

Optical Ethernet

Transducers

GPRS

VLSI

Simputer

Communication

Transistor

IntegratedCs

Holographic

Animatronics

TARANG 2020

CAPTCHA

Crusoe Processor

Heliodisplay

Diode

Nanotechnology

Memristor

Millipede

Voice morphing

Microwave Superconductivity

CONTENTS

- A Word from the HOD
- Editorial Message
- Antman in the Quantum Realm
- Quantum Loop
- Spintronics - Technology of the Future
- Solar Eclipse
- Project Spotlight
- Highlights of the Year



A Word from the HOD



It gives me immense pleasure to see that E&TC department is publishing another issue of the departmental magazine 'Tarang 2020'. TARANG magazine represents the multifaceted aspects of the students and teachers.

Our students made us proud by excelling in academics, sports and cultural activities. I congratulate the faculty members also for research grants, publishing papers in reputed journals and filing patents.

Various guest lectures and industrial visits were also organized to enhance the learning experience. The department successfully conducted the FDP workshop in the emerging area of Machine Learning. In March 2020, Pune city and the country came to a halt under Covid 19. Adjusting to the new normal, teachers and students got on with online classes. Under difficult circumstances Learning continued.

I congratulate the editorial team for their tireless efforts in bringing out this year's issue. I hope the readers will enjoy the articles and content of this edition.

With blessings...

Dr. Prachi Mukherji

HoD, E&TC Dept.

Editorial Message

"Somewhere, something incredible is waiting to be known."

Carl Sagan

This statement is even more relevant in today's times-- while the world is locked down, science is still making progress, albeit in small quantum steps. The Quantum Realm governs developments ranging from communication to computation, all that is valuable to mankind. Many experts are even calling this "the best time to get into quantum computing".

We bring you some of the leaps of the quantum land with this edition of the magazine, "Tarang 2020: The Quantum Realm." It also includes all the highlights of the year. This magazine is our small effort to inspire you all to continue sharing your great work with all of us.

We hope that you enjoy reading this!

Best wishes,

Editorial Team 2020



Tarang Team



Dr. Seema Rajput
Faculty Co-ordinator



Aditee Rathi



Saudamini Patki



Sakshi Dighade



Samruddhi Raut



Priyanka Balani



Lopa Chaudhari



Manasi Mujumdar



Janhavi Sathe

Antman in the Quantum Realm

SIMRAN P. DEORE

The physics governing atoms and its components-- quantum physics, has slowly gone from being an abstruse field to a mainstream topic of discussion. With new leaps in quantum computing, a lot of discussion is happening over the potential of new technologies based of quantum physics phenomenon. Many films have tried to explore this potential in an artistic way whilst trying to make it scientifically accurate.

This feature piece is the take of second year student, Simran regarding the accuracy of portrayal in the movie Antman.



My idea of quantum physics relates to the movie "Antman" from the very famous "Marvel Studios".

As explained in the movie, the quantum realm is "a reality where all concepts of time and space are irrelevant!" In the movie the male protagonist seems to shrink down to smallest of the small and enter a place which is non reality. It shows that now all of time and space is open to him and he can traverse time at his will. Moreover in the movie he was advised about a few things before entering the quantum realm, for example- beware of the "tardigrades"- a certain bacteria, and "the time vortex"- a place where time and space are woven together forming a 4-D fabric. This advice was given to him in order to ensure his safe return to the life-size human world.

As we know, according to quantum physics "a particle can be in multiple states at the same time." Similarly in the movie the grey character could phase through solid objects and often appears as though her body parts are at multiple times all the time. This is how the filmmakers used the concept of quantum physics. Furthermore even the concept of "quantum entanglement " is shown quite well in the movie. The scene where they more or less managed to show it through the moment when something happened to the wasp's mother , it also affected Ant-Man. Even after showing such parameters movie certainly lacks to show some others.

According to a well-known quantum physicist "all physics laws we see in the universe -laws of space and time including gravity and speed of light seem to be quantum mechanical probabilities and they all seem to disappear if we shrink all the way down." But then again, one of the most fascinating questions that arises which we still cannot completely answer is "how does the transition between quantum world and the world we are familiar with take place." It is true that quantum physics only describes very small objects but any large object is actually constructed from atoms and molecules. How is it that combining smaller ones together make the world behave in a different way?

We can simply conclude this in a way that it is more likely that the "large" reality" is an average of all tiny quantum phenomena.

Moreover, despite the numerous uncertainties, according to the studies till date, quantum field theory is most widely accepted and generally accurate theory ever devised in any science!

