AMITY UNIVERSITY MUMBAI

BRAINWAVE

VOLUME I | ISSUE I

OCTOBER 2021

"CREATIVITY. INNOVATION. CHANGE."

Featured Content

Dr Shrikant Charhate
Professor- Civil Engineering,
Director- ASET and AIT,
Officiating Dean Academics-
Amity University Mumbai

FROM THE DIRECTOR'S DESK

"Education is not the learning of facts, but the training of the mind to think."

With the strong belief that this statement is true, we at ASET, Amity University Maharashtra, Mumbai, strive to endeavour, with every ounce of our strength, to spark the flame of curiosity in our students. Our main goal has always been to guide the youth to not just understand what has already been proven, but to go the extra mile by trying to discover the applications of the knowledge of the past to create the technology of the future. With this in our hearts and souls, we set out on our journey of education, bringing about creativity, innovation and change that fills our hearts with pride.

To express young minds through innovative ideas, technical know-how and facts, an excellent initiative is taken by our faculty and students to launch the first edition of Newsletter 'Brainwave'.

I express my best wishes to all in contributing and in shaping up of this concept. I conclude with a message to everyone –

"Never stop learning, because life never stops teaching."

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- **Ms. Shruthi BK**
- **Ms. Apeksha Gopale**

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- **Ronak Jain**
- **Vishwa Chandroliya**

BRAINWAVE

AMITY UNIVERSITY MUMBAI

Volume I | Issue I

The Big Picture

Prof. Jeevan Rao

Advisory Board Member for International Conference on Advanced Manufacturing Systems and Thermal Systems (ICAMSTS)-2021.

First Indian to register 10 Intellectual Property Rights in just 24 Hours

Prof. Ameya More

"Innovation Ambassador" and also member of Institution's Innovation Council, Amity University Maharashtra

Presented the "Autonomous Pipe Inspection Robot" - Elsevier SSRN

Dr Sushree Sangita Mishra

Recipient of the "Women Researcher Award" in the International awards on Engineering, Science and Medicine

Offered Honorary Rosalind Membership by the"London Journal Press"

Review Recognition Certificate awarded by Elsevier for her contribution to "International Journal of Disaster Risk Reduction"

Sai Harshavardhan

B.Tech. Comp. Science & Engg.

Google Cloud Facilitator

Winner of Hacktober Fest 2020

Runner Up in Code Innovation Series Hackathon

Vishwa Chandroliya

B.Tech. Aerospace

Outstanding performance as a Design intern during the Virtual Training & Internship Program 2020 at STAR -Space Technology & Aeronautical Rocketry.

Research internship under the Internships and Projects Division (IPD) in Society for Space Education Research and Development (SSERD) and Space Shaala.

Anmol Goyal

B.Tech. Mech.

Hitesh Patil

B.Tech. Mech.

Won innovation incubator award for their startup "Ardu-I-Know"

Ronak Jain

B.Tech. Civil

Along with his group from ASFDT, won first prize in Innovate organized by IIC-AUM for U-Quest on 8th March 2021.

Master Strokes

Your health... in blocks?

Dr Deepa Parasar

What is Blockchain?
Blockchain consists of blocks of transactions that are either approved or disapproved by individual nodes over the network. Unless a particular transaction doesn't receive more than 50% approval from all the nodes present, the transaction cannot proceed.

Now, the person approving or disapproving the node doesn't know what they are choosing. This process is done with the help of some mathematics. After computation of the mathematical problem, if the result is negative, disapproval is sent over the network.
This mathematical equation itself is generated based on all the past transactions done by the particular user and thus, if someone wants to fake a blockchain-based transaction, they would have to hack over 50% of computers on the network and individually manipulate the equation on all of them since there can be different kinds of encryptions in use.

But in healthcare?
Imagine a situation where a person is injured and is immediately taken to the hospital. Before treatment, everyone is asked questions regarding their allergies, active medications, etc. The doctors cannot proceed with any type of treatment unless and until the patient's past medical history is known, especially if the patient has fainted or isn't in a situation to answer the doctor's questions.

Even a conscious patient may not be aware of his/her medical history and may end up giving wrong information to the doctor. In the worst case, the doctor may prescribe the patient some treatment which a patient of that medical history shouldn't be given and the patient may end up losing his/her life.

