



### The Brain's GPS Explorer



May-Britt Moser (born on 4 January 1963) is a Norwegian psychologist and neuroscientist, who is a Professor of Psychology and Neuroscience at the Norwegian University of Science and Technology (NTNU). She and her then-husband, Edvard Moser, shared half of the 2014 Nobel Prize in Physiology or Medicine, awarded for work concerning the grid cells (a type of neuron in the brains of many species that allows them to understand their position in space) in the entorhinal cortex, as well as several additional space-representing cell types in the same circuit that make up the positioning system in the brain.

May-Britt was born in the small town of Fosnavåg, Norway in 1963, the youngest of five children. Although her family owned a small farm, her father worked as a carpenter. With her free time, she chose to study animals where she found a major passion. May-Britt's mother told her fairy tales while she was growing up and always encouraged her to work hard to make her dreams come true. As a child, May-Britt wanted to become a doctor who travelled the world saving people, or even a veterinarian due to her love of animals. She was never a particularly gifted student in grade school, but the right level of encouragement from her teachers saw her talents flourish. May-Britt was determined not to become a housewife, as was customary for the time.

May-Britt Moser attended the University of Oslo where she studied psychology, mathematics, and neurobiology and was awarded a degree in psychology in 1990. May-Britt met Edvard I. Moser, who she recognized from her high school. The couple married on July 27th, 1985 and decided to together study the relationship between the brain and behaviour.

She was then employed as a research fellow at the Faculty of Medicine, where she was awarded her Ph.D. in Neurophysiology in 1995, under the supervision of professor Per Andersen. She and Edvard Moser went on to undertake postdoctoral training with Richard Morris at the Centre for Neuroscience, University of Edinburgh from 1994 to 1996, and were visiting postdoctoral fellows at the laboratory of John O'Keefe at the University College, London for two months.

The Mosers returned to Norway in 1996 where May-Britt was appointed associate professor in biological psychology at the Department of Psychology at the Norwegian University of Science and Technology (NTNU) in Trondheim. She was promoted to a position as full professor of neuroscience at NTNU in 2000. The couple were instrumental in the establishment of the Centre for the Biology of Memory (CBM) in 2002 and the Institute for Systems Neuroscience at NTNU in 2007. Moser is also head of department of the NTNU Centre for Neural Computation. She also is a member of the Royal

Norwegian Society of Sciences and Letters, Norwegian Academy of Science and Letters, and the Norwegian Academy of Technological Sciences. Moser was appointed by the European Research Council as a member of one of the evaluation panels for ERC start up grants for the period 2007–2009.

The Mosers pioneered research on the brain's mechanism for representing space together with their mentor John O'Keefe. The Mosers discovered types of cells that are important for determining position (spatial representation) close to the hippocampus (a major component of the brain of humans and other vertebrates that plays important roles in the consolidation of information from short-term memory to long-term memory, and in spatial memory that enables navigation) and also for episodic memory (the memory of autobiographical events that can be explicitly stated or conjure). Moser investigated correlations between the anatomical structure of the hippocampus and social learning in rats. Moser's work gave the ability for scientists to gain new knowledge into the cognitive processes and spatial deficits associated with human neurological conditions such as Alzheimer's disease.

In 2014, the Mosers shared half of the 2014 Nobel Prize in Physiology or Medicine. The other half of the prize was awarded to John O'Keefe. The Mosers were one of five couples to be awarded a Nobel Prize.

May-Britt Moser was a co-Founder of the Centre for the Biology of Memory, a Research Council of Norway-funded Centre of Excellence from 2003 to 2012, and has taken on the Directorship of the Centre for Neural Computation, a second Centre of Excellence that will run from 2013 to 2022.

May-Britt has published a lot of papers and has received a lot of honours for her work. In 2013, the Trondheim Chamber of Commerce awarded Moser the Madame Beyer award, which recognizes brilliant female business leaders. It was awarded in recognition of Moser's superb leadership, scientific achievements, and her high ethical standards, as well as her consistent focus on teamwork and community spirit.

Source : <https://www.nobelprize.org/prizes/medicine/2014/may-britt-moser/facts/>

### Info to Alumni – Group Update

Business Today felicitates Dr. Shiv Nadar with Best CEO-Lifetime Achievement Award, for the rapid strides made by HCL group of companies under his leadership, and his contributions to education through the Shiv Nadar Foundation.



The annual Forbes 100 Most powerful women list features the smartest women leaders globally, who are creating solutions for the world's biggest problems. Ms. Roshni Nadar Malhotra, is featured at number 54 in this list.

### Kind attention -Alumni

Annual Alumni Meet of SSN- Tribute Jan 4, 2020

We look forward to you and your family being part of this wonderful get together and relive the memories of your stay at SSN. Entry passes are available at the following link. Reserve yours now!!

[https://ssn.almaconnect.com/event\\_calendar/ssn-annual-alumni-meet-tribute-2020](https://ssn.almaconnect.com/event_calendar/ssn-annual-alumni-meet-tribute-2020)

### Info to Alumni – Campus Update

On 4<sup>th</sup> December 2019, Mr. K. Ragothaman, Superintendent of Police (Retd.), CBI, gave a lecture on “Whistleblower policy” (organized by Ms.Rebecca and team). The gathering comprised of both teaching and non-teaching staff.

Dr.N.P.Rajesh arranged for a visit by Russian Prof Oleg Plekhov, Institute of continuous media mechanics (ICMM), Russian Academy of Sciences, Ural Branch, Russia on the 10<sup>th</sup> of December, 2019. On behalf of the Mechanical Department, Dr.A.K.Lakshminarayanan, Dr.S.Sureshkumar and Dr.R.Damodaram shared their research areas.

The UG Researchers Day was conducted on 12<sup>th</sup> December 2019.

An awareness Program on “Kavalan” mobile phone app was conducted on the 12<sup>th</sup> December 2019 for girl students.

The inauguration of the International conference on English Language Teaching was held on 13<sup>th</sup> December 2019.

"International Conference on Mathematical Analysis and Computing" & "Second International Symposium on Geometric Function Theory" were held on the 23<sup>rd</sup> of December 2019. It was organised by Dr.G.Kalpana , Dr.S.Yugesh and Dr.P.Venugopal (HoD), of Mathematics dept.