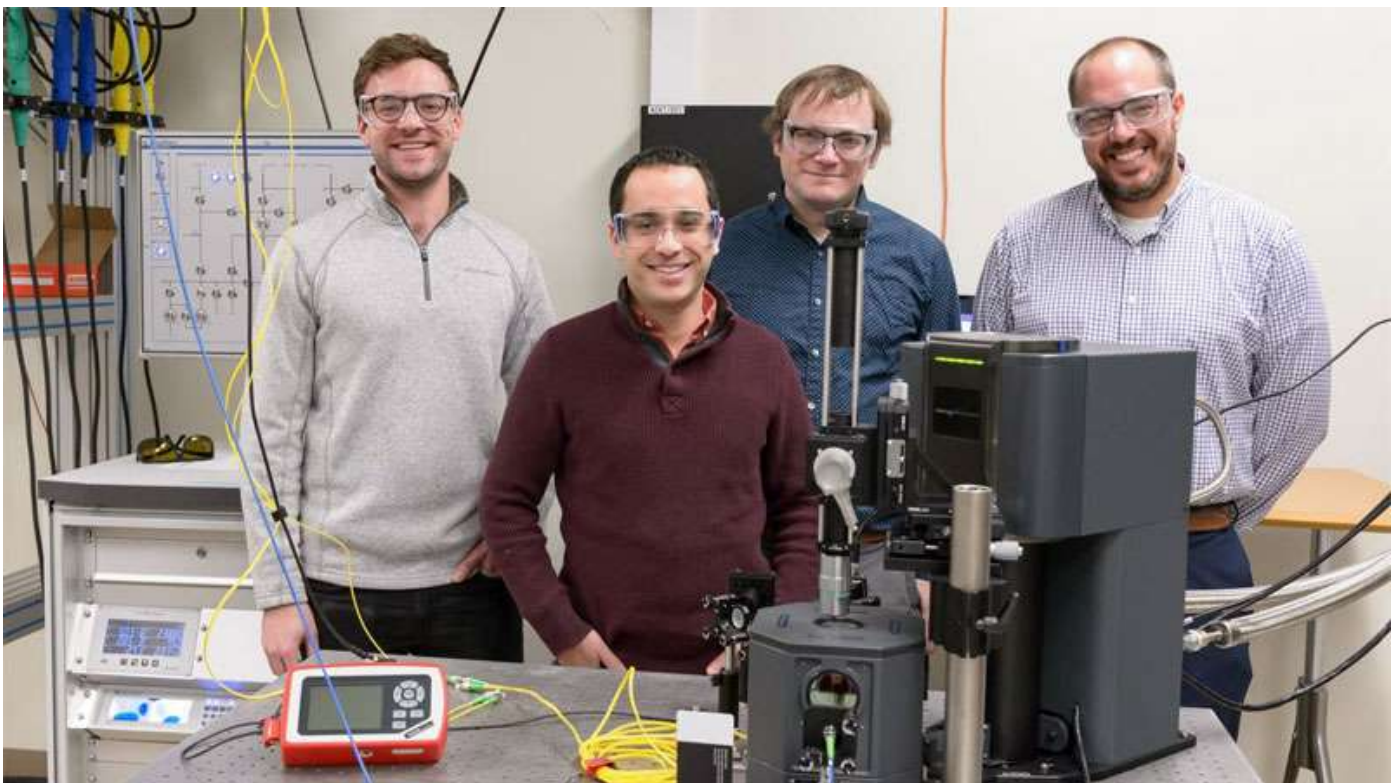


Quantum Loop



VAISHNAVI KHILARI

Scientists from the U.S. Department of Energy's (DOE) Argonne National Laboratory and the University of Chicago (UChicago) have launched a quantum loop, consisting of two connected, 26-mile fiber optic cables that run between Argonne and the Illinois tollway near Bolingbrook, Ill., and back. At 52 miles, it is one of the longest ground-based quantum communication channels in the country, the team said. The loop will serve as a testbed for researching the use of quantum physics to send unhackable information across long distances and will help scientists identify and address the challenges of operating a quantum network. Researchers at Argonne and UChicago will also use the testbed to explore quantum entanglement. Scientists Joe Heremans, Alan Dibos, and Gary Wolfowicz demonstrated the operation of the testbed by generating and transmitting optical pulses through one and then both fiber loops.



They witnessed a delay of 200 microseconds for the transit time of the laser pulse along one fiber loop, which is consistent with the speed of light in the glass optical fiber. They are using the loop for a series of experiments, including transmitting signals from photons emitted from ensembles of ions, which could be used as a quantum memory for the network. A functional quantum memory, which entails the storage and retrieval of quantum states, is a key advance needed for quantum communication and a quantum internet.