Having a blockchain network that could be accessed by any doctor at any time to get the entire medical history of the patient would save the time of asking the patient an entire questionnaire before beginning to treat him/her.

Master Strokes

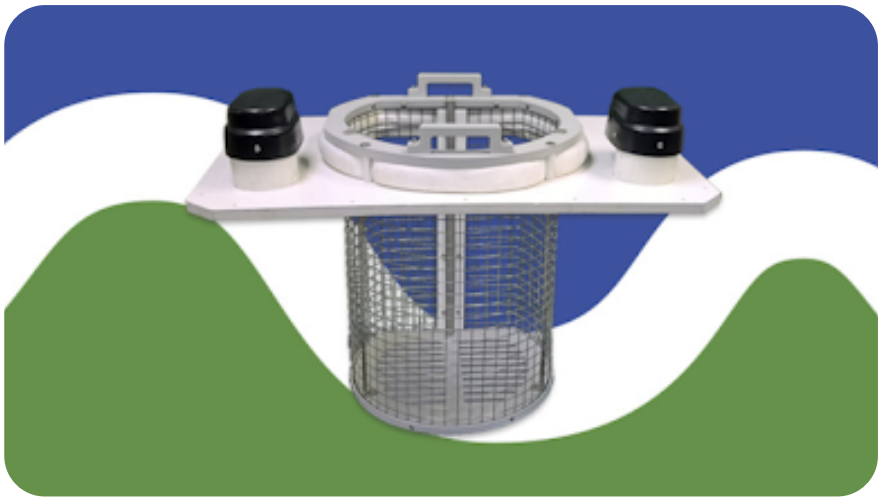
Filtering the storm!

Dr Sushree Sangita Mishra

Urban areas are more susceptible to water logging and subsequent flood conditions because of reduced rate of infiltration arising from construction activities particularly during the monsoon season.

However, if the storm water runoff is conserved and purified, it will be useful to cater to the needs of the huge population in urban areas during the periods of less rainfall or non-monsoon season. Bio-retention basins are one of the best management techniques that use a biogeochemical process within a vegetative eco-system to provide soil moisture retention as well as purification of storm water.

While this structure has been implemented in many countries around the world, it is yet to be implemented in Indian cities with necessary modifications considering the topography, population pressure, hydrological characteristics of a basin, and the soil and water management practices. Dr. S.S. Mishra and her project student Mr. Vishesh Verma had carried out a project work on this concept and proposed a bio retention filter in the Little World Mall, Kharghar, Navi Mumbai. The research work was appreciated in the ICCSI-2021 and also published in the Scopus and Web of science indexed IOP Conference series: Earth and Environmental Science. They have also published a book which includes a detailed design procedure of a bio retention filter in an Indian context and it was published by the Lambert Academic Publishing, Germany.