### Info to Alumni – Department Update

#### External recognition



Dr.K.S.Vijay Sekar

Dr.K.S.VijaySekar, Associate Professor was invited as Technical Committee member for "The 11th International Conference on Manufacturing Science and Technology - ICMST 2020 and 5th International Conference on Design, Materials and Manufacturing - ICDMM 2020 to be held in University of Liverpool, Liverpool, UK during September 22-24, 2020.[5.12.2019]

Dr.K.S.VijaySekar, Asso.Prof, Mechanical Department has been invited to deliver a Talk and be a Technical committee member at the 2nd International Conference on Engineering Education and Innovation (ICEEI 2020), France during June 28 - 30, 2020, sponsored by University of Technology of Compiègne, France.[12.12.2019]

Dr.M.S.Alphin was a resource person to deliver a half day lecture for a six day Faculty development program on "Thermo structural Analysis" conducted at SRM Valliammai Engineering College, Kattankulathur.[6.12.2019]

Prof.VE.Annamalai was nominated as Anna University representative for the Board of Studies for Rajalakshmi engineering College, Chennai. He attended the Board of Studies meeting, to finalise their Regulations 2019, autonomous stream.

### Research Publications



Dr.L.Poovazhagan

Dr.L.Poovazhagan, Assoc.Prof./Mech., published a paper titled "Turning Experiments on Al/B4C Metal Matrix Nanocomposites", in the INTERNATIONAL JOURNAL OF MATERIAL SCIENCE FORUM, indexed by Scopus, ISSN: 1662-9752, Vol. 979, pp 16-21, 2020. [3.12.2019]

Dr.L.Poovazhagan, Assoc.Prof./Mech., published a paper titled "Review on Accumulative Roll Bonding (ARB) Techniques for Improving the Mechanical Properties of Multi-Layered Materials", in the INTERNATIONAL JOURNAL OF MATERIAL SCIENCE FORUM, indexed by Scopus, ISSN: 1662-9752, Vol. 979, pp 84-88, 2020 (Co-authored by part time research scholar).[3.12.2019]

Dr.L.Poovazhagan, Assoc.Prof./Mech., published a paper titled "Ultrasonication Assisted Fabrication of Aluminum and Magnesium Matrix Nanocomposites - A Review", in the INTERNATIONAL JOURNAL OF MATERIAL SCIENCE FORUM, indexed by Scopus, ISSN: 1662-9752, Vol. 979, pp 63-67, 2020 (Co-authored by part time research scholar).[3.12.2019]

Dr.L.Poovazhagan, Assoc.Prof./Mech., published a paper titled "Optimizing Ultrasonic Power on Fabricating Aluminum Nanocomposites Reinforced with Boron Carbide Nanoparticles", in the INTERNATIONAL JOURNAL OF MATERIAL SCIENCE FORUM, indexed by Scopus, ISSN: 1662-9752, Vol. 979, pp 28-33, 2020.[3.12.2019]

Dr.K.S.VijaySekar, Associate Professor published a paper titled, "Investigation of friction models in the machining of Inconel 625 Super Alloy using FEM" in the Journal "IOP Conference Series: Materials Science and Engineering" pp.577 2019, coauthored with K S Manoranjan, V Harish Narayanan, T Manoj Kumar, R Ashwin, UG students at SSN.[9.12.2019]

Dr.K.S.VijaySekar, Associate Professor, published a paper titled "Experimental Investigations on Orthogonal Turning of Inconel 718 with TiAlN Coated Tool" in the journal "Materials Science Forum", Vol. 979, pp 142-148, 2019, coauthored with his PhD scholar K. Gobivel along with G. Prabhakaran and R. SuginElankavi (KCG College of Technology).[9.12.2019]



Dr.B.Anand Ronald

Dr. B. Anand Ronald, Assoc. Prof., presented a paper on "Evaluation of Surface Finish of Al 6061 and SS 304 pipes finished using Magnetic Abrasive Finishing" at International Conference COPEN 2019, held at IIT Indore. It was co-authored by Dhineshkanna. S, Dhinesh Kumar. G. N , Dinakaran. S, UG students.[12.12.2019 to 14.12.2019]

Dr. K. Jayakumar, Associate Professor has published following 3 papers in Materials Science Forum (Scopus indexed journal).

1. Experimental studies on the effect of drilling parameters on Monel alloy. (Co authors-UG students).

2. Mechanical properties of AA 5754 hybrid metal matrix composite fabricated through Rheo-Squeeze Casting. (Co author- Dr.K.Sekar, NIT Calicut).

3. Machining of TiB<sub>2</sub>-SiC ceramic composites through WEDM process.[27.12.2019]



Dr.K. Jayakumar

Dr.D.Ananthapadmanaban, Associate Professor, and Dr.E.Ravikumar, Associate Professor, Alpha College of Engineering, presented a paper titled "Taguchi Analysis of friction welding parameters while welding Aluminium to Copper and Aluminium-Copper with Nickel" in the International Conference on Precision Meso, Micro and Nano Engineering, COPEN 11 conducted at I.I.T, Indore from December 12th to 14th, 2019.[12.12.2019 to 14.12.2019]



Dr.D.Ananthapadmanaban

### Research Meetings

Dr.K.S.VijaySekar, Asso.Professor's PhD scholar Mr. C.Prakash completed his Viva Voce examination successfully on the thesis titled " Investigation on the machining processes of fiber reinforced polymers using experimental and finite element analysis", held in the Seminar hall, Department of Mechanical Engineering.[16.12.2019]

Dr. L. Poovazhagan, Associate Professor, Mechanical Engineering, conducted Confirmation DC meeting of his part time research scholar Mr.A.Arun on 20.12.19.[20.12.19]



Dr.K.Rajkumar

Dr.L.Poovazhagan and Dr.K.Rajkumar organized DST-SERB sponsored two days research facility training program for research scholars on the topic of Hybrid Casting Approach for Fabricating Metal Matrix Nanocomposites.[13.12.19 and 14.12.19]

Dr. N. Lakshmi Narasimhan, Associate Prof & Dr. V.E. Annamalai, HOD/Mech, Organized a One Day Workshop on Fundamentals on Internet of Things (IoT) Dec 20.