“We will need many of these quantum memories spaced out over about 100 kilometers to relay the quantum signal through a network,” Tian Zhong, Argonne scientist and University of Chicago assistant professor, said. “The quantum loop enables us to test and refine this quantum memory technology before deploying it on a large scale.” Principal investigator David Awschalom said that the loop could be scaled to test and demonstrate communication across even greater distances, to help lay the foundation for a quantum internet. In addition to the quantum loop, Argonne plans to develop a two-way quantum link network with Fermi National Accelerator Laboratory. When the two projects are connected, the quantum link is expected to be among the longest links in the world for sending secure information using quantum principles.



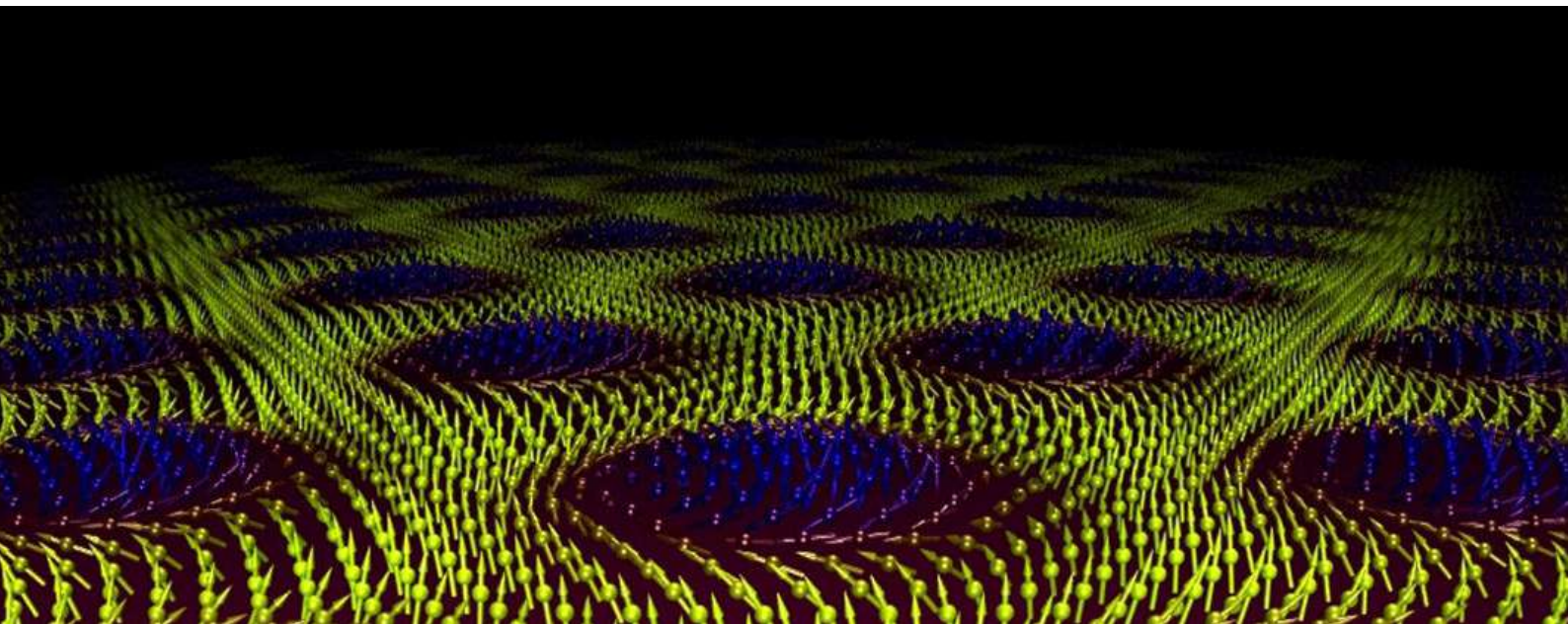
SPINTRONICS

Technology of the

Future

MANASI MUJUMDAR

Technology is on the boom in the 21st century and the very basis for every technology is an electronic component and a very fundamental part of the same is a semiconductor. The functioning of semiconductor or any IC that constitutes our mobile's and computer asks for a digital response to a physical stimulus which in turn solely depends on the material its made of. Hence in the era of optimization, efficiency is of utmost importance and so all the technocrats are now inclining towards utilizing the properties of the universe's most fundamental particle-electron. Electronics, the name itself has electron in it and all along we are only familiar with the use of charge of an electron in electronics but given the thought there's lot more in the electron that can be discovered. The 'spin' of an electron is one such attribute that's being explored by the researchers and being incorporated into one of the most developing areas of technology i.e. quantum electronics.



