidence.

Engineering and Finance

A Successful Alliance

Engineers in Finance – well, that's ubiquitous now. __Yashoraj__ (Goa,'17), CTO of CASHe, talks about his journey into the world of Finance.

What do you think about role of finance electives for building a career in finance?

Finance electives offered in BITS give a good foundation and provide for effective building blocks to pursue an entry-level job in quantitative finance, and also for pursuing higher studies in this domain. I took all the three courses which helped me enhance my interest in finance, learn about quantitative methods and more importantly, set a good base for my MFE at Berkeley. These courses give one a general perspective of the field and provide some value-added skills, over and above your core discipline.

You attended UC Berkley after your degree at BITS. How did you follow through your dreams of a finance career?

Immediately after BITS, I started working as a data scientist in the financial services domain. My work, being the consumer-lending domain, involved analyzing behavioral data, so as to predict future financial behavior of individuals. I developed a keen interest in the statistical and quantitative tools used for this purpose, and to this end, I started my stint as a Visiting Researcher in Behavioural Quantitative Finance at UC Berkeley. This only motivated me to pursue more academic training in the domain of quantitative finance, and fortunately, I was accepted into the MFE program at Berkeley, one of the best courses in this domain. At Berkeley, learning from the legends of the field and studying amongst some of the sharpest minds I have seen, it was an awakening and immersive experience for sure. .

Why do Engineers succeed in financial careers?

I believe that as an engineer, regardless of your core discipline, you fundamentally develop an inherent skill to be able to tackle problems in innovative, systematic, and pragmatic ways. The process teaches you the skill to critically and analytically break-down the task or problem at hand, and then build up the solution from there. Finance, particularly quantitative finance, is essentially about using mathematical tools to achieve a specific objective – whether it is managing risk, achieving certain returns, managing portfolios effectively *etc*. An engineer, definitely the kinds you'd see coming out of BITS, would be implicitly good at such kind of structured problem solving, paving the way for future success.

Locating My Passion

Aditi's Journey to Finding and Following Her Passion

***Aditi Sinha** (Pilani, '18) is the Co-founder of Locale.ai (Locale's website: locale.ai). She talks to us about following her passion and her inspirational startup journey.*

Landed at BITS in 2014 with one purpose: figuring out what I wanted to do in life. Preparing for entrance exams had taught me that if I am not enjoying the process, even following my passion won't matter. I chose not to take a dual degree, and decided to purse Economics & Finance - my friends thought it was a mistake. Deep down, I knew I made the right decision as I wanted to experiment, learn, and grow.

I used my time well and I joined a number of clubs, did internships in start-ups & policy think tanks, and undertook research work. My varied experiences helped me realize my passion, acquire crucial skills, and prepared me for the real world.

The inflexion point in my startup journey was a rejection - I couldn't make it to McKinsey, and I ended up ditching the entire placement process altogether. Instead, I joined a data intelligence start-up where I met Rishabh, and we collaborated to set up Locale. And rest as they say, is history.

Rishabh and I started Locale.ai in March 2019, and raised our pre-seed round. We would soon be going public with our products, which is in development with our partners.

Start-up is a roller coaster ride, full of wins and disasters. At times, both happening on the same day. Here are some of my challenges and learnings, I am sure some will resonate with them and other may find it interesting:

Let your work speak for yourself: You may not be taken seriously because of a plethora of reasons. However, you can negate all that by working in the best way you can.

Finding investors and mentors: Fundraising is an entirely different chapter. But if you are passionate about solving the problem and know your market well, you'll meet people who'll be ready to invest in you and mentor you along the way.

Finding opportunities in every possible situation: Taking up entrepreneurship means things will go wrong all the time and the constant challenge is finding opportunities, no matter how bleak the situation might seem. It also teaches you how to manage your own psychology well.

Get Shit Done: The most important skill needed for running a start-up is "getting things done", in other words, finding creative solutions to problems without much resources. Nothing prepares you better as working for an early-stage start-up to get first-hand experience.