Dr.N. Lakshmi Narasimhan

### Project Proposals Submitted

Dr. B. Anand Ronald, Assoc. Prof, Mech., submitted a project titled "On the Monitoring of Process during Friction Stir Spot Welding of Polypropylene" to DST - SERB under the Science and Technology Award for Research (STAR) Scheme.[5.12.2019]

### Events Attended



Dr.S.Soma Sundaram attended an AICTE sponsored short term course Advanced Computational Techniques for Fluid Dynamics: Grid-Free and Immersed-Boundary Methods with Applications, at Indian Institute of Technology Madras, from 25th November to 30th November, 2019.

Dr.S.Soma Sundaram



Dr.Satheesh Kumar Gopal attended a 5 Day TEQIP Sponsored Workshop on "Artificial Intelligence and Machine Learning Applications in the Emerging Areas of Computer Science and Information Technology" from Dec. 9, 2019, to Dec. 13, 2019, at the National Institute of Technology, Karnataka.



Dr.K.S.VijaySekar, Asso.Professor, attended a DC meeting for a PhD research scholar in the Dept. of Mechanical Engineering, Hindustan University.[17.12.2019]

Dr.K.S.VijaySekar, Asso.Prof., participated in the " TN Manufacturing Summit – 12th Edition " on the Theme: Taking the Manufacturing to the Next level through Industry 4.0" organized by CII, on 23 December 2019, at Hotel Hilton, Chennai.[23.12.2019]

## STUDENT ACTIVITIES

1. Saravanan T, 2<sup>nd</sup> year, volunteered at the International Conference conducted by the English Department [13.12.2019]
2. Varuna G R, 2<sup>nd</sup> year, completed an Inplant training at L&T [14.12.2019]
3. Anushka prasad, 2<sup>nd</sup> year, completed an Internship at Bangalore International Airport [15.12.2019]
4. Tarun.P, Srihari.M, S.Venkatesh, P R Vishnu Prasad and Surya Prakash S, 2<sup>nd</sup> year, attended a workshop conducted by Goodwin Motors [16.12.2019 ]
5. Shailesh Kumar, 3<sup>rd</sup> year, completed an NPTEL Lab workshop on Design Thinking- A primer (A continuation of NPTEL online course on Design Thinking- A primer) [12.12.2019]

## Faculty Write Up

Dr L Poovazhagan, Assoc. Prof/Mech, writes..

### Research Facility Training Program on Hybrid Casting Approach for Fabricating Metal Matrix Nanocomposites

The program was held between the 13<sup>th</sup> and 14<sup>th</sup> of December 2019 and convened by Dr.L.Poovazhagan & Dr.K.Rajkumar.

This program is sponsored by DST-SERB under scientific social responsibility (SSR) scheme.



The training program was meant for research scholars only. Totally 17 research scholars have attended the training program out of which 10 scholars from other colleges/universities. Key note lectures were delivered by Dr.L.Poovazhagan and Dr.K.Rajkumar. Aluminium nanocomposite casting was demonstrated. We have received very good feedbacks from the participants.

### One Day Workshop on Fundamentals of Internet of Things (IoT)



A one day Workshop on Fundamentals of Internet of Things (IoT) was organized by our Department on Dec 20, 2019. The department has always been keen to impart knowledge on current trends/technologies such as IoT, Machine learning, AI and so on needed for our students. This workshop was a first of its kind in our department and organized exclusively for beginners to get introduced to IoT.

Mr. S. Muralidharan (Business & Tech consultant and former Sr. System Analyst, India Int'l Centre, Govt. of India) was invited as an external expert speaker for the workshop. The morning session began with *what is IoT all about* which was followed by detailed coverage on the *essential elements of IoT*. A 360 degree perspective on IoT was given to the participants during the morning session. The entire afternoon session was dedicated to *live demonstration of IoT*.

The demonstration included practical Python programming, controlling of Relays/electrical items with Arduino & Raspberry Pi with Wifi as well as with Bluetooth available in a mobile phone. The participants were excited seeing the live demonstration and the entire day went very lively with a great knowledge sharing. A lot of thanks is due from our side to the invited speaker for making this workshop a great success. The participants in their open & written feedback expressed their deep sense of appreciation to the department as well as the speaker for the best efforts. As coordinators, we feel extremely happy that students wanted more and more workshops on IoT.

Under the tag **"IT for non-IT"** we humbly feel that continuous efforts are needed to prepare our students for the upcoming Industrial 4.0 revolution! No doubt, Workshops, Certification Programmes, Short-term Trainings and so on are required in plenty to empower our students at large! Our special thanks to the Principal and Management of SSN for all the support and infrastructure towards the conduct of this Workshop.

A special mention to our II year M.E. Energy students for the excellent support and thanks are due to all our student participants across UG and PG as well as participants from other institutions. Finally, we wish to thank Mr. Adithya and Mr. Elanchezhian (both in their II year M.E. Energy Engg.) for all the help towards organizing this workshop.



Excerpts from the Sessions of our Workshop on IoT (Mr. Muralidharan addressing the audience and explaining during the live demo session)

## Faculty Write Up

Dr M Dhananchezian, Assoc. Prof/Mech, writes..

Happy to share that one of our research papers titled "Investigation of AlCrN-Coated Inserts on Cryogenic Turning of Ti-6Al-4V Alloy" authored by Lakshmanan Selvam (Scholar), Pradeep Kumar Murugesan, Dhananchezian Mani, Yuvaraj Natarajan is published in the journal "Metals" (Clarivate Analytics impact factor: 2.259).



Dr.M.Dhananchezian

## Faculty Write Up

Dr Vijay Sekar KS, Assoc. Prof/Mech, writes..

### TN Manufacturing Summit – 12th Edition, Chennai

I had the opportunity to attend the one day seminar on the theme "Taking the Manufacturing to the Next level through Industry 4.0", organized by CII, Chennai at Hotel Hilton on 23, December 2019. The opening remarks and context setting was done by Mr. P. Kaniappan, Convener of the CII, TN Manufacturing panel, who summed up the current state of affairs of the manufacturing scene in India as a whole and TN in particular.