'Spintronics' or 'spin-electronics' refers to the significance of study of the role of electron spin in solid state physics. This study explores the intrinsic spin of an electron and its associated magnetic moment in addition to the fundamental electronic charge it has. Its particularly used in data storage and transfer.

ORIGINS OF SPINTRONICS

The origin of spintronics can be traced to the experiments conducted by Meservey and Tedrow for studying the Tunneling effect on ferromagnetic and super-conductor devices. Since then it's been the efforts of many other scientists to develop this field. The foundation of this quantum concept lies in its similarity to represent the same binary data consisting of zeros and ones using the two spin states –'up' and 'down' states. The value of the same is measured by the tiny magnetic fields generated by each spin.

BENEFITS OF SPINTRONICS

Spintronics has several advantages over conventional electronics. Spin states can be set quickly which makes transferring data quicker. The conventional version would require specialized semiconductor materials (having good conduction properties) in order to control the flow of charge through the transistors. But spin can be measured very simply in any common metals. Hence, *lesser energy* is needed to change the spin than to generate a current to maintain electron charges in a device. This leads to lesser power consumption and that's the ultimate goal of any electronic machine!

Another interesting fact about using spin of an electron as a memory storage technique is the spin is energy independent and thus spin is non volatile and the information sent using spin remains fixed even after loss of power.

Presently, spintronics is used in the digital field for its ability to hold several trillion bits in one sq. inch and also in the medical arena to detect cancer. The future of electronics is very promising with such advancements in electron technology that discovers every aspect of it and can help built efficient technology for a better tomorrow.

SOLAR ECLIPSE



PRIYANKA BALANI

2 July, 2019

We observed a total solar eclipse on 02nd of July, 2019. The eclipse is one cosmic coincidence: the sun's diameter is about 400 times that of the moon and the sun is also about 400 times farther away, as a result of which the 2 bodies *appear* almost exactly the same angular size in the sky - roughly half the width of your pinky figure seen at arms length.

The following phases observed during the total eclipse:

First contact

When the moon limb(edge) is exactly tangential to the sun's limb.

Second contact

Starting with baileys beads (caused by light shining through valley's on the moon surface) and the diamond ring effect.

Totality

The moon observes the entire disk of the sun and only the solar corona is visible. The first piece of evidence for the existence of the second light test and the second most abundant element known to human was discovered by the French astronomer Jules Janser during total solar eclipse in 18th August 1868 because of this its named after the Greek word for the sun helios Totality at any particular solar eclipse can be seen only from a narrow belt on earth, sometimes only 150km (90miles) wide

The next total solar eclipse is on December 14, 2020.