BITSians Forever: Being from BITS works in your favour in many ways. The community is close-knit and always ready to help. You just need to ask!

Time on campus is the best time to experiment because there risks are few and low. What matter is your experiences, as they teach you how to be frugal and develop leadership skills. Get up and do things. There are so many problems all around you. Try solving some of them. Optimize learning and don't be afraid to take the road less travelled

BITSians for Each Other

The Case of Visit Health

***Vaibhav Singh** (Pilani, '16), Co-founder, Visit Health talks about his BITSian journey, his venture, and the role of BITSians in making his vision a reality.*

Growing up in a large family, you learn to put others before yourself at a young age. My journey as an entrepreneur began the day I realized that serving others was the only way I could do justice to my family values.

At BITS, my zeal to help others only strengthened - my friends and I launched BITS Compre – a repository of exam. notes and lectures, to help my batchmates prepare better. Later, as a Gen. Sec. of the Student Union, my understanding of Pilani's real problems – lack of access to quality healthcare – became evident.

My internship at Biocon, curriculum flexibility, and support from well-wishers led to redefining the way healthcare is delivered in India. Along with 3 other college friends, Anurag, Shashvat and Chetan, we co-founded Visit Health from Delhi. Through the venture, we were trying to solve the two major problems in healthcare - affordability and accessibility.

Showing faith in our abilities was Alagu Periyannan, Co-founder of Blue Jeans. Alagu was our first mentor and also an investor. Our first seed investment was from Rakesh Verma, MD of MapmyIndia. No wonder they say, BITSians got your back!

In 2 years, we on-boarded clients such as IBM, Wipro, Rolls Royce, and raised our next round from angels including Twitter Co-founder Biz Stone, Snapdeal founders Kunal Bahl & Rohit Bansal, and of course, Alagu. What started as a simple video call with psychologists, today stands as a full-stack health benefits platform that guides a user at every point in the journey of any patient's healthcare.

Our recent recognition in Forbes 30 under 30, Asia has only strengthened our resolve to work towards providing access to better and affordable healthcare for all.

I sincerely believe that we would not have made it this far if it was not the BITS badge on our shoulders, and our ever supportive alumni network. I feel honoured to be a part of the BITSian family, and I shall always strive towards making my alma mater proud.

My Entrepreneurial Journey Started at BITS

Snehith Budime *(Hyderabad, '12) co-founded IndiaBuys, which assists e-commerce using phygital (physical-digital) stores. He describes his life in college, his entrepreneurial journey and spells out what it takes to create a start-up that makes a difference.*

When did you know you wanted to explore the field of entrepreneurship?
I never wanted to go into the core sector. My first exposure to entrepreneurship was the New Venture Creation course that I took in my second year. It was a great start and taught me a lot. After that, I just fell into it as I was passionate about it. Through my internships, I interacted with a lot of people outside the campus who worked in startups and companies. In my fourth year, we launched a hyperlocal Diwali store. That was my first success and then I understood what it felt like to do something for users.

How did you come up with the idea for IndiaBuys?
One's passion takes him down the right path. After graduation, I started exploring and working on ideas. IndiaBuys set up a series of rural digital experience stores for an audience that was new to the internet. We worked with companies like Amazon to make their products more accessible to a rural audience. We involved micro-entrepreneurs, who would run these stores, and also offered additional utilities like the ease in financial transactions in these stores.

How important is it to pick the right team for a startup in the long run?
Picking the right team is of utmost importance for any startup. Teams should stick together through all ups and downs. The skills of all team members should be supplementary. When there's something in it for all the team members, and it is clear as to why everyone wants to work on the startup, everything else falls into place.

Do you have any advice for the students currently studying at BITS Pilani?
Find something you are passionate about. Spending time doing new things will give you a good idea of what your passion is. Explore everything- join clubs, do internships, and connect with as many people as possible. As soon as you find your passion, start delving deeper, learn more about it, and begin to execute projects or ideas in that field.

And You Thought Delivery by Drones is Cool?
Let's Show You Polybee!

