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All About Nobel Prize- Part 71

Nobel Laureates of 2019

The Nobel Prize in Physics 2019

James Peebles “for theoretical discoveries in physical cosmology”

Michel Mayor “for the discovery of an exoplanet orbiting a solar-type star”

Didier Queloz “for the discovery of an exoplanet orbiting a solar-type star”

The Nobel Prize in Chemistry 2019

John B. Goodenough, M. Stanley Whittingham and Akira Yoshino

“for the development of lithium-ion batteries”

The Nobel Prize in Physiology or Medicine 2019

William G. Kaelin Jr, Sir Peter J. Ratcliffe and Gregg L. Semenza

“for their discoveries of how cells sense and adapt to oxygen availability”

The Nobel Prize in Literature 2019

Peter Handke “for an influential work that with linguistic ingenuity has explored the periphery and the specificity of human experience”

The Nobel Peace Prize 2019

Abiy Ahmed Ali “for his efforts to achieve peace and international cooperation, and in particular for his decisive initiative to resolve the border conflict with neighbouring Eritrea”

The Prize in Economic Sciences 2019

Abhijit Banerjee, Esther Duflo and Michael Kremer

“for their experimental approach to alleviating global poverty”

Source: <https://www.nobelprize.org/all-2019-nobel-prizes/>



EdelGive Foundation and Hurun Research Institute released the "EdelGive Hurun India Philanthropy List 2019", a ranking of the Top 100 most generous individuals from India based on the cumulative contributions between 1st April 2018 to 31st March 2019.

It reads as :

"With a contribution to INR 826 crore, **Shiv Nadar, the Chairman of HCL tops the EdelGive Hurun India Philanthropy List 2019.** Nadar engages in philanthropy through the HCL Foundation (CSR arm of HCL) and the Shiv Nadar Foundation.

Founded in 2011, HCL Foundation is involved in promoting sports, arts & heritage and environmental conservation. The Shiv Nadar Foundation implements philanthropy through institutions such as the Shiv Nadar University, SHIKSHA Initiative, SSN Institutions, and Vidyagyan. In June 2019, Nadar contributed INR 15 crore to Elango Corporation Higher Secondary School, where he studied as a child, for renovation purposes. Nadar's wife, Kiran Nadar is also involved in the foundation and chairs the KiranNadar Museum of Art."

[https://www.edelgive.org/documents/251134/0/EdelGive%20Hurun%20India%20Philanthropy%20List%202019%20\(1\).pdf](https://www.edelgive.org/documents/251134/0/EdelGive%20Hurun%20India%20Philanthropy%20List%202019%20(1).pdf)

Dr.G.Sethuraman, Librarian writes..

SNU discovers Bacteria that eat plastic



The following article which appeared in 'dailyhunt' describes a discovery made by researchers at SNU, Noida , on Bacteria that eat plastics

<https://m.dailyhunt.in/news/india/tamil/bbc+tamil-epaper-bbctam/bilasdikkai+tinum+bakdeeriyakkal+kandubiditha+shiv+nadar+balkalaikkazhakam-newsid-141775704>

Info to Alumni- Department Update

External recognition

Dr.R.Vimal Samsingh delivered a lecture on the topic "Fabrication and characterization of Flexible Electronics" at a Five day FDP program on "Flexible and RF printed electronics", at SRM University, Kattankulathur on 11/10/2019.

Dr.R.Vimal Samsingh reviewed a paper for the journal of IEEE Industrial application Society



Dr. S. Suresh Kumar has reviewed a journal paper titled "Time-saving in manufacturing of neat and nano filled glass/epoxy composites using vacuum resin infusion with upgraded mechanical properties", for the Journal of Industrial Textiles.

Dr. K. Jayakumar, Associate Professor reviewed a paper titled "Pozzolanic Potential of Pre-Treated Oil-Based Drill Cuttings for Mortar Production" for the Journal of Advances in Materials Science and Engineering (Hindawi publication).



Research Activities

The article on "Performance Study of a Solar Greenhouse Dryer" , by U. Yokeshwaraperumal, A. S. Ramana, C. Arun Prakash and V. Kannan published in AIP Conf. Proc. 2161, 020027-1–020027-7; <https://doi.org/10.1063/1.5127618>.



Mr.C.Arun Prakash



Dr.A.S.Ramana



Dr.M.S.Alphin

Dr. M S Alphin published online, a technical paper titled "Design of Compliant Mechanism Microgripper Utilizing the Hoekens Straight Line Mechanism," Journal of Testing and Evaluation (in press), <https://doi.org/10.1520/JTE20190091>. Co-Authors:V. Gopal, M.S Alphin, and R. Bharanidaran, [Indexed by Clarivate Analytics (formerly Thomson Reuters)], Impact factor: 0.734.

Dr.D.Ananthapadmanaban ,Associate Professor and K.B.Hrithik, passed out SSN student have presented a paper titled “Analysis of friction stir welding parameters during welding of 2014 T6 and 6083 T6” at CTSE, 2019 International Conference ,conducted by Chemical Engg Department,SSN College of Engineering, on 27-9-2019.

The paper titled “Taguchi analysis of Friction Stir welding parameters during welding of Aluminium with copper and Aluminium-copper with Nickel interlayer”, submitted by Dr.D.Ananthapadmanaban, Associate Professor and E.Ravikumar,Associate Professor,Dept of Mechanical Engineering,Alpha College of Engineering, has been accepted for presentation in COPEN 2019 International Conference,to be held at I.I.T,Indore,in December 2019

Dr. N. Nallusamy, Professor, published the following five papers in AIP conference proceedings (Vol. 2161):

(1). “Experimental Investigation on Heat Transfer Enhancement of Latent Heat Storage System Containing Spherical Capsules with Internal Hollow and Solid fins” AIP Conference Proceedings Vol. 2161, 020001 (2019); <https://doi.org/10.1063/1.5127592> 02 October 2019. Authors: N. Nallusamy, Rahul Roy, and A. Surya.