PROJECT SPOTLIGHT

Conceptual Design of **Self-Sustainable** Inflatable Martian Habitat

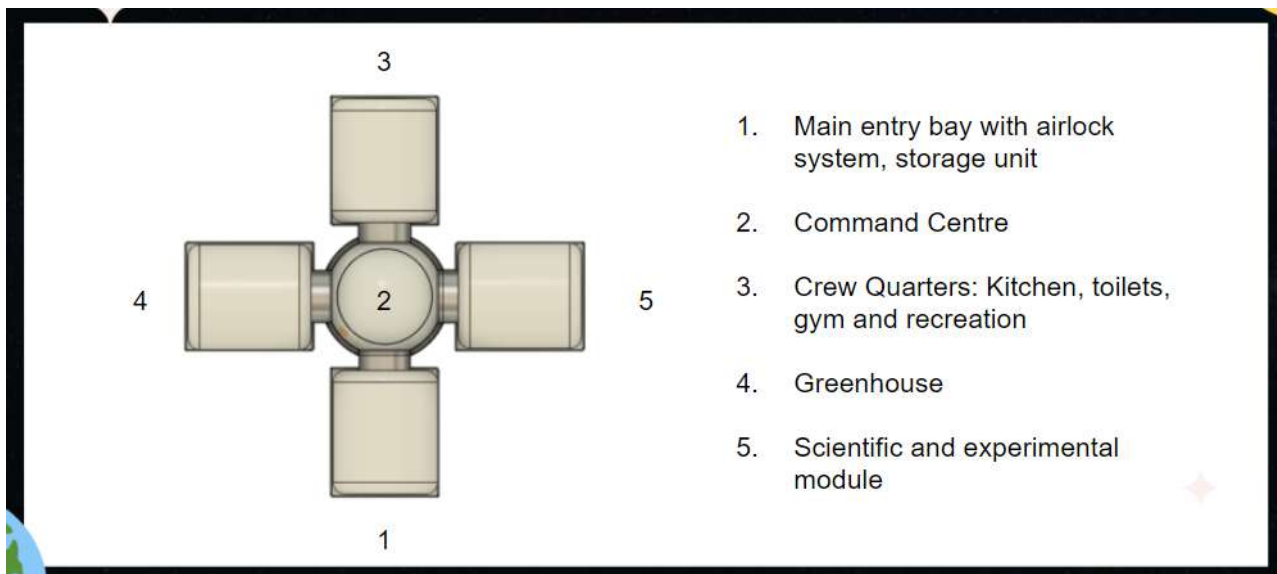
KANCHAN BHALE

A trip to Mars is a costly undertaking. But it is as exciting and as it is rewarding in the field of space exploration. With space agencies working towards colonizing Mars, it is clear that there is a need for long-term human sustenance due to the fact that frequent resupply missions to Mars are next to impossible. This is definitely not a reliable option. So this project deals with a Technology Demonstration Mission for a self-sustainable Martian habitat. It deals with Inflatable Habitat Technology and Life Support Systems required for the mission.



The concept of an “Inflatable Habitat” is becoming an active and demanding area of research, as far as human space missions are considered. So this project is a conceptual design of such a mission, and is designed in par with SpaceX’s Mars Mission. This also deals with all the necessary factors including detailed study of materials required, structural design and analysis and design of the Environment Control and Life Support System or ECLSS required. The ECLSS is what provides an Earth-like environment inside the habitat, making it suitable for humans to live. The main aim of this mission is to achieve self-sustainability.

Therefore, it would also serve a test-bed to test the possibility of growing plants inside the habitat to provide food for the astronauts. This project also caters to the power requirements and In-Situ Resource Management. This way, it is possible to achieve self-sustenance. With this, there is a strong hope that this project will open doors for future manned missions to Mars, eventually making Mars an established colony.



Kanchan completed this project and research report as a part of her internship at Society for Space Research and Development. You can download the research paper from the [project website](#)

HIGHLIGHTS OF THE YEAR

Let us take a look at the activities that the students and professors of ENTC participated in, the papers that were published and all the awards received!

DEPARTMENT ACTIVITIES

GUEST LECTURES:

Sr. No.	Date	Topic	Subject	Speaker	Audience	Co-ordinator
1.	23/08/2019	Evolution of Programming Languages and Technologies	Data Structures	Mr. Ashish Belagali	SY	Prof. K. S. Joshi, Prof. T. V. Pawar
2.	19/11/2019	TQM.SixSigma	Management for Engineers	Mr.Amit Dixit	B.Tech	Dr Prachi Mukherji, Prachi Waghmare, Anamika Kumari
3.	20/11/2019	Graphs and Applications	Data Structures	Mr. Sushilkumar Bora	SY	Dr. S. A. Paranjape, Prof. T. V. Pawar, Prof. R.T. Suryawanshi
4.	06/02/2020	Interview techniques and Hardware Analog devices	NA	Janhavi Kalyanshetty	M.Tech	Dr. Mrudul Dixit, Dr. Bageshree Pathak
5.	27/02/2020	Virtual Reality and Augmented reality	AI +IEEE Student members	Jaya Panvalkar	TY	Dr. Mrudul Dixit, Prof. Vanarase

6.	04/03/2020	Traffic Light detection using Image processing and CNN	DIP	Gayatri Rokade	TY	Dr. Bageshree Pathak, Prof. Sandhya Potadar
7.	26/03/2020	Industrial Control & Applications	Control Systems	Vikas Meghani, Tanmay Sharma	TY	Prof. Rupali Pawar

CONFERENCES, WORKSHOPS & SEMINARS ORGANIZED:

Sr. No.	Date	Title	Co-ordinator
1.	16/09/2019 to 28/09/2019	Machine Learning in the area of Pattern Recognition and Computer Vision	Dr. Prachi Mukherji
2.	17/09/2019	Innovative Business Idea Competition 2019	Dr. Seema Rajput
3.	20/09/2019	Workshop on C Programming	Dr. Bageshree Pathak
4.	13/11/2019	Android OS and Android Application Development	Dr. Mrudul Dixit
5.	04/01/2020	Pedagogy tools and techniques- Flipped Classroom, Active Presenter, Google Classroom, Google forms, Crossword generator	Dr. Sharada Ohatkar, Dr. Ashwini Deshpande
6.	15/01/2020	Workshop on C ++ Programming	Dr. Bageshree Pathak
7.	02/03/2020	AI using MATLAB	Dr. Mrudul Dixit, Prof. Vanarase
8.	05/03/2020	Guidance Session on LaTeX	Dr. Sharada Ohatkar, Dr. Ashwini Deshpande
9.	06 to 07/03/2020	Organising Committee Members	Dr. Mrudul Dixit
10.	22/04/2020, 24/04/2020	Webinars on Matlab Image Processing and Machine Learning tool box	Dr. Mrudul Dixit
11.	29/06/2020	Webinar on IoT	Dr. Anita Patil
12.	20 to 21/07/2020	Workshop on Design Thinking	Dr. Mrudul Dixit, Prof. Vanarase

INDUSTRIAL VISITS:

Sr. No.	Date	Industry Visited	Year	Co-ordinator
1.	17/09/2019	Avaya India Pvt. Ltd. : Under IEEE Student Branch	B.Tech	Dr. Mrudul Dixit Padma Hirave
2.	23/01/2020	Gracenote studio, Pune : Under IEEE Student Branch	IEEE members	Dr. Mrudul Dixit Prof. Vanarase

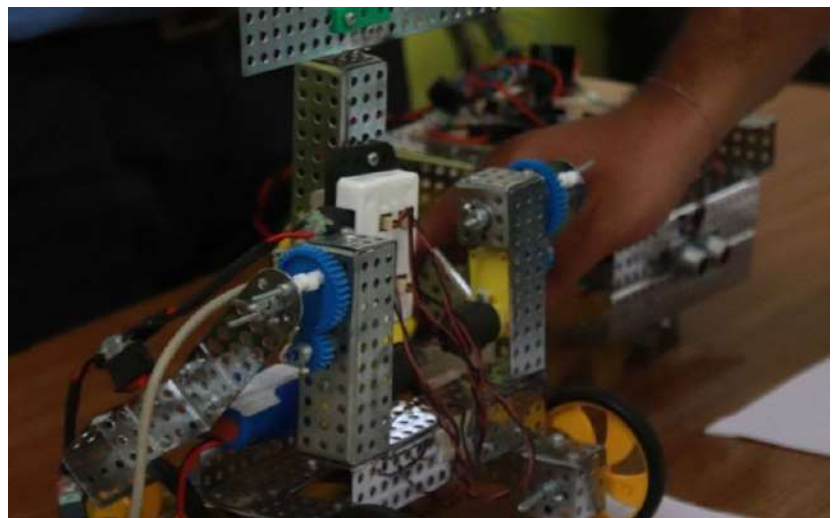
Faculty Development Program on “Machine Learning”

AICTE sponsored FDP on Machine Learning was conducted by the ENTC dept. from 16th to 28th Sept. 2019



Keynote speaker Mr. Aditya Abhyankar

Humanoid Robot



STUDENT ACHIEVEMENTS

PLACEMENTS 2019-20

Sr. No.	Company	Salary offered (in lakhs)	No. of students placed
1.	Accenture	4.5	36
2.	Alstom	5	5
3.	Altimetrik	4.25	1
4.	Amdocs	4.75	4
5.	Avaya	12	1
6.	Baxter	10	2
7.	Boeing	6.31	12
8.	Cognizant	3.6	7
9.	Collins Aerospace	6.25	2
10.	DELL	8	3
11.	Eaton	6.5	1
12.	Fracta Analytics	7.5	2
13.	HSBC	7	1
14.	Johnson Control	4	1
15.	Mahindra & Mahindra	6.5	1
16.	Michelin	8	2
17.	PWC	8.43	5
18.	Siemens PLM	9	3
19.	TATA Autocomp	5	1
20.	TATA Motors	7	5
21.	Tracelink	8	2

22.	Ubisoft	3.15	2
23.	Varroc	4	2
		5	2
24.	Vodafone	4.25	13
25.	WDC	17.42	4
26.	Xilinx	17.5	1

ROBOCON

ABU-ROBOCON is an International Robotics Competition. Our college Robotics team, Team AAVEG were shortlisted for the **Nationals** that were held in Delhi on 16th June 2019. This year the organising institutes were IIT-Delhi and Doordarshan. The following students from the ENTC department were a part of this team:

- Aakanksha Khare
 - Siddhi Chikode
 - Rucha Kulkarni
-

OTHER TECHNICAL EVENTS (WINNERS)