Founded by ***Siddharth Jadhav*** *(Goa, '16) and his team, Polybee is on a mission for facilitating global food security through automation. In this write-up, Siddharth shares how he's using technology in the agricultural sector to meet the increasing demand of food.*

Technology brings efficiencies in a lot of industries today and agriculture is no different. Ever increasing population is making demand for food move north. The global industry so far, has struggled to meet this demand with output through conventional techniques. Polybee aims to help farmers increase their output using drones effectively. One factor which governs the growth and development of crops, fruits, and vegetables is pollination. As much as 30% of the global agricultural production depends on it. Crops grown indoors, however, lack such pollination agents. like wind, bees, and other insects. Crops grown indoors, however, lack such pollination agents. In such cases, pollination is done by hand, making the operations ineffective and expensive. A $ 50 Bn industry depends on pollination by hands. Polybee uses drones that are small, economic, and fully autonomous. Human intervention is reduced with the help of cameras, and the software which visualizes data and predict yields. This results in low production costs, and increased production efficiency.

Over the last year, Polybee has successfully raised a pre-seed investment from the National University of Singapore's (NUS) Graduate Research Innovation Programme (GRIP), and was named one of the "Deep Tech Pioneers!" It was also selected among more than 5,000 start-ups from 128 different countries at a Global Summit in Paris, France. With the advancements in technology, I My team and I, aim to reshape the agricultural industry by providing innovative solutions through modern ideas, in much effective and cheaper ways.

Change Starts With You But It Does Not Start Until You Do

Anji *(Goa, '10) is the founder of Evibe. Let's take a look at how Evibe is partying its way to success*

I got married in 2014 and was disappointed when I was unable to find the service providers who could help me plan the biggest day of my life. It was then that I along with my wife took the challenge and found Evibe.in.

Our aim is to provide hassle free way to plan and celebrate events. At Evibe, we plan end-to-end party events and the consumers can find decorators, artists, entertainers, home bakers, caterers, offbeat venues like farmhouses, villas and other such services on our platform. It is a one-stop-shop for booking events, services with standardized pricing, transparent service information, real customer reviews and photos of the events conducted.

Initially we started with two cities, but now offer services in 6 cities. I am the mind, body and soul behind Evibe, and also the founding member of a community T-Hub, where entrepreneurs learn from each other. Before starting Evibe, I was the second employee of KNOLSKAPE and also the leader of the technology team. My main role there was to design and develop world-class products, which are currently being used by the top B-schools all across the world.

Bhukkad is my Name, Makkhan is my Prem!

Reshmi Mukherjee *(Dubai, '12) and* ***Parth Kapur*** *(Dubai, '12) are the Co-Founders of The Bhukkad Café, which was started in 2018. The Bhukkad Cafe is now in its first stage of global franchising with a plethora of exciting opportunities for investors. they spoke to us about their journey:*

Tell us about Bhukkad Café. What's unique about it?

The Bhukkad Cafe is a dream we had when we were young. Having food as our passion and the desire to be entrepreneurs, The Bhukkad Café had to happen. The menus, décor and the food has that Indian touch.

Tell us about your time at BITS? And what is the most cherished memory from the campus?

I was a straight-A kind of student and one of the two girls in Mechanical Engineering. Although I did not study all the time, I put a lot of pressure on myself to score well to avail the scholarships. All the lectures attended and bunked, nights at the hostel, every event make up of fond memories. I had an amazing time during Jashn (Dubai campus festival) when along with my friends, I would put up a food stall.

Any advice that you would like to give to your juniors?

Engineering doesn't just teach you about fluid mechanics and aerodynamics, it also teaches you to be tough. determined, grit, and the never giving up attitude was taught to me and helped me to be an entrepreneur. Studying the elective course of Economics helped too. I'd say that you must identify what you want to do in life and what you're good at, as early as you can. Make mistakes, because in the long run, they're not mistakes, but experiments.