Mr. S. Chandramohan, Chairman, CII, TN quoted examples from TAFE and other sectors, indicated how digitalization was the only answer towards better growth in the manufacturing sector and companies which do not adapt might find it difficult to compete while going forward. Mr. Sandeep Sinha, CEO of TAFE and Mr. Ganesh Mani, Director: Production - Hyundai India Limited spoke on behalf of their respective companies and laid a thorough emphasis on the qualitative leveraging of innovations and technology in fast forwarding their sectors towards growth. During their stints in the current job positions, they have managed to put their Industry on the path of Industry 4.0. Dr Rajendra Kumar, IAS. Principal Secretary – MSME & Director, Entrepreneurship Development Institute, Government of Tamil Nadu candidly admitted that the Governments of the day must provide all the necessary tools and incentives to boost the manufacturing sector and listed a few initiatives in the service sector whose digitalization has resulted in quick processing of information like for example the Passport offices. But he said more needed to be done if we are going to match the 5 trillion dollar economy as envisaged by the Govt. of India, whereby we must grow by at least 9% from here on to reach that vision. He said we were at 16-17% of GDP in the manufacturing sector during the 1991 regime and we are still roughly the same today while US, Europe and China have leapfrogged 4 - 5 times of their GDP's in these 3 decades. Mr N Anbuhezian, Convener, Manufacturing Panel, CII Chennai Zone presented the vote of thanks for the opening session laying emphasis on the mutual coexistence of the Industry, CII and Government in taking things forward.

In the first panel discussion on "Making sense of Industry 4.0" Mr Shivkumar Srinivasan, Member, TN Manufacturing Panel & Vice President Mel Systems (P) Limited set the tone for the theme and moderated the session. Mr N Anbuhezian, GM Operations, Caterpillar India Limited, quoted several examples of innovations across sectors and listed methods for a inclusive growth, which must be strongly founded on adapting the new technology through learning and practicing. Mr Ramamurthi Aiyappan, Director – Digital Mfg Asia, Siemens Limited and Mr Milan Kumar, Global CIO , Wabco spoke of the role of automation in spearheading their respective businesses across the globe. In particular they spoke of how automation was being used at the level of cleaning dust from microchips and printed circuit boards as well as how Wabco was a global leader in automotive solutions being a company founded in 1869 and now celebrating its 150th anniversary.



The second panel discussion on "Emerging needs for Industry 4.0" was moderated by Mr. Venkatesh Chandrasekaran, Member, TN Manufacturing Panel CII, Tamil Nadu with panelists Mr Udayachandran B, Head – Works Engineering, Lucas TVS Limited and Mr M S Ravikumar, Country Leader - Integrated SCM, WABCO India Ltd, highlighting the necessary tools needed for creating a robust Industry 4.0 .

The third panel discussion on " Application of Technologies for Industry 4.0", was moderated by Mr Sudarshan Pitty, Head – Chennai Plant, Nokia Solutions & Networks Ltd and the panelists were Mr Elan Chelian, Vice President & Managing, Director, Sanmina SCI-India Limited , Mr R Vivekanandah, CEO, TITAN Engineering & Automation Ltd and Mr G Suresh Babu General Manager – Global Advanced Tech Deployment, Ford Motor (P) Limited discussing the importance of leveraging state of the art technologies and automation to pilot growth.

The fourth panel discussion on " Role of Academic Institutions in achieving and implementing Industry 4.0", was moderated by Dr Ramesh Rajagopalan, Senior Member of Faculty & Associate Director of Business Analytics, McCombs School of Business and the panelists were Mr S Sriram, CEO, Chennai Institute of Technology , Mr Kantha Babu Prof & Head – Mfg Engineering, Anna University and Dr Sudhir Varadarajan, Dean – Design, Innovation & Incubation, IIITDM, Kancheepuram, highlighting the need to bridge the academia - industry gap.



Faculty Write Up

Dr G Satheesh Kumar, Assoc. Prof/Mech, writes..

### **TEQIP Sponsored Workshop on "Artificial Intelligence and Machine Learning Applications in the Emerging Areas of Computer Science and Information Technology"**

The programme was well planned and organized by the Department of IT, NITK Surathkal. All the theoretical aspects of the programme were thoroughly complimented with hands-on, on all the advanced topics. The choice of speakers from diversified expertise like AMD, SAP labs, Chief Electoral Office and AMRITA along with the stalwarts of NITK, was a rare combination of people who are leading research on AI from the forefront, for our country. The contributions of the research scholars, their enthusiasm and their levels of knowledge running parallel to their faculty members was the highlight of the programme. That marks the paradigm shift that AI brings in to education.



The need for augmenting every engineering domain with AI was felt more than ever. I vouch for any of the programme on AI, organized by this department in future.

**Faculty Write Up**

Dr S Soma Sundaram, Assoc. Prof/Mech, writes..

The department of Mechanical Engineering at PSG College of Technology, in association with the National Society of Fluid Mechanics and Fluid Power (NSFMFP), conducted the three day 46<sup>th</sup> National Conference on Fluid Mechanics and Fluid Power (FMFP-2019), from 9.12.19 to 11.12.19.



The conference had various keynote lectures from industries and leading academic institutions. Students and research scholars from various national institutions presented their research in various technical sessions. The three day conference also included the annual general body meeting of the National society of fluid mechanics and fluid power. It was discussed to conduct the 47<sup>th</sup> Conference on Fluid Mechanics and Fluid Power at IIT Guwahati, in December 2020.

### AICTE-STC on Advanced Computational Techniques for Fluid Dynamics: Grid-Free and Immersed-Boundary Methods with Applications

A six day workshop on Grid free and immersed boundary methods was conducted by Applied Mechanics and Aerospace Engineering in Indian Institute of Technology Madras (IITM). Faculties from IITM and other central government institutions were providing lectures for the whole week.



The course started with basic introduction to Computational Fluid Dynamics (CFD) describing in detail about the process of finite difference method and finite volume method. In later sessions, the basics of grid free approach and immersed boundary layer method was explained. Faculties explained the process of generating the code for the approach. The application of the code to problems like the flow of blood cells in capillaries, flapping of wings of an insect, wake flow behind an airfoil were described in detail. Unconventional methods, like Monte Carlo methods were described and the use of it to solve a heat transfer problem was discussed.

### Faculty Development Program Attended By Faculties

Dr. K. Babu and Dr. S. Suresh Kumar have attended a STTP on “**Innovations and Research Challenges in IoT Applications for Smart Manufacturing and Smart Design**” at Sri Ramakrishna Engineering College, Coimbatore on 9<sup>th</sup> to 14<sup>th</sup> December 2019. The program mainly covered the fundamentals and importance of Industry 4.0 revolution, industrial internet of things, successful case studies, machine learning, IoT platforms for smart manufacturing and design, smart automation and inspection case studies etc. Experts from various industries such as, ‘Robert Bosch Engineering Business solution’ and ‘Chain analytics’ shared their expertise. In addition, academic researchers from IIT Madras, CIT Coimbatore, VIT Vellore and Loyola institute of business management were also shared their IoT experience.