Sr. No.	Name of the Student	Name of the event in which participated	Month & year	Level	Organising institute
1.	Aakanksha Khare	Hackathon Competition Winner	29 th June 2019	National	IBM
2.	Esha Menta	Aero Design Challenge 2019 Best Technical Presentation- Second Prize	19 th to 21 st July 2019	National	SRMIOT Chennai



Team Zenith 5.0 won 1st Prize of Rs. 50000/- in Cost presentation in SAE BAJA 2019



Innovation 2020

FACULTY ACHIEVEMENTS

PATENTS

Sr. No.	Title	Faculty	Publication Date	Country
1.	Designing a Neuro-Fuzzy classifier based on Fuzzy controller for speech recognition	Dr. Prachi Mukherji	27/03/2020	India
2.	Gas Monitoring And Leakage Alert System	Dr. Ashwini Deshpande	29/11/2019	India

AWARDS & ACHIEVEMENTS

Sr. No.	Faculty	Award Details
1.	Dr. Sharada N. Ohatkar	Certificate of Appreciation for instrumental role as SPOC (Single Point Of Contact) for the SWAYAM NPTEL Local chapter. (Active SPOC for July-Oct 2019)
2.	Prof. Tejashree Pawar	Certificate of Appreciation for being recognized as NPTEL DISCIPLINE STAR Dec 2019
3.	Dr. Ashwini M. Deshpande	Outstanding Women in Engineering (Area-Electronics) by VIWA, March 2020

PAPERS PUBLISHED

Sr. No.	Faculty	Paper Title	Journal/Conference
1.	Dr. M.B. Khambete	Unsupervised Detection of Dispersion and Merging Activities for Crowded Scenes	3rd International Conference on Advanced Computing and Intelligent Engineering (Springer)
2.	Dr. Prachi Mukherji	Implementation of OFDM-IDMA System Based on Low Complexity Polar Decoder for DVB in 5G	International Journal of Research in Electronics and Computer Engineering (UGC Listed)
		Performance Enhancement of Bit Error Rate with Increased Capacity using Modified SIC-MUD for Polar Code based OFDM-IDMA System for 5G	International Journal of Innovative Technology and Exploring Engineering
		Performance Analysis of Polar-Code based OFDM-IDMA System for M2M Communication using Taguchi Method	Journal of Advanced Research in Dynamical and Control Systems
		Speech Recognition using Novel Diatonic Frequency Cepstral Coefficients and Hybrid Neuro fuzzy Classifier	Springer- Lecture Notes in Computational Vision and Biomechanics (Scopus, UGC listed) Proceedings of the International Conference on ISMAC in Computational Vision and Bio-Engineering 2018 (ISMAL-CVB)
		Electromyogram (EMG) based fingers movement recognition using sparse filtering of wavelet packet coefficients	Sadhana - Academy Proceedings in Engineering Sciences
		Modeling and Simulation of Inertial Navigation System	Micro-Electronics and Telecommunication Engineering. Lecture Notes in Networks and Systems, vol 106. Springer, Singapore
		Integration of Fuzzy Logic and ABC Algorithm for Optimized	International Journal of Sensors, Wireless

		Network Selection in Heterogeneous Wireless Environment	Communications and Control
3.	Dr. Sharada N. Ohatkar	Effective Vibration Damping using Self Tuning Smart Material	3rd International Conference on Micro-Electronics and Telecommunication Engineering, Springers ICMETE-2019, SRM Institute of Science and Technology, Gaziabad, Delhi
		Bio-Inspired AI optimization techniques to evaluate data rate and minimize interference in Cognitive Cellular Network	Lecture Notes in Electrical Engineering, vol 601. Springer, Singapore, May 2020, SCOPUS INDEX
4.	Dr. Ashwini Deshpande	Comparative Analysis of Least squares method and Extended Kalman filter for Position Estimation in GPS Receiver	International Conference on Signal and Data Processing ICSDP-2019, MITAOE, Alandi, Pune
5.	Dr. Mrudul Dixit	Internet Traffic Detection and Classification using Machine Learning	Springer 3rd International Conference on Micro-Electronics and Telecommunication Engineering (ICMETE-2019), SRM Institute of Science and Technology, Delhi NCR Campus, Ghaziabad
		Malicious URL Detection Using Deep Learning And Machine Learning	Springer 3rd International Conference on Micro-Electronics and Telecommunication Engineering (ICMETE-2019)SRM Institute of Science and Technology, Delhi NCR Campus, Ghaziabad
		“Internet Traffic Detection using Naïve Bayes and K-Nearest Neighbors (KNN) Algorithm”	International Conference on Intelligent Computing and Control Systems, IEEE ICICCS 2019 Vaigai College of Engineering, Madurai