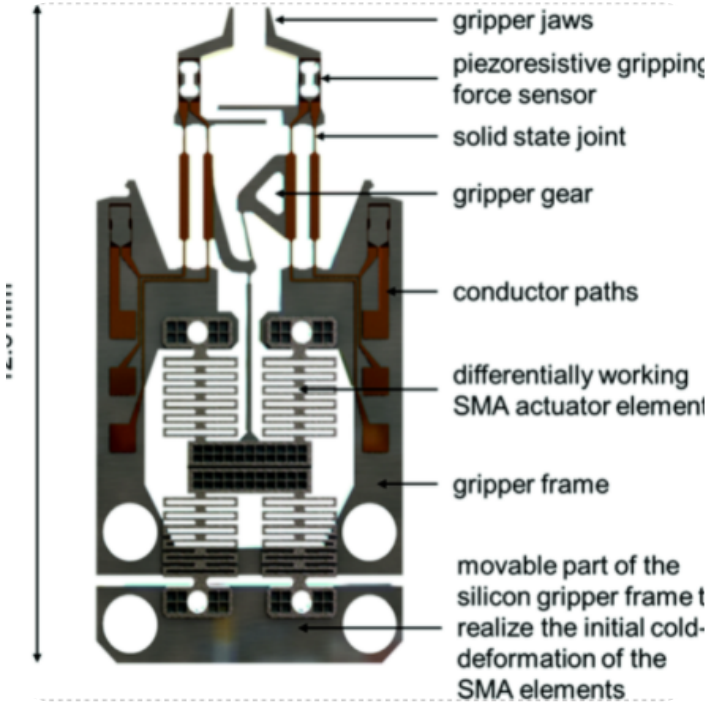


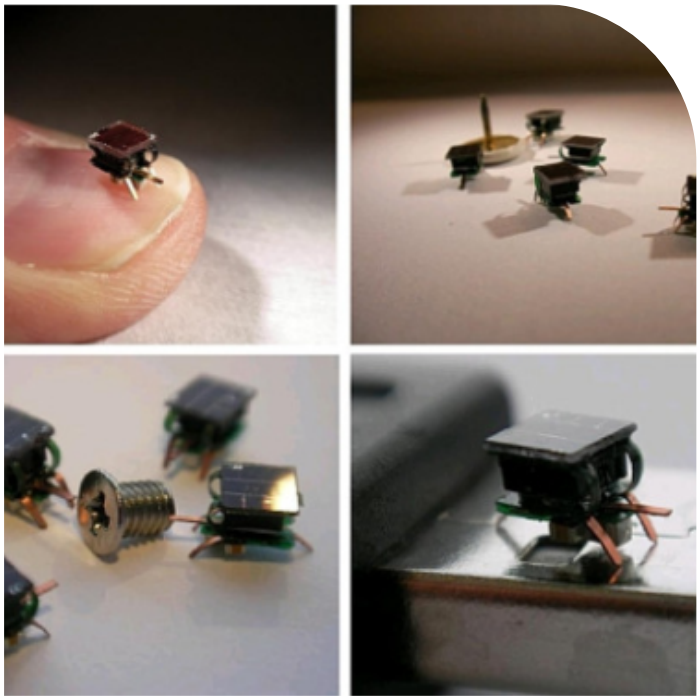
STORM WATER FILTERING AND DEBRIS SYSTEM

Not memes, It's MEMS!

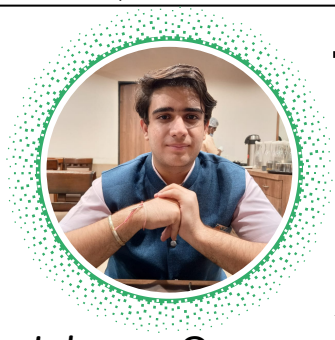
Prathamesh Jagdale

Micro Bots and MEMS (Micro Electro-Mechanical System)
Micro bots/ MEMS are useful where humans cannot reach critical areas of the human body for medical surgeries.
Microbots can either be wired or wireless. Microbots, called xenobots, have also been built using biological tissues instead of metals and electronics. Xenobots avoid some of the technological and environmental complications of traditional microbots as they are self-powered, biodegradable, and biocompatible. A microrobot would have its characteristic dimensions less than 1 millimeter. A millirobot would have dimensions less than a centimeter, a minirobot would have dimensions less than 10 centimeters (4 inches), and a small robot would have dimensions less than 100 centimeters (39 inches).





MEMS (Micro Electro-Mechanical System)
MEMS constitute the technology of microscopic devices, particularly those with moving parts. MEMS can be made with materials like silicon, polymers, metals, and ceramics. MEMS applications are inkjet printers, microphones, pressure sensor etc. Apart from this, MEMS also have importance in the medical field as it serves as a probe or a plunger.



Ishaan Sunita Pandita

Why be Tech-Savvy?

The world looks at engineers as symbols of resourcefulness and versatility - People who can get any kind of work done despite the odds; however, as we all are aware, the job is just as difficult as it seems to be. To make the best use of our potential, we must tap into it in an efficient way in order to come up with immaculate solutions to challenging tasks. That is where our ability to think in unorthodox manners comes into play.

Let's discuss this with an example to justify what we've just read:

Consider a data science aspirant who's trying to create a dashboard for a set of data that's been worked upon. They have been restricted to the use of open-source software as the organisation they are working for intends to cut down expenses on proprietary software like Excel, Tableau or Power BI. If you're a software enthusiast, I believe the first solution you would probably think of, is using an HTML page for the dashboard; however, for this to be a viable solution, the data science aspirant must have a good grasp over front end development apart from their data management skills.