(2). “Performance and emission characteristics of diesel engine fueled with diesel, bio diesel and additives”, AIP Conference Proceedings 2161, 020023 (2019); <https://doi.org/10.1063/1.5127614>, Authors: P. Janakiraman, M. Gajendiran, and N. Nallusamy.

(3). “Comprehensive review on heat transfer characteristics of microchannel heat sinks”, AIP Conference Proceedings 2161, 020007 (2019); <https://doi.org/10.1063/1.5127598>, Published Online: 02 October 2019, Authors: J. Jabin, N. Nallusamy, and V. Vigneshwaran.

(4). “Study of performance and emission characteristics of twin cylinder off road diesel engine using soapnut oil methyl ester and diesel blends”, AIP Conference Proceedings 2161, 020002 (2019); <https://doi.org/10.1063/1.5127593>, Published Online: 02 October 2019, Authors: V. Venkatesan, and N. Nallusamy.

(5). “Review on relation of heat pipes with nanotechnology for heat transfer enhancement”, AIP Conference Proceedings 2161, 020056 (2019); <https://doi.org/10.1063/1.5127647>, Published Online: 02 October 2019, Authors: V. Vigneshwaran, N. Nallusamy, and J. Jabin.



Prof.N.Nallusamy



Dr.S.Rajkumar



Dr.D.Ananthapadmanaban

1. Dr. S. Rajkumar, Associate Professor and M. Gowthama Krishnan (PhD Research scholar) published a technical paper titled “NOx emission characteristics of biodiesel fuelled compression ignition engines and its control strategies – A review” in Scopus indexed journal “AIP Conference Proceedings” (SJR 0.18) .
2. Dr. S. Rajkumar, Associate Professor, S. Shriram (UG student) and N. Rohith (UG student) published a technical paper titled “Effect of biodiesel fuel reformulation on emission characteristics–A review” in Scopus indexed journal “AIP Conference Proceedings” (SJR 0.18) .

Doctoral Committee Meetings

Dr. A. S. Ramana, Associate Prof , organized the First DC meeting for Mr. Faris Ahmed, National Doctoral Fellowship Research scholar, on 14.10.19.

Dr. N. Nallusamy, Professor, conducted DC meeting on 24-10-2019 for reviewing PhD Thesis evaluation comments & recommending oral examiners panel in respect of part-time research scholar Mr. P. Murugan (Reg. no. 2011172021).

Dr.K.Jayakumar, Assoc. Prof, organized the DC meeting for his Part Time Research Scholar Mr. T. SURESH, Reg. No-17142991208 (Jan 2017)



Prof.K.Subbaiah, attended the Confirmation Doctoral Committee meeting of Mr.K.K.Vinothkumar (Reg. No. 16122197142/Ph.D.AR10), Scholar of Dr.B.Mohan, Professor,CEG,Anna University, on 18.10.2019.

STUDENT ACTIVITIES:

1.The following Third year Mechanical Engineering students' abstract titled “**Carbon Nano Tubes and Magneto Rheological Fluid Based Vibration Absorbing & Deflecting Pads**” has been accepted for the next round of students project idea competition (ELGi DAY 2019). Roshan Ram Dayal (312217114083) and Viignesh.B (312217114322). Project Mentor Dr.S.Sureshkumar

2.The following Third year Mechanical Engineering students have submitted an abstract titled “**Airborne Logistics**” to the **India Innovation Challenge Design (IICD) – 2019**. This project mainly aims to develop an unmanned aerial vehicle for the delivery of goods. Shailesh Kumar (312217114090), S Aravind (312217114009) , Aditya Bucha (312217114004), Sarvesh S.V (312217114087), Raghasudhan K (312217114071) and Kevin J Thelly (**Third year CSE**). Project Mentor Dr.S.Sureshkumar

3.Srinath Venkatesh,2nd year, attended a workshop on Hybrid and electrical vehicles at MIT Chrompet, on 12.10.2019.

4.Aneesh Aravind R,3rd year, Volunteered for IEEE Xtreme 13.0, a National level coding event hosted by SSN IEEE SB, on 20.10.2019.

5.Shailesh Kumar,3rd year,completed an NPTEL course on Design Thinking. (10.10.2019).

6.Arun S, final year, participated in District roller skating championships 2019, on 6.10.2019.

7.The paper titled "Experimental investigation on the mechanical and stealth behaviour of CNT based Polymer nano composites", submitted by Navneeth V and Pranaav Sankar S, of Final year, was selected for presentation at IMME 2019, NIT Trichy (to be presented in conference during Dec 27-28).

Faculty Write up-1

QS INDIA SUMMIT - *Empowering Leaders in Academia for an Emergent Asia*

20 – 22 October 2019 • Cidade de Goa Resort, Goa, India

Report By : Dr. K.S. Vijay Sekar, Associate Professor, Dept. of Mechanical Engineering

I had the privilege of attending the QS INDIA Summit at Goa along with our Principal Dr. S. Salivahanan and Dr. Rajini, Professor, EEE Department . The summit was well organized with the enthusiastic participation of number of Vice and Pro Chancellors of Private Universities from India and abroad, Academic heads, IIT Directors and eminent faculty members as they congregated to share, network, discuss and disseminate global best practices on leadership and various elements that are crucial in the creation of World class universities. The summit had pre-conference workshops on the first day, followed by two full rigorous and mind altering days of panel discussions on various topics related to creation, sustenance and development of world class institutions and best practices.