**Dr.N.Arunachalam - Day3, session1**  
(Digital Twin for disruptive)



Hands on training for AI – Day3, AN session



**Dr.A.Murugarajan – Day 6, session1**  
(Smart inspection and metrology)



**Dr.T.Aravind Krishna – Day 6, session 2**  
(IoT Applications for supply chain management and inventory)



STTP – Group Photo

Faculty Write Up

Dr B Jayakishan, Assoc. Prof/Mech, writes..

**BMW SKILLNEXT Training program**

BMW group of companies conducted a one-day training program on their 365 series engines for all institutions as part of their Skill Next program on 13<sup>th</sup> Dec, 2019. They had already supplied 365 series BMW Engines and Transmissions to many leading engineering and technical institutes across every state and union territory in India. The training program was conducted for enhancing the knowledge about the engine and transmission system so that all the students in that





institution could come to know about the working mechanism of these systems. **Mr. Nagarajan. S, Lab Instructor/Mech. Dept.** attended this training program at their Chennai plant in Mahindra World city, Chengalpattu. The training started with Mr. Sulaiman /BMW employee explaining about the assembling of the BMW car. The cars were fit with the more recent N47 series and the successful B37/B47 series engines. Mr. Karthikraja explained some of the key features of the new car. One of the features of the car is we don't have to insert the key manually anymore rather we can just keep the key in the pocket and move near to the car. The car automatically unlocks the window key and we can start the engine. The technology was a combination of NFC with smart touchscreen. In the afternoon a practical session was conducted where first all the participants were asked to identify the parts on both their petrol and diesel engines that were explained earlier on screen and then there was also a demonstration of how the car was tested by running it on zigzag tracks and hilly surfaces. BMW plans to conduct more training for both staff and students in the future.



Corporate Story 61

MSME FOCUS

SHREE VIJAY INDUSTRIES

Shree Vijay Industries was established in 1961 with an objective to export superior quality automobile spares at competitive prices. With an experienced team and determined approach the company has gradually developed a diverse range of aftermarket spares suitable for various Cars, Tractors, Trailers and Trucks. The company has shown gradual growth over the years, exporting to various parts of the world, such as Africa, Asia, Middle East, Europe and South America. A keen interest in expanding the developing new products has offer a wide range of products. enthusiastic about developing customer specifications.



product range and helped the company to It has always been new products according to Gradually increasing

products on offer accompanied with its technical and marketing competence, the company has established itself as one of the leading exporters of aftermarket spares from India. They are one of the leading manufacturers of parabolic leaf springs and are supplying to some of the leading automobile manufacturers in the industry.



Website:<http://www.shreevijay.com/>

Phone:0161-2225743

Email:info@shreevijay.com

Mech Marvel - 61

### FOOD MAKING ROBOT



This modular system is the first of its kind. It can perform any number of food assembly tasks in any order, completely configurable to any restaurant's process. Starting with pizza, this system will soon be able to make a wide variety of foods including sandwiches, salads, bowls and more. It is designed to keep up with the demands of the busiest kitchens. Its high throughput allows restaurants to easily meet the demand for dine-in and delivery during peak

business hours. With just one worker keeping ingredients stocked, the system can produce 300 12" pizzas/hr or 180 18" pizzas/hr.

This robot solves a major problem for restaurants- consistency. They use computer vision and deep learning to ensure output to your exact standards, reducing food waste and driving customer growth, retention, and satisfaction.

Source: <https://www.hellopicnic.com/>

Amazing Innovation- 145

### Overcoming the car pillar blind spot



The pillars on either side of your car windshield have become thicker over time, in order to stop your car from collapsing in case it rolls over, but the wider pillars have created pretty significant blind spots. Alaina Gassler, 14, came up with this possible fix.

She placed a webcam on the outside of the pillar on the passenger side, and used a small projector to display the live feed onto the inside of the pillar. She 3D printed a component for the projector to make the image clearer and lined the pillar with what sounds like a retroreflective fabric — it only reflects the image back to the driver, according to the description on a video demonstrating the fix. The result: an uninterrupted field of view.

But the technology still has a little way to go. The image from the camera is shaky and the projection doesn't blend in perfectly with the view. Gassler's next prototype will use LCD screens, for better visibility in daylight — an issue that came up with the projection.

Source: <https://www.theverge.com/2019/11/5/20949952/car-blind-spots-pillar-windshield-fix-webcam-kia-hyundai-gassler>

## Amazing Innovation- 146

### Invisibility Cloak

Canadian company, Hyperstealth Biotechnology Corp, has created a paper-thin material that makes objects “invisible”. The portable material does not require an energy source and has been marketed for military use.

The material, Quantum Stealth, resembles a gadget from a Mission Impossible film. It works by bending light rays, rendering objects behind it invisible. It also blocks ultraviolet, infrared and shortwave infrared waves.



The company says that its ultrathin, light and mobile form makes it ideal for military action. A video clip demonstrating the Quantum Stealth showed how it could potentially cloak over tanks and other military hardware. The light-weight material can be bent and folded and is designed to be carried in a soldier's backpack, and it can also be used to make parachutes.

Source:<https://www.springwise.com/innovation/government-defence/invisibility-cloak-designed-for-military-use-quantum-stealth-hyperstealth?>

## Amazing Innovation- 147

### Electric Air Taxi



While Lilium has been on the flying taxi scene since emerging out of a European Space Agency incubator back in 2016, it was only this year that its electric aircraft made its maiden flight. It flew at speeds of over 100 km (62 mph) in October, moving between a vertical take-off and landing (VTOL) configuration and winged flight.

The jet took off vertically for a short jaunt around the testing area. Once in the air, it accelerates up to a speed of 65 km/h (40 mph), ascends at a rate of 300 ft (91 m) per minute, performs a turn at a 20-degree bank angle, ups the bank angle to 30 degrees, and descends at 300 ft per minute before another banked turn and vertical landing.

The company hopes to have a fully commercial service operating in two or three places around the world by 2025.