Of Entrepreneurship & Product Management

Abhiram Muddu *(Hyderabad, '12) is currently working as a Product Manager at OS33 in Brooklyn, New York. Abhiram shares his experiences and his key take ways from his career.*

How would you draw your experience being a BITS Hyderabad alumnus to who you are today?

I can trace a lot of what I do now back to something I started doing at BITS. I got the chance to manage teams at DOPY and this experience eased me into leading teams later. My early exposure to photography and graphic designing helped me develop a keen eye for good product design, which I constantly leverage right now. Dealing with and working with rejections is probably the best quality I learnt at BITS. The ability to navigate such kind of challenges has helped me the most in my career so far.

You co-founded MAUKA, an online platform that helps graduate students explore internships and jobs in India. Could you enlighten our readers about your journey in the realm of entrepreneurship?

The seed for MAUKA was our Practice School program, which we were pretty impressed with. It made us think about how we could help college students get such opportunities. What started as an internship portal became a startup that scaled to numerous colleges and helped thousands of students explore a field of work, they were passionate about. A few months later, we discovered the gaps in college recruiting processes, and while trying to solve this problem, we 'graduated' into the world of entrepreneurship.

What are your key takeaways and learnings from your career in Product Management?

Most of what I learned as a Product Manager came from working in scenarios, where I had to deal with a lot of constraints and was forced to hunt for creative solutions to complex problems.

The first takeaway is to always 'Ask why', something product managers often deal with. I believe everyone should start with this question before working on something. It helps prioritize the activities which create the maximum impact.

Disconfirming one's beliefs and learning to pivot is the second takeaway. The resistance to questioning our beliefs drives us to do things that are futile or counterproductive. It is imperative to disconfirm our beliefs, question our assumptions, and learn to pivot when we realize that there are better ways to do things or better things to do

Could you recall some of the most valuable advice you received from your mentors?

I've had multiple opportunities to learn from the people around me. A few of them were directly shared with me, while I picked up other learnings by observing people. My professor at Cornell shared 'Learn to plan but more importantly plan to learn', which is the most memorable advice I've received to date.

From that day, I've always made it a point to capture insights after every task I perform, measure the outcomes, and iterate based on them.

Reminiscences

The Pilani Experience

Ram Kaul *and* ***Khirod Pattnaik*** *(Pilani, '76) write to you on behalf of our batch of '71. Where to begin and what to write was the difficulty they faced when they sat to pen their experience about Pilani campus.*

It was the first time most of us had gone out of our state to reach an Oasis in the middle of a sandy desert, after a long journey of about 12 to 48 hours. We all were to call that Oasis home for the next 5 years. In the end, we were no longer intimidated by the unknown that lay ahead for we knew how to chart the path that will take us to the end. Indeed, that is what has stood most of us in good stead over the last four and a half decades. For most, it was the first time that we stayed in a hostel, except for boys from BPS. The first few days were tough adjusting to the new environment, the new food and most importantly being away from our families. Despite no cell phones, no connectivity and few letters, in a few short weeks, we had made all the adjustments and had found a new family.

Some came to love and hate the heat and cold in Pilani. All learnt to take the periodic dust storms in their stride. The all-too-often trips to Connaught and Nutan markets were memorable even though a lot of the time we went with empty pockets! Many always looked around when we were in Connaught, and for sure there we had our family members to ensure we got our tea, idli or dosa, or sometimes, even paneer pakoda of Volga, especially when we had a girl from Meera Bhawan. I particularly was majorly into sports–tennis, water polo, boxing, table tennis. I never missed an opportunity on this front even at the cost of makeup tests. We did have bad habits of "UCHALOING" the fairer friends and never missed the "Boley ke bhai bum boley" and many times we still do it.

We cannot forget the time of elections, and other major happenings that led to certain changes, including representation of two students for the first time as members of the Senate. The friends we made have lasted forever.

We came together in 1971 and went our separate ways after completing our respective programmes in 1975/1976. It's amazing that when we meet now, each and every one has just one status, BITSians. We still live that life—same feelings, same language, abusive but so friendly - almost on a daily basis. Long Live the BITSian Spirit!