Some of the key highlights over the three days were:

✓ **QS Rankings & Analytics – Beginner Workshop**

Mr Jason Newman, Vice President , QS Quacquarelli Symonds, UK and Mr Ashwin Fernandes Regional Director – MENA & South Asia, QS Quacquarelli Symonds, UK.

✓ **Using digital advertising and social media to recruit international students**

Mr Kesh Patel Product Manager – Insights & Strategy QS Quacquarelli Symonds, UK

✓ **World class Faculty recruitment, retention and development**

Dr Senthil Nathan - Managing Director and co-founder Edu Alliance, UAE

✓ **Keynote Session: 1**

Bioengineering Research at the University of Auckland

Prof Peter Hunter, Director - Auckland Bioengineering Institute, The University of Auckland, New Zealand

- ✓ **Keynote Session: 2**
Institutional Engagement & the Challenge of International Rankings
 Dr Jane Gatewood, Vice Provost for Global Engagement, University of Rochester, USA
- ✓ **Keynote Session: 3**
Strengthening Governance and Culture as Keys to Building World-Class Universities
 Prof Shailendra Mehta, President & Director, MICA, India
- ✓ **Panel discussion #1**
Institutions of Eminence to World Class Universities: The Way Forward
 Chair: Prof Stephen P Marks, François-Xavier Bagnoud Professor, Harvard University, USA.
 Dr. Rupamanjari Ghosh, Vice-Chancellor of Shiv Nadar University, Uttar Pradesh, India graced the panel and aired her thoughts on bringing a level playing ground as far as Institutions of eminence from the public and private universities were concerned.
- ✓ **Panel discussion #2**
Promoting a Culture of Research while Ensuring Excellence in Teaching: Building a Knowledge Society
 Chair: Dr Senthil Nathan, Managing Director and co-founder, Edu Alliance, UAE
- ✓ **Panel discussion #3**
Rankings and Ratings of Universities: Global Benchmarking for Institutional Transformation
 Chair: Prof C Raj Kumar, Founding Vice Chancellor, O P Jindal Global University, India
- ✓ **Panel discussion #4**
Nurturing the Institutional Reputation of a University: How should Universities Build their Brand and Image?
 Chair: Prof Shailendra Mehta, President & Director, MICA, India
- ✓ **Panel discussion #5**
Building Global Universities: Promoting Internationalisation as Institutional Priority
 Chair: Dr Vidya Yeravdekar, Principal Director, Symbiosis International University
- ✓ **Panel discussion #6**
The Future of Philanthropy in Education – Empowering Lives and Inspiring Change in India Chair: Prof Aditya Shastri, Vice Chancellor, Banasthali University

The major areas of discussion of the panels were :

- ✓ Bringing in better transparency in the QS ranking systems.
- ✓ Bridging the gap between universities in India and abroad.
- ✓ Bringing in parity between the Private and Public Institutions of eminence announced by GOI to enable a level playing field in terms of funding and infrastructure creation.
- ✓ Bringing truly world class faculty to Indian shores.

- ✓ Learning from evolved recruitment systems such as Harvard which follows a highly rigorous system of blind trials in the recruitment process, which sometimes takes 2 years to rope in the Best of Faculty.

The Summit ended on a high note with the launch of QS India University Rankings 2020 (Top 100 Universities) by Dr. Ramesh Pokhriyal Nishank, Hon'ble Minister of Human Resources Development, Government of India, New Delhi. The three days were filled with Six Power Packed Panels featuring 35+ leaders, International representation from 15+ countries and the key takeaways apart from getting an insight into the QS ranking system, its differences with the NIRF system, were extensive opportunities to network over various breaks, receptions and dinner.

Presented below is the key differentiator in the QS and NIRF Ranking system:

QS		NIRF	
1. Academic Reputation	- 40%	Teaching, Learning & Resources	- 30%
2. Employer Reputation	- 10%	Research and Professional Practice	- 30%
3. Faculty/Student Ratio	- 20%	Graduation Outcomes	- 20%
4. Citations per faculty	- 20%	Outreach and Inclusivity	- 10%
5. International Faculty Ratio	- 5%	Perception	- 10%
6. International Student Ratio	- 5%		

Faculty Write up-2

An example of 5S

The Workshop networking cables were a bit clumsy as we went on shifting people from place to place, demanding several re-routing of cables. Mr.Krishnan Arumugam (IT Infra) and his team worked on improving the switch rack networking cable re-dressing available in the department workshop. The completed set was a neat pack- worthy of showcasing as “Before” and “After” for teaching 5S. Thought of sharing with you all, on how to set things right and how to document them.-----VEA



Indian Coast Guard will be celebrating its 43rd raising day on 01 Feb 2020. Every year the Indian Coast Guard through various activities connect with the public/society by organizing a series of events. This year the 2nd edition of Coast Guard fitness challenge planned to be conducted on 07 Dec 19 (Saturday) at Vellore Institute of Technology, Chennai. The event is intended to test the fitness capability of participants and expose the participants to fitness, adventure and sports activities for one day. The event is open for participation in five categories.

- (a) College boys
- (b) College Girls / Corporate & Club Girls
- (c) Corporate/ Clubs
- (d) Armed forces
- (e) Individual/ Group of Five

The competition will be conducted in team format and each team should consist of five members. The team members will perform the tasks designed in respective modules. The top three teams in each category in each event would receive trophy and prizes worth 3 lakhs. All the participants will be provided with event T-shirt/cap.

As the event is intended to promote fitness and awareness about Coast Guard, Nil registration fee is being charged for the event.

The details of the event is attached. It is expected that your institution /organisation would field the best team for the event.