Data + Proprietary Software + Money
=
Data Visualisation

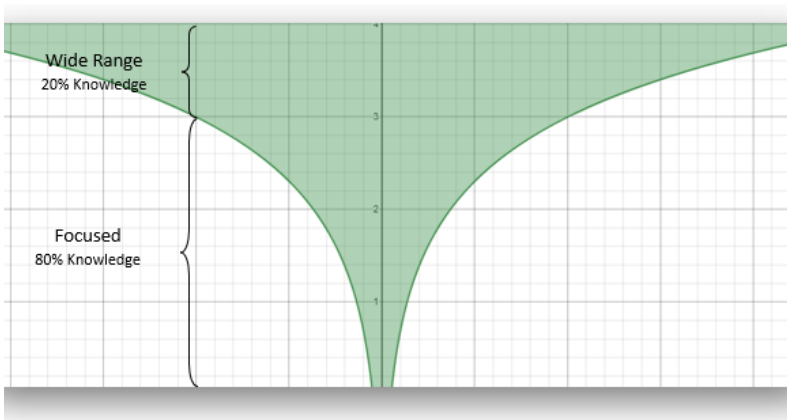
BUT

Data + Open Source + Skills
=
Data Visualisation (Free, yay!)

There occur innumerable instances in life, where we need technical knowledge not directly associated with our field of work but enhancing it in one way or the other when used innovatively. Thus, being tech savvy, that is, having at least a surface level understanding of how the multitude of tech can be used proves to be an essential quality of engineers, especially those working with electronic devices tangibly or intangibly so.

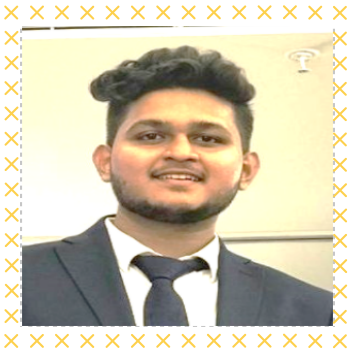
Now that we have discussed why we need to be well versed with the myriad of technologies available to us, we must also know how much of this quality is to be inculcated in us for it to prove itself useful. The answer to this is not as simple as one may think it is. I have, from a wide range of sources, inquired about the same. Surprisingly, the answer seems to be the same everywhere, of course, communicated in different ways. Let's discuss the same with the help of a diagram that I've come up with.

This diagram suggests a ratio which defines the way we must gain knowledge. Observing the graph, we may conclude that we must have 20% surface level knowledge of a wide range of technologies, and the remaining 80% must be dedicated to our field of interest. By doing so, we will have a good hand over our specific technical skills and have a great probability of knowing how to incorporate certain external features if the need arises.



In conclusion, I wish to state that being tech savvy is, in the modern world, almost expected of all engineers, and proves to be beneficial while solving problems; however, we must also be cautious of how we build this skill, by not gaining too broad yet shallow of a perspective, and neither a too deep yet narrow perspective. It is an act of balance and subtle exposure, coupled with consistency and perseverance that brings about the best chances to abide by this approach in life.

Let the experience shimmer!



Vishesh Kumar Verma

BTech Civil

Placed in Board Infinity Group at 7 LPA CTC

GATE 2021 Qualified

Published 2 international journal publications from his final year project

"It all went by in a flash". My time as an undergraduate student in Civil Engineering at Amity was rewarding beyond belief. The education which I received in Civil Engineering Department has empowered me to combine my unique skill set and my strong fundamentals in my field to adapt to a fun and challenging work environment. I received a 25% Scholarship during my undergrad which made my education financially viable.

Apart from this I would like to say a few words about our teachers - "The best teachers will not give you something to drink, they will make you thirsty. They will put you on a path to seek answers". Teachers at Amity work closely with their students, allowing them to understand the strengths and weaknesses of each individual while being very caring and interested in their well-being. The research culture is up to the mark with faculties motivating the students to contribute in various research projects. I personally was able to publish 3 research papers with the help of my faculty coordinator Dr Sushree Sangita Mishra.

I can positively say that Amity has made me a better person. It has helped me develop a positive attitude towards my studies and discover more about myself. Being a proud alumnus of ASET Civil Engineering Department, I would like to thank all the faculty members of my department for their valuable and timely support.