Source:[https://newatlas.com/aircraft/lilium-electric-air-taxi-banked-turns/?utm\\_source=New+Atlas+Subscribers&utm\\_campaign=28377a1f05-EMAIL\\_CAMPAIGN\\_2019\\_12\\_23\\_09\\_19&utm\\_medium=email&utm\\_term=0\\_65b67362bd-28377a1f05-76683587](https://newatlas.com/aircraft/lilium-electric-air-taxi-banked-turns/?utm_source=New+Atlas+Subscribers&utm_campaign=28377a1f05-EMAIL_CAMPAIGN_2019_12_23_09_19&utm_medium=email&utm_term=0_65b67362bd-28377a1f05-76683587)



## Amazing Innovation- 148

### Toothpaste Tablet



Toothpaste tubes take over 500 years to break down and are unable to be recycled. A small white tablet that replaces the need for toothpaste all together has been made. The Change Toothpaste tablets are designed to be placed between the back teeth, gently bitten down upon and then brushed with a wet toothbrush. The broken tablet then starts to foam and you can brush your teeth as usual.

The Change Toothpaste tablets are free from fluoride, gluten, dairy, nuts and soy and are suitable for vegans. Ingredients include dicalcium phosphate, erythritol, xylitol, spearmint flavor, sodium C14-16 olefin sulfonate, sodium bicarbonate, menthol, silicon dioxide, and mentha spicata leaf extract.

The zero-waste tablets come in compostable paper bag packaging, with each bag containing 65 tablets. Consumers also have the option of purchasing a bamboo toothbrush with their order.

Source: [https://newatlas.com/around-the-home/change-toothpaste-tablets/?utm\\_source=New+Atlas+Subscribers&utm\\_campaign=815e32c281-EMAIL\\_CAMPAIGN\\_2019\\_12\\_20\\_02\\_03&utm\\_medium=email&utm\\_term=0\\_65b67362bd-815e32c281-76683587](https://newatlas.com/around-the-home/change-toothpaste-tablets/?utm_source=New+Atlas+Subscribers&utm_campaign=815e32c281-EMAIL_CAMPAIGN_2019_12_20_02_03&utm_medium=email&utm_term=0_65b67362bd-815e32c281-76683587)

### Alumni Update

I would like to introduce to all of you, Adithyan Karunakaran (2011-2015 batch) who is currently employed at Signify (formerly Philips lighting), as a Supply Chain Project Manager. He received a placement offer from ITC during his final year at SSN and worked for close to two years for the company as a Marketing Officer. His passion to further pursue higher education led him to the prestigious Dartmouth College, where he completed his Masters in Engineering Management.



Adithyan has always played an active role in contributing to the institution through seminars and workshops for our students. He also served as the student convener for Instincts back in 2015.

He will be sharing with us his thoughts on Industry 4.0 and digital supply chains, which will be sent to all of you by mail shortly.

## Forthcoming Events

## Training/Internships

NPTEL courses are on. Refer for mails from HoD and start registering.

## Workshop / Seminar

### January 2020

- PSG Coimbatore is organising a three day workshop on Autonomous mobile robots during **Jan 23-25**. Register before **Jan 15**. Course fee Rs.2500 for students.
- As part of scientific social responsibility (SSR) scheme, Dr.L.Poovazhagan and Dr K.Rajkumar will be organizing DST-SERB sponsored two day workshop for faculty members on **24.01.20** and **25.01.20** on the topic "**Ultrasonic Assisted Casting Approach for Fabricating Advanced Composites.**"
- In association with Motor Vikatan, Department of Mechanical Engineering, Thiagarajar college of Engineering Madurai is conducting a One Day Workshop on "Car Design" for the benefit of engineering, polytechnic students and practicing engineers to enrich their professional skills and also to update themselves on current Industrial/R&D requirements in the area of car design. The workshop is scheduled to take place on **25/01/2020** in K.S. Auditorium. The workshop will cover the fundamentals of car design, body styles, clay modelling, software related with automobiles and perspective drawing techniques. The resource person of the workshop will be Mr. SATHIYASEELAN G, Vice President Styling, M/s. Ashok Leyland Technical Center. (Detailed brochure has been circulated to SAE team members. For details contact Dr.Jayakishan.)
- The Design Innovation Centre at IIITDM Kancheepuram is organizing One Week MDP / FDP on Six Sigma Green Belt from **29 to 31 January 2020 & 3 to 4 February 2020** at IIITDM Kancheepuram. The course will be handled by Col.(Retd) Santosh Dabral, Certified Six Sigma Master Black Belt from Indian Statistical Institute, Bangalore. For Payment & Registration procedure and other details, please visit: <http://iiitdm.ac.in/img/Events/Six%20Sigma%20Green%20Belt%20MDP%20-%20FDP.html>

### February 2020

- IIT Hyderabad, Dept. of Civil is organizing a short course on "Nonlocal Mechanics Approaches for Modelling Localized Deformations (NMAMLD 2020)". The short course is scheduled for **19 - 21st Feb 2020**. More details are available at the short course website <http://nmamld2020.com/>

## Conferences

### January 2020

- Coimbatore Institute of Technology, Coimbatore, is organizing a 2 Days National Conference on Mathematical Modelling and Computation on **3rd and 4th January 2020**. The Conference aims at bringing together researchers, experts, faculty, post graduate and under graduate students to share their reflections on Mathematical Modelling and computation in the broad field of Engineering and Technology. The registration is only through the conference website [www.citmechconference2020.com](http://www.citmechconference2020.com)

- CIT - Teaching Learning Centre, Coimbatore Institute of Technology , (CIT-TLC) is organizing a three – day Research Support Conclave 2020 RSC 2020, (Facilitating Cutting Edge Research and Network) **January 8 –10, 2020.**

The objective of this conclave is to support the research scholars in various stages of their research and motivate them to move ahead with confidence in their research process. It aims to provide a forum where budding/senior researchers can present/interact about their ongoing research work and, obtain feedback on future research directions from the renowned experts. The conclave is intended to attract research scholars (Both full time and part-time) from all over India.