Seats are limited and team registration will be approved on first come first serve basis. So please confirm participation of your company/institution team at the earliest by sending your complete application form to indiancoastguardfitness2@gmail.com. On receipt of application form entry passes will be sent to you. Last date for receipt of completed application form is **30 Nov 19**. If you are not able to e-mail your application form, WhatsApp your scan copy of complete application form to Mobile No. 9446559680, 9445064064 and 7358188201.

For any query /clarification please contact/WhatsApp Deputy Event coordinator PK Mushtaq Ali at 9446559680 or WhatsApp at 9445064064 to Event Coordinator Prem Kumar.

Dr. K.Jayakumar
has forwarded this info



Efforts in getting first year student projects for internal funding

Dr.R.Rajeswari writes.....



- This year it was a quite challenging task compared to last year as the students of different departments were scattered in different sections. So it became difficult to meet all of the Mechanical Engineering students together.
- Hence we decided to create a group mail ID for first year Mechanical Engineering students through which our HOD briefed on the importance of taking up an internal funded project and advantages of doing a project at the earlier stages of under graduation. All the faculty handling Engineering Graphics, were requested to publicise the scheme in their classes.
- Initially we attempted students of different departments to form groups, so that they can work along with their friends.
- Groups with different branches were not interested in taking up a pure mechanical engineering project.
- They were looking for projects that combine mech as well as their branch. We had very few projects in that category (robotics, mechatronics, etc.,).
- The other branch students wanted to do projects with their department faculty.
- Perhaps, such interdisciplinary groups will materialise in higher semesters, when each is comfortable in learning another stream.
- Therefore, it all ended up in only mech students joining our teams. Students were also advised to form groups of not more than four in each group.
- Then Mechanical Engineering students from different sections and within sections formed groups.
- Totally 8 UG projects and 2 PG project proposals have been submitted.
- This time we have requested faculty to suggest project ideas well in advance even before the groups have formed. Many faculties came up enthusiastically, with several project ideas.
- This enabled the project groups to select their projects on their own from the list of projects given by the faculty. The faculty concerned and students discussed and came up with a proposal.
- Finally, it was possible just because, our faculty were forthcoming readily with their project ideas to the students which enabled us to accommodate all the batches to their expectation.

Collaborative research work with VIT: Published



Dr. Bharanidaran, VIT Vellore, Dr. Alphin, SSN



V. Gopal, M.S. Alphin, and R. Bharanidaran, "Design of Compliant Mechanism Microgripper Utilizing the Hoekens Straight Line Mechanism," *Journal of Testing and Evaluation* (in press), <https://doi.org/10.1520/JTE20190091>. Impact Factor: 0.71, Science Citation Index®

This research article focuses on the design of a compliant microgripper with parallel moving jaws by employing the Hoekens straight line mechanism. The Hoekens mechanism consists of binary and ternary revolute joints, which demand a special type of flexure hinges. Hence, the article introduces the cartwheel type of flexure hinges, as cartwheel-type flexure hinges are more suitable to achieve rotational deformation, values approximating nearly to that of the traditional revolute joint when it transfers motion between fixed and moving links. The outer rim of the cartwheel is modified to allow ternary and binary joints between moving links. Cartwheel is designed with curved flexure arms that are limited to eight numbers of flexures. The structural behavior of the cartwheel is analyzed by varying numbered flexures from 1 to 8. The minimum number of flexure arms required for having better rotational performance is determined through Finite Element Analysis (FEA). An appropriate type of cartwheel is positioned in the mechanism. The structural performance of the designed microgripper is carried out through FEA, and its parallel movement is verified. The microgripper is fabricated from structural steel through wire Electrical Discharge Machining (EDM) technique and actuated using Shape Memory Alloy wire. The displacement of the microgripper jaw is experimentally measured, and the results show a promising improvement which was described in this paper.



Pursue Ph.D. Through National Doctoral Fellowship

- Faris Ahmed (NDF Research Scholar)

Faris Ahmed has joined PhD in SSN through NDF scheme. He is working on “Performance Assessment of Energy Efficient HVAC systems for Commercial Building Application”, under the guidance of Dr.A.S.Ramana . -----VeA

In order to promote research in approved institutions, All India Council for Technical Education, AICTE has launched the National Doctoral Fellowship Scheme (NDF). Final Year M.Tech Students, who want to pursue Ph.D at AICTE approved disciplines, will be provided research fellowship. The application has to be submitted through NDF AICTE portal and online portal will be active from the month of April.

As per the given criteria, the age of the candidates should be less than 30 years of the same applied year. However, candidates belonging to SC/ST, women and physically challenged category will get the age relaxation of 5 years.

In academic performance, students must have secured aggregate marks of 7.5 CGPA / 67.5 % or above at M.Tech and B.Tech level. Along with this, he/she should have qualified through GATE in last 5 years. The duration of the Scheme shall be for a period of 3 Years.

In this National Doctoral Fellowship Scheme, candidates will get Rs. 28,000/- per month and house rent allowance wherever the hostel/ Institute accommodation is not available. The HRA will be provided as per the rates of Ph.D Scholarship notified by Ministry of Human Resource Development, Department of Higher Education (Technical Section-I) vide F. Number 17-2/2014-TS.I dated 18.02.2015.

A total of 300 candidates would be selected under the National Doctoral Fellowship Scheme. Each institute has been allotted 3 seats by the All India Council for Technical Education. The vacant seat of any institution will be allotted to the other institutions by the Nodal Centre on the approval of AICTE. The central reservation policy is followed in this scheme. The initial selection process is based on publishing of rank list upon the academic and GATE percentile of candidates. The identified candidates would be assessed through an Interview at the selected Institutes and thereafter final selection carried out by National Nodal Centre.