MOVE FORWARD WITH A SEEKING & LEARNING MIND

Currently an Independent Consultant and Mentor ***Vandana Malaiya*** *(Pilani, '84) helps organizations to become future-ready through adoption of democratic management practices. She strives for advancement of women at the workplace. She shares her life's journey and experiences with us.*

I came to BITS Pilani 40 years back. It was a transforming experience and gave exposure to varied cultures and people. Other than quality education, BITS embedded me with self-belief, independence, equality, leadership, and entrepreneurship. I started my career in R&D with embedded systems and later switched to software. Working together with the sharpest minds and passionate people for almost a decade, left me with a wealth of knowledge and a phenomenal network.

With the introduction of ISO 9001 and CMM in India, I decided to switch my professional career in the field of quality by educating myself all over again and remember reading 40+ books on the subject. Marriage, motherhood and the family challenges happened along the way that moved our destiny to Bangalore.

A few years later, I started a company EximSoft Technologies along with my colleagues. Being an entrepreneur was the most exciting part of my career that extended my job profile from learning skills such as fund raising, operations, sales and marketing, to setting up infrastructure and offices in different countries. Work-life balance preferences made me switch to a corporate, where I led various large accounts and major transformations. Post retirement, I am working with an NGO for education of underprivileged girls, where I help them with operations and fund raising, alongside mentoring startups and women leaders and consulting.

"SARASWATI TEMPLE STILL TAKES MY BREATH AWAY"

Rajesh Sengamendu (Pilani, '91), author of the book 'Happiness beyond Mind' and currently AVP, Cisco Client Team at Altran, writes about his time at BITS as he reminisces his college days and his most memorable place on campus.

The cool white marble at the Saraswati temple evokes fond memories of Rajesh's days in BITS Pilani. He hopes some of his words echo with you and make you feel nostalgia that has never left him.

Hailing from a small South Indian village, I had seen temples with deities made of black stone, and was surprised and impressed with the beauty of the marble temple on the campus. Inside a fortress, separating the dunes of Pilani was an Oasis. Within the Oasis, was the temple, radiating peace and energizing everyone who went there.

As a fresher, I was impressed with the intricate and diverse sculptures around the temple. Blending spirituality with science, the carvings inspired me. I never stopped admiring the foresight of the Birlas and the brilliance of the architect who manifested their vision on the campus.

In my naiveté, instead of studying, I went to the temple before a compre. exam. to pray to the goddess of learning to beseech her help. I usually returned to the hostel, energized, inspired, and tried to mug up with a night out, the remaining 90% of the syllabus for the 8 AM test.

The occasional gentle late evening summer breeze, chirping of the birds returning to their nests, the loitering peacocks, the bustle of the hostels, well-maintained lawns, the buzz of fellow students going by, always seeded in me a longing to visit the place where I made friends, who are like an extended family.

The solace of the temple, the cool embrace of the marble were an antithesis to the bare, simple, purposeful institute buildings. While sitting on the steps of the temple, time just flew by, we engrossed in watching the beauty of the evening. The stark contrast of the majestic clock tower reminded me of the passing time when sooner or later, we'd be out of the OASIS, pursuing our passion and finding ourselves. After 29 years, I still feel the marble floor on my bare feet when I think of Pilani and the beautiful idol of the sole deity, Saraswati, blessing us with the gift of education.

BITS: Culture and Clubs

Notes from Srujana's 2013-17 Diary

A picture is worth a thousand words, but memories are priceless - even more so when they are shared. ***Srujana Rao*** *(Hyderabad, '17), our former Cultural Secretary walks you along her best memories on campus. She is currently pursuing her Ph.D. in Material Sciences at Carnegie Mellon University.*

I'd given my BITSAT at the Hyderabad campus and, when I first walked in, I was impressed by the beauty of the campus. My dream materialized once I got in. We didn't have the facilities that the students enjoy these days, but coming back in 2017 for the inaugural graduation at the auditorium was when nostalgia hit hard.