Details: <https://sites.google.com/view/rsc2020>

Brochure: [https://drive.google.com/open?id=1N0mNd7MJVRarRLPn1BvDFPVfly\\_WcyB3](https://drive.google.com/open?id=1N0mNd7MJVRarRLPn1BvDFPVfly_WcyB3)

- Manipal Academy of Banking, Bangalore, is organizing the International Conference on Maintenance and Intelligent Asset Management, ICMIAM2020 <https://conference.manipal.edu/ICMIAM2020/>. The conference will be held on the **17th and 18th January 2020.** For more details, please visit <https://conference.manipal.edu/ICMIAM2020/> .

## February 2020

- The Institution of Engineers (India) and Jadavpur University will be jointly organising the International Conference on “Energy and Sustainable Development 2020” at Jadavpur University, Kolkata during **February 14-15, 2020** as a part of Centenary Celebration of IEI.
- The 3rd International Conference on Advances in Mechanical Engineering (ICAME 2020) to be held in the Department of Mechanical Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai, during **February 24-29, 2020.** <https://www.srmist.edu.in/icame-2020/>
- Department of Mechanical Engineering PSG College Technology, Coimbatore, Tamilnadu, India is organizing an AICTE sponsored International Conference on “Development and Management of Smart Cities and Homes (ICDMSCH 2020)” which will be held during **February 27-28, 2020.**

## March 2020

- Republic Polytechnic, Singapore, is organizing The 6th International PBL Symposium 2020 (6th IPBLS2020), during **March 25-27, 2020.**

## April 2020

- International Conference on Advances in Materials and Manufacturing (ICAMM-2020), which will be held in SSN College of Engineering, Chennai, INDIA on **9-10 April 2020.** The ICAMM-2020 website(<https://www.icamm2020.com/>) is now available for abstract submission. If you would like to submit an abstract, you can use the link <https://www.icamm2020.com/abstract-submission>

## June 2020

- The 6th International EcoSummit Congress - EcoSummit 2020 – Building a sustainable and desirable future: Adapting to a changing land and sea-scape , will take place at The Gold Coast Convention Centre, Gold Coast, Australia, from **21st – 25th June 2020.**

- The University of Cincinnati, College of Engineering and Applied Science, is hosting the 2020 ASME International Manufacturing Science and Engineering Conference (MSEC), during **June 22 – 26, 2020**, at Cincinnati, Ohio. As part of the conference, a Symposium on Internet and Digital Twins Technology for Smart Manufacturing is also planned. For details, visit <https://event.asme.org/MSEC/>
- University of Cincinnati is organizing North American Manufacturing Research Conference-48, during **June 22-26, 2020**. Six Tracks on **Manufacturing Systems, Manufacturing Processes, Material Removal, Additive Manufacturing, Smart Manufacturing – Processes, Systems and Integration and Industrial Applications and Manufacturing Education**. Submission at the link [https://namrc.sme.org/call-for-papers/?\\_zs=xVXof1&\\_zl=gjDF6](https://namrc.sme.org/call-for-papers/?_zs=xVXof1&_zl=gjDF6) (info from Akhilnandh Ramesh-Alumnus)

## September 2020

- The Third Malaysian International Tribology Conference will be held during **Sept 28-30, 2020** at Langkawi islands. MITC2020 official website: [www.mtc2020.mytribos.org](http://www.mtc2020.mytribos.org)  
Submission page: <https://www.mtc2020.mytribos.org/page-3/>  
Submission link: <https://cmt3.research.microsoft.com/MITC2020>

## January 2021

- IIT Bombay is organizing the **8th International Conference on Research into Design (ICoRD'21)**, with the theme **“Design for Tomorrow”**, during **7-9 January 2021**, at the **IDC School of Design, IIT Bombay**. Prospective authors should send an abstract of their paper (500 words) including paper title and author details, by uploading the abstract on the conference management tool latest by 1<sup>st</sup> February through <https://easychair.org/conferences/?conf=icord21>

## Challenges

- Car cooling challenge <https://www.ennomotive.com/car-cooling-system/>
- Dept. of administrative reforms and public grievances DARPG has announced an online hackathon <https://innovate.mygov.in/darpg-challenge/>. Online Event will be conducted after announcement on 05-NOV-2019. There would be time of 60 days from the launch of the Hackathon to register and submit solution prototype in one or more categories.
- Start the New Year by addressing the challenges of the world. Some are given below



**Food Service Design**  
Deadline: 2020-03-20  
Total Award: € 5,000  
Open to: Everyone\*  
Can you design a new, attractive and functional display and distribution furnishing system for the food service sector?



**NFL Helmet Challenge**  
Deadline: 2020-03-23  
Total Award: \$2,000,000  
Open to: Everyone\*  
Help to reduce head injuries in the high impact sport of football by submitting your ideas for improved helmet designs.



**Innovative Designs for Accessibility**  
Deadline: 2020-04-30  
Total Award: \$7,500 CAD  
Open to: Post secondary students\*  
Do you have a life-changing accessibility solution for people with disabilities?



**Rio Tinto Ore Upgrading Challenge**  
Deadline: 2020-03-02  
Total Award: \$350,000  
Open to: Everyone\*  
Can you design a new method to increase titanium dioxide content in ilmenite ore?

For details and more challenges, please visit: <https://www.ideaconnection.com/challenges/>



## Other Dept Round Up

**Chemical Engg Dept has won a prestigious award.**

**Our appreciations to the team- - VeA**

Dr R Parthiban, HoD/Chemical writes..



Dr. R. Parthiban

We have received the AMBUJA's Best Student Chapter Award - 2019 First prize

There are 160 IChE student chapters all over our country and three awards are given for the student chapters which are as follows.

1. Ambuja Best Student Chapter Award - I prize (Shield + Cash award of Rs 15000)
2. Ambuja Best Student Chapter Award - II prize (Shield + Cash award of Rs 10000)
3. Pidilite Best Student Chapter Award.

Also I wish to state that our IChE - SSN Student Chapter has received Ambuja Best Student Chapter Award II prize - 2018 ie last year and now we are receiving the First prize for the first time.

The award was given to us during CHEMCON 2019 which was held during 15-19 December 2019 at IIT Delhi.