Thrust Areas of Research are: Nuclear Engineering and Technology, Robotics and Mechatronics, Energy Efficiency, Renewable and Sustainable Energy, Electric and Hybrid Mobility, Smart Cities, Housing and Transportation, IoT, I2oT and Embedded Systems, Nano Science and Technology, Big Data, Machine Learning and AI, Drug Modelling and Development, Biomedical and Rehabilitation, Smart Technologies for Agriculture and Food Industry, Water Purification, Conservation and Management.

For Further Information please check the link <https://ndf.aicte-india.org>



Image Courtesy James D Morgan/Qantas

In terms of international flights, Qantas has notched up some impressive milestones, of late. The test flight was completed in a new Boeing 787-9, which re-routed its empty delivery flight from Seattle to carry a total of 49 passengers and crew over the 16,200 km (10,066 mi) journey between the Big Apple and Sydney.

The journey took 19 hours and 16 minutes in all, and being an experimental test flight Qantas collected a range of data on the people onboard. This included monitoring melatonin levels, alertness and also the brainwaves of the pilots, while the passengers were also treated (or subjected) to exercise classes. Lighting and meal times were also tweaked in a bid to lessen jet lag.

The regular Qantas flight between New York and Sydney with one stop along the way takes 22 hours and 20 minutes, meaning that by doing it without having to touch down, Qantas shaved a good three hours off the travel time. Qantas is working with medical researchers and scientists from Australia's Charles Perkins Centre and Monash University to make sense of the in-flight data. The results will guide the crew rostering and customer service for future ultra long-haul flights, while two more are planned for the coming months – London to Sydney in November and then New York to Sydney again in December.

Source: <https://newatlas.com/aircraft/qantas-record-breaking-19-hour-flight/>

V2H ENGINEERING

V2H Engineering is a start-up engineering enterprise which emphasizes on manufacturing of quality automobile products and engineering services. They manufacture high precision turned, press and fabricated parts. They provide a range of services like precision machining, sheet metal and fabrication, customization, engineering services and refurbishment.

With their headquarters in Sriperumbudur in Kancheepuram district, they are one of the fastest growing start-ups in the machining industry.



They are currently looking for employees for two different openings- One for a CNC operator and are considering freshers for this particular role. The other opening is for a CNC setter and programmer. For both roles, they require candidates with diploma or a valid engineering degree.

Website: <http://www.v2hengineering.com/Home.html>

Email: enquiry@v2hengineering.com

Amazing Innovation- 137



Laser to shoot down drones

The US Air Force has taken delivery of its first high-energy laser for shooting down Unmanned Aerial Vehicles (UAV). Built by Raytheon, it will be used in overseas deployments as part of a year-long experiment to test the laser weapon and to train operators in real-world scenarios. This is because a laser can not only deliver a kill-shot that can destroy or, at the very least, blind a UAV but it can do so at the speed of light and at the cost of a dollar per round.

In the case of Raytheon, the company has developed a High-Energy Laser Weapon System (HELWS) around its Multi-Spectral Targeting System, which is an electro-optical/infrared sensor that can detect, identify, and track hostile drones, allowing the laser to lock on and engage in a matter of seconds.

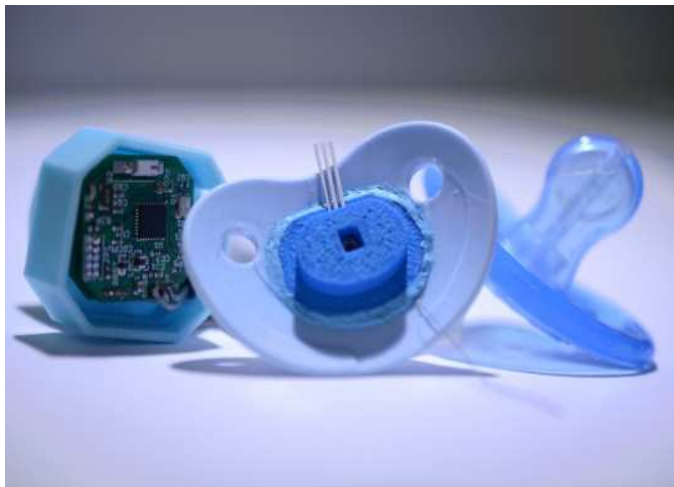
Raytheon's new laser is mounted on a small all-terrain vehicle and can use a single charge from a standard 220-volt mains outlet to not only fire a dozen laser shots, but also provide intelligence, surveillance, and reconnaissance capabilities. Hooked to a generator, it can deliver a near-infinite number of shots.

The video below introduces the Raytheon High-Energy Laser Weapon System.

<https://youtu.be/9j-E2bCOrg8>

Reproduced from : <https://newatlas.com/military/us-air-force-drone-killing-laser/>

Amazing Innovation- 138



"Smart" pacifier measures babies' glucose levels

Because of infants' soft, sensitive skin, it's generally not a good idea to rig them up with medical biosensors that are taped directly to their body. Scientists have therefore developed what could be an alternative, in the form a pacifier that measures glucose levels within the tykes' saliva.

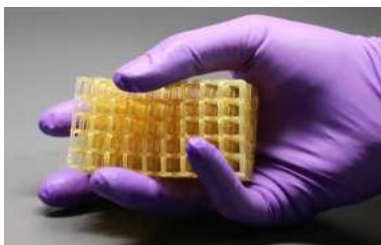
The proof-of-concept device was created by a team led by Prof. Joseph Wang of the University of California-San Diego, and Prof. Alberto Escarpa from Spain's University of Alcalá.

It was designed so that when an infant sucked on the pacifier, small amounts of saliva would be transferred through the channel to a detection chamber. There, an enzyme attached to an electrode strip would convert glucose in the fluid to a weak electrical signal, which could be detected wirelessly by a cell phone app. The strength of the current correlated with the amount of glucose in saliva samples.