The routine that I miss the most is waking-up each other on Sunday mornings. Others weren't morning people like me, but the promise of bread and masala dosa did the job. We would sit outside, eat, get chai, have Parle-G biscuits, greet those we knew, and just talk about everything under the sky. Oh ! How amazing those lazy weekends were !

Talking of lazy weekends and I don't mention my friends just can't happen. The many shenanigans we indulged in make for fond memories. The life-altering moments didn't happen on big days, it was on regular days that made moments big and unforgettable. Moments like venting out to the roommate after a long day- having those constant people is something that I am grateful for. As the Cultural Secretary, I had the opportunity to be on the other side of the table, and I was also able to find a new respect for the Student Union. It was a challenge to implement all that was wanted and also taking into account the voices of everyone. Helping organize BITSMUN, and other Pearl events forced me to step up. The lessons I've taken from there are still relevant today. It challenged my work ethics and the way I look at friendships.

One memory that still stands out is my first dramatics night. We held it in F105: an English play about a Russian spy who seduces an Englishman for the treasure buried underneath his home. My role as a Russian spy marked the start of my career. Those are the memories I look back on because we had a lot of fun, the scripts were wonderful. Though we had a few props, it was a satisfying experience and sparked my love for dramatics.

Alumni Events

July – September, 2020

PILANI

- On the occasion of BITSian Day celebration, Student Alumni Relations Cell (SARC) of Pilani Campus organized an exclusive talk with Manu Sawhney (Pilani, '88), the CEO of ICC, and present Independent Director of Manchester United on August 09, 2020. His insightful talk on sports industry was truly a perspicacious session for BITSian's across the globe.
- Student Alumni Relations Cell, Pilani Campus also organized an online interactive event, #AskMeAnything with Anu Menon (Director of Shakuntala Devi) on August 07, 2020. She reminisced about her days at the campus and talked about the obstacles which came her way, and the way she gathered courage to overcome all those obstacles to win.
- An interactive session on '100 DAYS TO CAT' was organized with Riya Midha, Pranshu Agarwal and Anushka Pathak as the panelists. They addressed questions on various topics and stressed on practicing numerous test papers, assessing one's pitfalls, and building a positive mindset while preparing for the test.

GOA

- The graduating batch came together for the first time for first of its kind Director's E-Party organized by the Student Alumni Relations Cell of K. K. Birla Goa Campus on July 17, 2020. The students reminisced about their time on the campus.
- An interactive online event 'BITS2CIVILSERVICES' was conducted on September 08, 2020 with Saurav Pandey (EEE, Pilani, '13) and Malavika G Nair (Chemical Engineer, Goa '16) as the panelists. During the session, Saurav and Malavika shared tips on preparing for the coveted exam., handling the stress, while emphasizing the importance of reading the newspapers.
- Another online event 'BIT2DEFENCE' was conducted on the occasion of Independence Day. The speakers of the event were Colonel Rakesh Sharma (Pilani, '75), Major Parveen Vimal (Pilani, '88) and Air Vice-Marshal Rakesh Chopra (Pilani, '69).

HYDERABAD

- On August 08, 2020, the students from the graduating batch logged into their systems to reconnect with their batchmates on the occasion of 'Graduands E-Farewell' organized by Student Alumni Relations Cell of Hyderabad Campus.

DUBAI

- Diro's Online Party for the graduating class of 2020 was conducted and the event started with a speech from Prof. R. N. Saha Director, BITS Pilani, Dubai Campus. He wished the students good luck with their future. During the event, many students reflected upon their times at the campus.
- On the occasion of BITSian Day, BITSian Start-up Ecosystem was held on August 07, 2020 with Ms. Sandhya Prakash - founder of Beacon Energy Solutions & Technology and the first woman Chairperson of BITSAA, Mr. Nawaz and Mr. Tarun - Founders of Trift and Mr. Varun, Account Director LinkedIn, as panellists. The panelists talked about the new normal, challenges regarding start-ups and points to be kept in mind while entering the market.
- The SARC organized an interactive session '5G Meets Virtual Relaity' with Nikhil Nair (Dubai, '06), Consumer Business Leader- MEA HTC Dubai.
- A discussion on on 'Advances in Robotics: Where and How can you fit in?' was conducted with Mr. Anshul Singhal (Dubai, '10-14), CEO, Founder Sentient Labs FZ- LLC with the students.
- An exclusive e-seminar with Abimanyu Gopalka (Dubai, '05-09), Marketing and Communications Manager, Injazat, Taizoon Khorakiwala (Pilani, '77), CEO Switz Group, Me and Parth Kapur and Reshmi Mukherjee, (Dubai, '12), Restaurateurs Bhukkad Café, was conducted. The panelists discussed how BITS helped them reach new milestones in their career.