## Automotive Update

The First Issue of ARAI Update for the current year contains the following articles:

- Facility for Evaluation of Diesel Exhaust Fluid (DEF) established at ARAI
- ARAI Academy – Noise & Vibration Lab (FID Chakan) New Capabilities
- Automotive Cable Testing as per National/International Standards
- Centre of Excellence in “Automotive Emerging Areas”
- ARAI Academy – Training Centre
- ARAI Knowledge Centre

[https://cms.araiindia.com/MediaFiles/ARAI-Update\\_Q11920\\_1430.pdf](https://cms.araiindia.com/MediaFiles/ARAI-Update_Q11920_1430.pdf)

## Inspiring Life Stories

### Teacher's Pet

Believe it or not, I was voted "Teacher's Pet" in my graduating class. To this day, I don't know how that was the case. Regardless of whether I agreed with it, I had to take a yearbook picture with Judith Shannon, my dreaded English teacher.

I might have been the pet for other teachers, but not Judith. She was my arch nemesis. She and I didn't always get along. Mrs. Shannon was the stereotypical tough teacher that made us work harder than we desired. She also took great joy in having a grading scale much tougher than any of the other teachers. She'd make us learn new vocab words, conjugate sentences, figure out what in the world was going on in Shakespeare's head, and worst of all, write in those stinking journals for 10 minutes straight. Mrs. Shannon would also slap the lectern (or the palm of your hand) with a ruler as our class recited "Am, Are, Is, Be, Was, Where, Been..." in unison.

One day toward the end of the year, I remember Mrs. Shannon giving our whole class an already stamped postcard with her address on it. She said something to the effect that we should write her one day and let her know how we were doing in college or in life. I don't remember my exact words, but this was around the time Wayne's World was a popular movie and Wayne would say "...and monkeys might fly out..."

Fast forward 25 years later and I guess monkeys were flying in a way. I sent Mrs. Shannon a copy of my first published book The Leadership Playbook. I thanked her in the acknowledgement section of that book.

She responded back with a note that said, "You obviously write extremely well." I guess that old English teacher was a smart lady after all. She knows what's up!

Full disclosure, though, I was the one to put that part of the note in quotation marks. She didn't. What she put in quotation marks was "I'm never going to write you a letter." Oops. I guess she remembered my rebellious comments 25 years ago, which by the way, weren't as bad as those in Wayne's World.

Well, I guess Mrs. Shannon got the last laugh, in a way.

The moral of the story?

If you are a teacher, coach, parent, leader, manager, or pastor, don't give up on people. Don't get discouraged if they aren't responding the way you'd like. Continue to do the right things. You never know when the seeds you plant will grow into a beautiful flower (not that I am calling myself a beautiful flower).

And for all of us ... don't be a punk like I was. Appreciate the efforts others are putting forth to help. Even if we don't like what we are being taught we can still demonstrate respect. We can still learn. We don't know it all.

Just like that teenager long ago, who knows what the future holds. Maybe what you don't like now will turn out to be an important part of your life later on.

Once again, thanks to all of you that supported us through buying The Bus Trip, sharing posts on social media, or leaving positive reviews! Thanks so much for reading this email and until next time, remember that success is a choice. What choice will you make today?

Jamy Bechler  
Motivational Speaker & Team Consultant

Corporate Wisdom - 73

PhD in Life...

Academic qualifications can give an entry to the professionals for entering an organization, but there after it is the ability and drive of the person to be successful in life and career. There is enough evidence and research to show that winning and being successful in life has little to do with academic qualifications. So you might be wondering why you need a PhD to achieve your goals in life and be the best you can be. Yes, you read it right. We all need a PhD, not the conventional Doctorate, but something more than that.

**What is PhD in life and career?** It is the new mantra or formula for success.

It stands for **Passion, Hunger and Discipline!**

Get them all. And see the difference. Becoming a Passionate, Hungry and Disciplined person can put you on the road to realizing your true greatness.

Passion: Do you enjoy what you are doing? Do you love your work? It's extremely important that each of us can answer those questions with a resounding 'Yes!' Passion helps ensure that you jump out of your bed every



morning and get to work on your goals. Not because you have to, but because you love to. Passion makes those long hours spent at work seem worthwhile because you are having fun, enjoying every moment. Outstanding results are achieved not through better resources or bigger budgets.

They are achieved by people madly, wildly, excited by their personal mission to be the best. I remember reading in a book where Martin Luther King once said: "If a man is called to be a street sweeper, he should sweep streets just as Michelangelo painted, or Beethoven composed music, or Shakespeare wrote poetry. He should sweep streets so well that all the hosts of heaven and earth will pause to say, here lived a great street sweeper who did his job well." Would they be saying that about you? Are you aiming to be the best "YOU" in the whole world? It's nice to be able to do what you love. But it's important to love what you are doing!

Hunger: How badly do you want to win? Are you really, really hungry for success? It's when you really want something that you start to go after it, and do all it takes to get it. If you want to win, you must first want to win. Get hungry. And yes, no one else can feel hungry for you.

You've probably heard the story of the young man who went up to Socrates and said he wanted to get wisdom. "Come with me," said Socrates and took him along to a river. Without any warning, Socrates pushed the man's head under water and held it there. The man did not know what was happening. He struggled for air. He moved his head, flailed his hands desperately seeking to get his head above water for some air. Socrates finally let go and asked him "What did you want when your head was under water?" "I wanted air," said the man. "Right," said Socrates, "when you want wisdom as badly as you wanted the air – you will get it!" So how badly do you want to win?

Discipline: And once you have the passion and the hunger, you'll probably see a road emerge in front of you, leading you to your goals. There will be obstacles on the way, there will be roadblocks, but you will need discipline to keep doing the right things, time after time after time. You need the discipline to stick on the path. Nothing of substance was ever achieved without discipline. An Olympic Gold medal-winning gymnast was asked the secret of her success. Her response: "I practiced when I felt like it. And also when I didn't." Success demands discipline. Slogging and staying the course – particularly when you 'don't feel like it' – is often the key to success.

**Never mind what you are doing now, commit yourself to becoming a PhD. A Passionate, Hungry and Disciplined person. Success is calling. Are you ready?**

Wishing you most and more  
R.Ramakrishnan

This edition of Aspire was compiled by Saran Prasanth, with support from Mohitha U M, Anupa Sri and Akshay Kanna.



Saran Prasanth



Akshay Kanna



Anupa Sri



Mohitha U.M

This issue has an annexure on the student activities of Society for Automotive Engineers (SAE) Club, tracing it from the very beginning.

Let us reflect with thanks and gratitude on the good things that 2019 brought us and then get ready to face the New Year 2020!