The researchers haven't yet tested the device with babies, but they conducted a preliminary analysis with adult type 1 diabetes patients. Using the pacifier, the team detected changes in glucose concentrations in the patients' saliva before and after a meal. The device could someday be configured to monitor other disease biomarkers, the researchers say.

Reproduced from : "NewAtlas" & <https://www.acs.org/content/acs/en/pressroom/presspacs/2019/acs-presspac-october-23-2019/pacifier-biosensor-could-help-monitor-newborn-health.html>

Amazing Innovation- 139



HARP is a type of stereolithographic (SLA) printer. This means that instead of extruding layers of molten plastic that subsequently harden, it shines a beam of ultraviolet light into a vat of liquid resin, causing that resin to polymerize into a three-dimensional solid in specific areas. As the print bed moves vertically past the light source, objects are thus built up in successive layers.

Reproduced from: <https://newatlas.com/3d-printing/harp-sla-3d-printer/>

Big and Fast 3D printer

Developed by scientists at Illinois' Northwestern University, the prototype device is known as HARP, which stands for "high-area rapid printing." It measures 13 feet high (4 m), has a 2.5-sq ft (0.2-sq m) print bed, and is able to print a record-breaking half a yard (0.5 m) of material *on* that bed per hour. It's capable of creating objects that are hard and durable, elastic and bouncy, or even ceramic.

Amazing Innovation- 140



Copter that can carry six persons

With the ability to carry up to 250 kg (551 lb) of payload at speeds up to 80 km/h (50 mph), the 12-rotor Seraph is Britain's leading electric VTOL (Vertical Take-Off and Landing) air taxi candidate. Vertical Aerospace has released video of this chunky bird in flight.

The Seraph has 12 rotors, mounted coaxially on six arms. It appears to carry its battery in the roof, allowing air wash from the side propeller tips to cool the battery and electronics.

Watching its beefy carbon composite body in flight, it's hard not to compare it to a bumblebee. Neither look like they have any business being in the air, and yet both appear to do the job just fine.

Vertical Aerospace, based in Bristol, says the Seraph's carrying capacity of 250 kg represents the capability to carry up to three people – although it won't be doing so. Instead, the company, which now employs 70 people, is in the process of building and certifying a different, passenger-focused aircraft it hopes to fly in 2020.

So the Seraph is relegated to testing and potential heavy-lift cargo duties. It's somewhat modular, with the ability to be converted to use skids, wheels or floats for water landings. It can also be built larger or smaller depending on the demands of the operation.

Watch the flight at <https://youtu.be/3RqdzjXUo0>

Reproduced from: <https://newatlas.com/aircraft/vertical-industries-evtol-flying-car-seraph/>

Alumni Info

Sharan writes....

Hey guys I'd like to introduce to all of you, Ganesh Mukundan (Batch 2011-2015) who is now currently a Content Marketing Specialist at Hiver (Grexlt Inc.), India. During his time at SSN, Ganesh was actively involved in various organizational roles for CrankX, then, the annual symposium of the Department of Mechanical Engineering and Instincts as well.



After completing his under-graduation at SSN, he was hired as a Digital Content Strategist at CloudCherry, Chennai. The three years he spent at CloudCherry, served as a great step towards a career in the field of Marketing and Product Development.

He was involved in building content strategy, propaganda and also in marketing using social media and other platforms. He then had a brief stint at KRDS, an independent social media agency and in March 2019, joined Hiver. His role in this organisation focuses mainly on marketing as a tool for product scaling.

Ganesh will be sharing his experiences as a write-up which will be sent to all of you by mail shortly.

Sathianandan (Sam) Dharmaselvan , completed his UG degree at SSN Mech, during 2013-17. Then he went to Colorado University for Masters in Petroleum Engineering. He is now Drilling Engineer - Wellsite Technology at Ensign Energy Services, USA. He had also served as Vice President of the International Students council in the Colorado School of Mines.



Vishal Venkatesh Ganesh, completed his BE mech in 2017. He did his Masters in Industrial engineering at Texas A&M University during 2017-19. After a brief 8 month internship at Tesla, he is now Senior Industrial Engineer-Product planning at Western Digital (Computer Hardware company at San Jose, California).



Akshay Aravindan writes...

Akshay Aravindan completed his BE in 2018 and went to Stanford University for his Masters.

He shares a few thoughts on Academics.

I'm going to do my masters in mechanical engineering. What next?

This is a recurring question that kept me up at night quite a bit. Not only did I have to adjust (quickly) to a completely new lifestyle here in the US, I had to also do well in my classes, do projects and also find an internship and job??!!

That's the kind of fast paced life that you deal with, while in a masters program. You learn to multitask and enjoy the whole process in doing so. I am now a second year masters student at Stanford University pursuing mechanical engineering. My focus in my masters is on mechanical design and mechatronic systems and I intend to go on to be a product design engineer when I graduate.

Classes and Projects:

One of the most important things I've learned by doing my masters is that nothing should stop you from taking on the biggest challenges and risks. When I first got to Stanford University, I was surrounded by people who seemed like they were geniuses in their fields (they are) and I wasn't sure how I fit in. But as a couple of months went by, I realized that as long as you put in the hours and stay focused on your classes, anything is possible. I have now realized that you can always learn to learn things and that's a really important skillset to have- to be able to learn whatever you need to suit the application. Trust me, everyone has the ability to do this. So don't be afraid to take risks.