Giving Back

July – September, 2020

We would like to express our sincere thanks and gratitude to all the alumni who have made individual or collective contributions.

1) Alumni couple, Prashanth and Anuradha Palakurthi have transferred $ 250 K as the second installment (out of at least US 1 million dollars pledge), towards promoting research in the area of Artificial Intelligence under Anuradha and Prashanth Palakurthi Centre for Artificial Intelligence Research (APPCAIR).
2) Through extensive efforts of BITSAA and the support of generous alumni across the globe, an amount of Rs 37 lakhs was collected, including the donations received by BITSAA for providing financial support to the daily-wage earners across campuses and scholarships under MCN category to first -degree needy students. This was done as a part of BITSAA 'COVID-19 Daily Wagers Support Initia-

BITS Pilani DAA-2020 Winners

BITS Pilani announced the Distinguished Alumnus Award (DAA) 2020 on July 18, 2020 to twelve of its eminent alumni who have made extraordinary and outstanding contributions in their domains. BITS Pilani bestows these awards annually to recognize excellence and meaningful contribution globally by its alumni in the areas of Academia & Research, Corporate Leadership, and Entrepreneurship, Public Life & Philanthropy. The winners were selected by a selection panel chaired by Shri Deepak S. Parekh, Chairman HDFC Ltd., with members that included Mr. Harish Bhat, Brand Custodian, Tata Sons, Mr. Matthew Cherian, Former CEO HelpAge India, Mr. D. Bhattacharyya, Vice Chairman, Hindalco, ABG, Prof. Souvik Bhattacharyya, Vice Chancellor, BITS Pilani and Prof. Arya Kumar, Dean – Alumni Relations, BITS Pilani.

Special Thanks To

Prof. Souvik Bhattacharyya
Vice Chancellor

Prof. Sudhirkumar Barai
Director, Pilani Campus

Prof. Raghurama G
Director, K K Birla Goa Campus

Prof. G. Sundar
Director, Hyderabad Campus

Prof. R. N. Saha
Director, Dubai Campus

Prof. Arya Kumar
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MESSAGE FROM Editorial Team

Dear Alumni !

Warm Greetings from BITS Pilani!

We are happy to share the October edition of BITS Echo with you. Though the challenging times due to COVID-19 continue affecting human life, it has not deterred the BITSians from doing what they do best. As always, last month our graduating students joined yet another batch of alumni as our ambassadors to the world. We wish all of them a great and successful life ahead.

The first-ever online semester, which has started from August 17, 2020, received an overwhelming response from both students and teachers alike. All the faculty members are trying to provide the best possible educational experience that BITS Pilani is known for decades.

In this edition, we bring you the stories of hope, and also the exceptional contributions that our alumni have made to teaching and research. This edition features our DAAs (Distinguished Alumnus Award) and Non-DAAs who are trailblazers in academia. This edition takes you through many more such inspirational and mesmerizing stories. And we have been able to recount only a few of them who have shaped the field of education around the world. It is probably owing to such achievers that BITS has always been recognized as one of the premier institutions.

The generous contributions received from our alumni, corporate entities, and other friends of the Institute help in making an important difference in our endeavor to pursue global excellence. We invite you to contribute to the Institute's betterment to the best of your ability.

Hoping that things will bounce back to a brighter future in the forthcoming days, Cheers!

EDITORIAL TEAM

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