Received grant of 2400 Euros from GIFAS ENAC scholarship committee

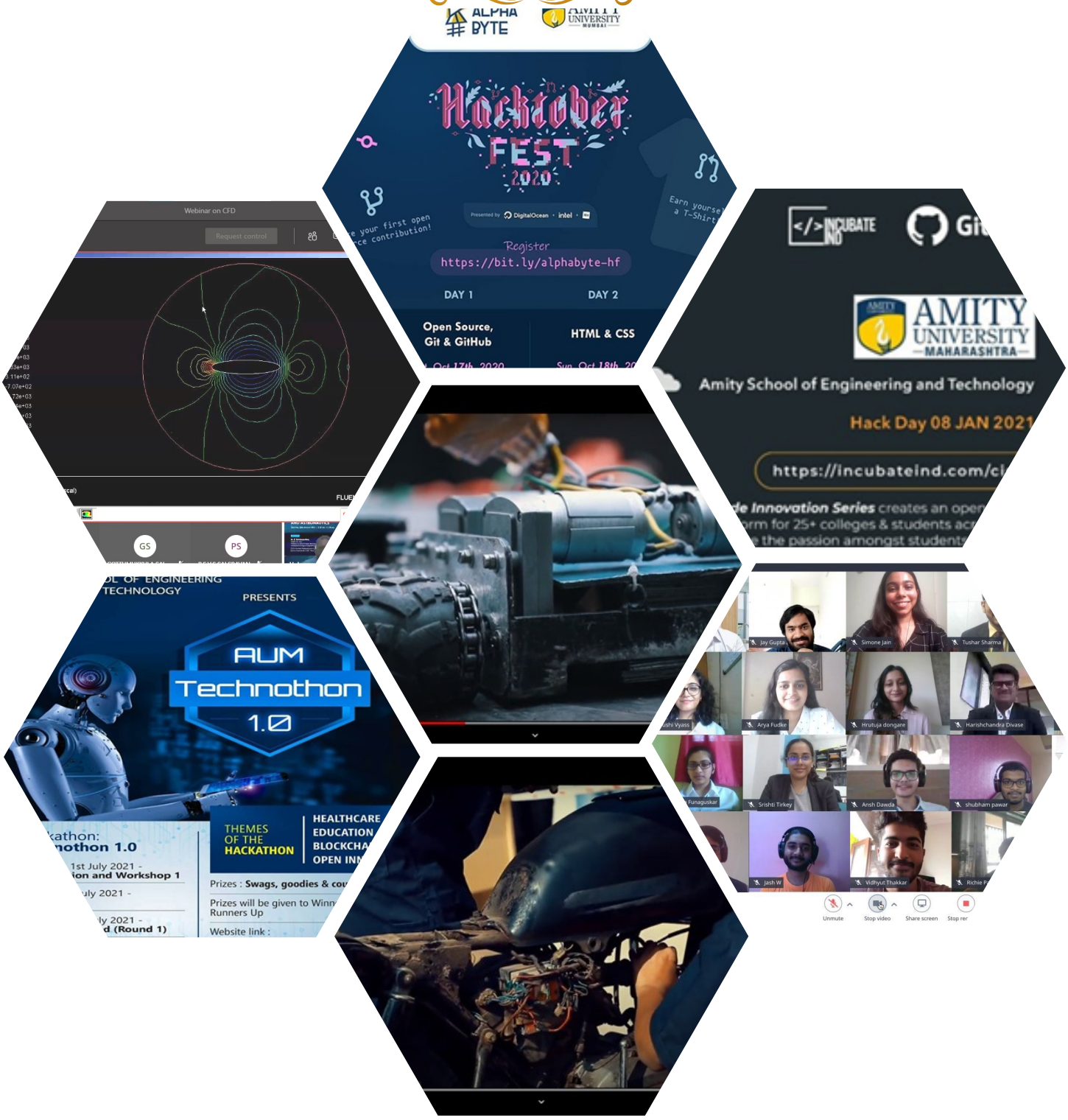
Received Charpak Master BCS (Bourse de Couverture Sociale) Scholarship from Embassy of France in India

Received admission for Master's in International Air Transport Operations Management at Ecole Nationale de l'Aviation Civile (ENAC), Toulouse, France

K Ratan

BTech Aerospace

Worth a Thousand Words...



MOUs

MoU with Centre of Excellence in Maritime & Shipbuilding (CEMS) promoted by Indian Registrar of Shipping, Sagarmala, Ministry of Shipping, Govt of India.

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