3.	Amitkumar S. Khade	A technique to enhance the transconductance of micro-power improved recycling folded cascode operational transconductance amplifier with reasonable phase margin	AEU - International Journal of Electronics and Communications
		Transconductance enhancement of a low voltage low power recycling folded cascode OTA using an asymmetrical current split input stage	Microelectronics Journal
		Performance enhancement of advanced recycling folded cascode operational transconductance amplifier using an unbalanced biased input stage	Integration, VLSI Journal
2.	Prof. Manasi Pathade	Unsupervised Detection of Dispersion and Merging Activities for Crowded Scenes	3rd International Conference on Advanced Computing and Intelligent Engineering (Springer)
7.	Supriya Mangale	A Deep Learning Approach for Motion Segmentation Using An Optical Flow Technique,	10th International Conference on Computing, Communication and Networking Technologies (ICCCNT), Kanpur, India, 2019
20	Dr. Megha Borse	Detection based on multi band EEG Transmission network instability, mature & smart sleep apnea	International Journal of Advanced science & Technology

RESEARCH PROJECTS & CONSULTANCY

RESEARCH:

Sr. No.	Faculty	Funding Agency	Title	Duration	Funding
1	Dr. Ashwini Deshpande	ISRO-UoP Joint Research Programme	Development of Image Quality Improvement Algorithms for Satellite imagery-Radiometric data	2 Years (2018-2020)	Rs. 870000/-

CONSULTANCY:

Sr. No.	Faculty	Industry	Title	Duration	Amount Sanctioned
1	Dr. Seema Rajput & Dr. Anita Jain	AP Energy Solutions, Pune	Multi Crop Thresher Machine	2 Years (2019-21)	Design and Development Cost
2	Dr. Ashwini Deshpande & Prof. Tejashree Pawar	Microembedded Technologies, Pune	MicroDSP6748 Development Board Applications	1 Year	Development Cost
3	Dr. B. V. Pathak	CPR, Pune	Detection of stress from speech for police	1 year	NA
4	Dr. Megha Borse	CPR, Pune	"Smart Stick for Police to monitor Health Parameters"	1 year	NA

RESOURCE PERSON

Sr. No.	Faculty	Title/Topic
1.	Dr. Prachi Mukherji	PhD. Review Committee at COEP, Pune, AISSMs
		CDC meeting at VIIT, Pune
2.	Dr. Sharada Ohatkar	Course: B.Tech (Aviation), Fundamentals of Radio and Radar, SPPU, Department of Technology, Pune
		Paper Reviewer 'IET Networks' in June 2020
3.	Dr. Ashwini Deshpande	Member BOS, E&TC Engg. At Sanjivani COE, Kopergaon (An Autonomous Affiliated to SPPU)
		2 Elsevier Journals
		Paper Setter for Basic Electrical and Electronics Engineering at the Autonomous Institute SCOE, Kopergaon
		BOS Meeting Member E&TC Engg. at Sanjivani COE, Kopergaon (Autonomous Affiliated to SPPU)
4.	Dr. Seema Rajput	ME Dissertation: Bone Density Measurement using Ultrasound at MITWPU, Pune

5.	Dr. Mrudul Dixit	External Examiner at COEP for Computer Networks
		ESE Paper Setter for Computer Networks
		BOS Meeting of MIT Polytechnic And Skill Development (MIT WPU) on curriculum
6.	Dr. Anita Patil	Selection Committee Member (Interviews) at MMCOE, Pune
		External Examiner for Power Electronics at VIT, Pune
		Reviewer of 3 IEEE Transaction papers and 3 TSP2020 papers in May 2020
7.	Sandhya Potdar	External Examiner for Communication systems at VIT, Pune
8.	Dr. Anita Jain	PhD Thesis Review at VELS University, Chennai.
9.	Supriya Mangale	Resource Person for FDP: Machine Learning in the area of Pattern Recognition and CV at CCOEW
		Paper Reviewer of 'IEEE transactions on Neural Network and Learning Systems'
10.	Prof. Tejashree Pawar	Workshop on Programming in C for M. Tech students at CCOEW, Pune
		Workshop on Programming in C++ for M. Tech students at CCOEW, Pune
		Judge for Project competition "Projectron 2K20" Judge (Online)
11.	Dr. Bageshree Pathak	BOS member at Gogte Institute of Technology, Belgaum, VTU (via Zoom)
12.	Dr. Shubhangi R. Chaudhary	M.Tech Examination M.Tech Lab-Practice Examination at MITWPU, Pune