Internships and jobs:

While the system in India is conducive to getting jobs through campus placements, the situation here is far from it. A lot of it is based on your initiative and the ability to network. Always keep looking for opportunities to connect with people and leverage all such contacts in your attempts to find a job/internship. This is an extremely tasking process – takes many months but is definitely needed. Make sure you start early. If you start school in Fall, make sure you're already looking for internships within the next one month or so. Companies hire early and the only way you can use the system is if you take advantage of it.

SSN is an experience that prepared me for my life here in the US. I have numerous lessons I've learned throughout the 4 years that I still continue to use everyday. Be it the classes I sat through and the extra research/projects I did at SSN, or simply the life lessons I learned along the way, I am extremely grateful to be a part of the SSN family. By being an engineering graduate from SSN, you've made it half the way. Now it's a matter of leveraging that experience to begin a new chapter in your masters life.

Please feel free to contact me if you want to chat more about masters in mechanical engineering or if you need any help, I'd be glad to be of assistance.

Akshay Aravindan
akshay.aravindan96@gmail.com

Forthcoming Events

Workshop / Seminar

1.Syed Ammal Engineering College, Ramanathapuram is organizing an AICTE sponsored Short Term Training Programme (STTP) on "Newer Material – Challenges and Optimization Techniques for Engineering Applications" during **4th–9th November, 2019**.

2.AICTE sponsored two Weeks Faculty Development Program (FDP) on "IoT and ADVANCED TECHNOLOGIES in MANUFACTURING" during **11th - 23rd, November 2019** is being organized by the Department of Mechanical Engineering, Panimalar Engg College, Chennai - 600 123.

3.St.Peters institute of Higher Education and Research, is organizing an INTERNATIONAL WORKSHOP on "Extraction of Bio Fibres and Structural Components Manufacturing Using Natural Composites" on **13th November 2019**.

4.Indian Institute of Information Technology Design and Manufacturing (IIITDM), Kancheepuram, Chennai (under Ministry of HRD, Govt. of India) is organizing a AICTE sponsored short term courses on the forthcoming session. The details of the courses are as follows

a) AICTE sponsored Short Term Course (STC) on" Internet of Things: Concepts and Implementation" **15th–19th November, 2019** - [Brochure](#) - [Registration link](#)

b) AICTE sponsored STTP on "Kinematic Analysis and Synthesis of Robot Mechanisms during **16-21 Dec. 2019**. <http://iiitdm.ac.in/Others/STTP.php>

c)AICTE sponsored Short Term Course (STC) on "Power Electronic converters and Controllers for EV and Smartgrid" **18th–22nd December, 2019** - [Brochure](#) - [Registration link](#)

5.The Centre for Intellectual Property Rights (CIPR), Anna University is organizing a "Certificate Course on Effective Patent Search and Drafting – 2019 (PAT DRAFT 2019)" from **2nd to 6th December 2019** at College of Engineering Guindy, Anna University, Chennai – 600 025.

Conferences

1.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

2.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. Send Abstracts on or before Nov 10.

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

brochure: https://drive.google.com/open?id=1N0mNd7MJVRarRLPn1BvDFPVfly_WcyB3

3.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/> .

4.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.

5.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/>
Abstract submission on or before 15 November 2019 at : icame2020.ktr@srmist.edu.in

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

7.The Twelfth International Conference on Information, Process, and Knowledge Management, eKNOW 2020, is planned during **March 22 -26, 2020**, at Barcelona, Spain. This conference has a special track on **KMI 4.0: Toward Industry 4.0 by Knowledge Management**. Submit papers by Dec 3, 2019 at link <https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=eKNOW+2020+Special>
Please select Track Preference as KMI 4.0

Topics include, but not limited to:

- Industry 4.0 vector of growth and development of knowledge management and vice versa;
- The role of Industry 4.0 in the improvement of manufacturing processes and their flexibility using the principles of knowledge management;
- Optimization of the manufacturing processes via industry 4.0 and knowledge management ;
- Industrial Internet of Things (IIoT) and knowledge management;
- Cyber-Physical Systems and knowledge management;
- The Internet of Services (IoS) and knowledge management;
- Smart factory ;
- Reinforcement of the principles if Industry 4.0 by knowledge management (Interoperability, Virtualization, Decentralization, Real-Time Capability...etc.).

8.*The Institute for Sustainable and Environmental Chemistry, Leuphana University Lüneburg, Germany is organizing the fifth Green and Sustainable Chemistry Conference in Bonn, Germany, during **May10-13, 2019**. Submission open till Dec 4. Energy Conversion and Storage is a main theme.*

9.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**. Abstract submission deadline: 15 November 2019.

10.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. Authors are encouraged to submit an abstract and full manuscript for review by November 15, 2019 via the conference website. <https://event.asme.org/MSEC/>

11.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**. Last date for abstracts Nov 15. Submission at the link https://namrc.sme.org/call-for-papers/?_zs=xVXofl&_zl=gjDF6 (info from Akhilnandh Ramesh-Alumnus)

Research News from MSP

1.SERB has developed a newly approved scheme that seeks to explore new scientific breakthroughs, with long-term impact on our fundamental scientific understanding, and offer disruptive technologies at the cutting edge. SERB-SUPRA (Scientific and Useful Profound Research Advancement) is a scheme beyond normal core grants and purposefully designed for high quality proposals consisting of new hypothesis or challenge existing ones, and provide 'out-of-box' solutions.



Dr.Muthu Senthil Pandian
SSNResearch Centre

Transformative and disruptive research concepts based on innovative and unproven hypothesis, possessing a high degree of uncertainty, yet having conviction to produce a lasting impact across discipline boundaries qualify for support under SERB-SUPRA.

Most important measures of this scheme are:

- Quantum of advances (incremental and short terms gains are strongly discouraged).
- Extent of disruption in fundamental understanding or impact on outstanding research grand challenges: new areas, new concepts, new products, new disruptive technologies.
- Ability of research outcomes in enhancing scientific knowledge of the cutting-edge at the international level and/or emergence of critical technologies.
- Global impact, outstanding publications, advancement of science.

Submissions under SERB-SUPRA can only be made against call for proposals, with public announcement through SERB online portal and social media. Funding will be provided normally for a period of three years, which could be extended to 2 years (5 years total) as assessed by an expert committee. The research grant will encompass normal budget heads, apart from an overhead grant. It is envisaged that innovative SUPRA proposals will bring out breakthrough solutions in identified areas. Success of such proposals will ideally open up new opportunities in S&T and impact global science not only in terms of knowledge, but also in the form of delivered outcomes.

Last date for submission of project proposal: **30 November 2019**

Website Links:

<https://serbonline.in/SERB/Supra>

<http://www.serb.gov.in/pdfs/what-new/Brochure-SUPRA.pdf>

<https://serbonline.in/SERB/HomePage.do>

2.Applications/Nominations are invited for Young Scientist Awards for the year 2019 in the following five disciplines: 1. Mathematical Sciences, 2. Physical Sciences, 3. Chemical sciences, 4. Biological Sciences
5. Engineering & Technology.

Scientists should be **below the age of 40 years as on 31/12/2019**. The completed application/nomination may be sent through email: tnasc108@gmail.com and one hard copy by post with a few selected reprints (at least Five) in support of the original and innovative ideas of the author.

Nominations/Applications invited for the current year (2019) from 1st November 2019 to **31st December 2019**.

Website Links:

<http://www.tnasc.com/young-scientist-awards/>

<http://www.tnasc.com/>

Inspiring Life Stories

You see what you want to see

As a college student, I spent my summers as a life guard and camp counselor. During the weekends, the camp director would take the staff for boat rides around the lake. It seemed like every five minutes, he said, “See that turtle over there” or “Look at that turtle sunny itself on that log”. I don’t think I saw a turtle before he saw it at any point during that entire summer. Funny thing is that I also never saw a turtle on my own when I went out on the boat out without him.

I was reminded of this story recently when I conducted a weekend leadership retreat with a NCAA Division I basketball team. One of the activities that the team organized was picking up trash along a scenic beachfront stretch of road. As we walked along the side of the road, we encounter a lot of trash as you might expect. We also saw cigarette butt after cigarette butt littered in the vegetation. In the next hour, it seemed like that was the only thing we saw. As we talked about this activity afterward, some of the players remarked that they were amazed at how much trash was laying on the side of the road. They mentioned that they had never really noticed cigarette butts on the ground before. But to make the area cleaner, they began picking up cigarette butt after cigarette butt because they started looking for them.

Do you know why I never saw the turtles? Because I wasn’t looking for turtles. My camp director was looking for turtles. Guess what? He found them. I wasn’t looking for turtles and guess what? I never found them.

The basketball players never noticed cigarette butts until they started looking for them. Once that happened, they found loads of them.

Many of us see our own version of the turtles (or cigarette butts) every day. We want to see life a certain way. We look for things that confirm our worldview – our perspective. If we want to be negative, then we’ll see events and situations that way. We will look for things that confirms our opinion of a person or a circumstance.

The problem with this is that we lose a little bit of our ability to exercise discernment and use the brains that God gave us. People we don’t like can be right and do good things. People we trust can do bad things or be wrong.

Former President Lyndon B. Johnson once said, ***“If I walked on water across the Potomac River, there would be people upset that their president didn’t know how to swim.”*** L.B.J. understood that many people are oftentimes about as happy or sad, positive or negative as they want to be.

How about us? Are we seeing only what we are looking for or are we open-minded, self-aware, and willing to see other perspectives? If we are looking for turtles, then that is probably what we’ll find.

Jamy Bechler
Motivational Speaker

The Team that creates Aspire....



Vinaya Krishna



Saran Prasanth



Akshay Kanna



Anupa Sri



Mohitha U.M

Most of us have a fear of failure. That's the reason for our discomfort with taking risks. That's why we are anxious about being passed over for a promotion or our business not taking off or our children's progress not meeting our expectations.



However, beneath this fear of failure, we are actually afraid of rejection – the dreadful feeling that our peers may perceive us poorly. Humans are social animals and we derive a considerable part of our self-identity from our perception of how others think of us. Many of us base our self-worth on our apparent relative status within our social circle.

Moreover, activities that enhance our relative status act as a mood booster. Activities that decrease that status, or even merely create the fear of a decline, result in release of stress hormones. The risk of social rejection is paralysing for us. As a result, we fail to pursue our passion and bring our true self to the world. We also continue to conform to our social circle's expectations, even though we may suffer within.

So that is the Antidote ?

Happier people have a healthier sense of self-worth and prefer living by their own standards. They are comfortable in their own skin and are happy being themselves. Not that they are over-confident or have an excessive self-belief; **they are more self-aware and are at peace with their strengths and weaknesses.**

They are conscious of their personal values and commit to live by them; are mindful of their unique gifts and appreciate the need to express them fully; have high self-respect and recognise that only when we respect ourselves do we earn others' respect too.

Above all, they prefer to evaluate their life's journey by self-imposed inner yardsticks rather than by comparing themselves with others. They don't look to others for approval and hence are less impacted by the fear of rejection.

To build higher self-worth, we need to engage in some serious self-work. Learn to accept self for who we are, work with affirmations to train our anxious self to feel more complete and consider meditation to build inner strength

Self-work is a journey and not a destination... Enjoy the Journey and there is enjoyment without negative thoughts.

#WishingMostAndMore

Have a great day & wonderful week

R.Ramakrishnan