



NEWS CLIPS

February 2-8, 2019

Highlights of the Week@IITD

IIT-D alumnus pledges financial aid to help fight pollution

February 5, 2019 <https://www.thehindu.com/news/cities/Delhi/iit-d-alumnus-pledges-financial-aid-to-help-fight-pollution/article26178970.ece>



Contributes ₹5 crore to Centre of Excellence for Research on Clean Air, inaugurated in February last year

To understand better the source of air pollution through systematic data generation and help come up with interventions to address these sources of pollution, Arun Duggal, an alumnus of IIT Delhi, has made a financial contribution to IIT Delhi's Centre of Excellence for Research on Clean Air (CERCA).

The institute said Mr. Duggal has pledged ₹5 crore for CERCA, which was inaugurated in February last year, to assist policy makers in the government dealing with air quality issues by providing scientific information and objective feedback on various pollution control measures.

Director of IIT Delhi, V Ramgopal Rao said the institute has taken many steps to address the air quality problems in Delhi by understanding the sources of air pollution through systematic data generation and validation. "Through the efforts of Mr. Duggal and the institute, we are now able to put a team together and connect them with the key government agencies to come up with technological and policy interventions to address the sources of pollution, whether it is the paddy straw burning issue in neighbouring states or addressing the vehicular pollution levels in Delhi," Mr. Rao said.

Report

According to CERCA's annual review report, in order to improve the air quality in Delhi-NCR, stringent measures are required in all the sectors in addition to the already planned strategies. These include substantial investments in renewable energy, electric mobility, public transportation, particularly electric buses, expanded use of gas for power generation and industry including brick kilns.

IIT Delhi also said that it was in the process of installing sophisticated Beta Attenuation Monitoring (BAM) equipment for continuous monitoring of ambient air quality in IIT campus to enable further research on air quality as well as for calibrating of other air quality monitoring equipment.

IIT Delhi students criticise GoI for 'minimal hike' in fellowships

February 5, 2019 <https://kashmirreader.com/2019/02/05/iit-delhi-students-criticise-goi-for-minimal-hike-in-fellowships/>

IIT-Delhi research scholars criticised the government of India (GoI) for hiking the fellowships of PhD students by "minimal amount" and said it is unacceptable and a "betrayal" to them. The GoI on January 30 enhanced the fellowship of PhD students and other research personnel enrolled in any area of science and technology. It said the move will directly benefit over 60,000 researchers. Fellowship of the Junior Research Fellows (JRF) in the first two years of the PhD programme has been increased from Rs 25,000 to Rs 31,000 per month. Similarly, in the remaining tenure of PhD, a Senior Research Fellow will get Rs 35,000 per month, instead of the present Rs 28,000. The IIT-Delhi research scholars said the negligence of the research interests in the country sends a clear message to the world about "the sorry state of affairs in the bureaucracy and lack of political will to improve research and education". They demanded the government must immediately revamp the Office Memorandum meeting the demand of research scholars. The research scholars of IIT Delhi in unison would like to put on record that they are extremely disappointed and feel betrayed by the authorities concerned, they said. The mere increase in the fellowship is an insult to the research scholars' community, they added. "Research scholars of IITD, along with researchers from every part of the country have been protesting for several months for the hike in research fellowships. After regular intimations to the ministries and agencies concerned, expressing our genuine demands, this hike is unjustified and not acceptable," one of the scholars said. According to the scholars, they had asked for an 80 per cent hike along with revision in HRA amount. Not only the hike is offensively low but the HRA amount remains unchanged. The meagre hike has been implemented from January 1, 2019 with no arrears. An empowered committee, set up to enhance the fellowship of PhD students, will work out the incentives for research scholars in a month or two, a senior official had said. The government had said there is a substantial 30-35 per cent enhancement in the financial rewards for the scientists involved in the research and development (R&D) projects as research associates and the top bracket of research associateship is fixed at Rs 54,000. All the research fellows are also entitled to house rent allowance as per the central government norms.

February 8

Indore: IIT-I develops eRespirocare for early diagnosis of lung diseases

<https://www.freepressjournal.in/indore/indore-iit-i-develops-erespirocare-for-early-diagnosis-of-lung-diseases/1454953>



Making a significant contribution to healthcare sector, an inter-disciplinary team of researchers at Indian Institute of Technology, Indore has developed an intelligent, low-cost and easy to use digital auscultation based integrated diagnostic system which provides a seamless connect between patients in rural areas and specialist doctors, for an early diagnosis of lung-related diseases. The prototype has been named as eRespirocare.

“Early screening and diagnosis of symptomatic cases through eRespirocare will not only help in timely detection and initiation of treatment but will also result in significant reduction in morbidity and mortality due to respiratory diseases,” said a press release issued by IIT Indore on Thursday. In many far-flung areas, the barefoot doctor, an Accredited Social Health Activist (ASHA), is a source of medical care and the need for a smart device facilitating a remote access of doctor to a patient is a necessity. “eRespirocare uses digital auscultation coupled with information technology (IT) platform and artificial intelligence (AI) based machine learning approaches.”

IIT-Bombay's waste-to-power cell can help cut pollution

<https://timesofindia.indiatimes.com/city/mumbai/iit-bombays-waste-to-power-cell-can-help-cut-pollution/articleshow/67893095.cms>

A team of researchers from IIT-Bombay may have a solution for the perennial problem of pollution around the city's dumping grounds.

Prakash Ghosh and his team from the institute's department of energy science and engineering have developed a design of microbial fuel cells that can produce electric energy using waste. The cells will not only help in generating power but will also curb pollution caused by untreated waste.

A microbial fuel cell works on the principle of oxidation of organic materials by micro-organisms. The researchers used landfill leachate - a dark liquid that either percolates through the landfill system or is composed of waste water - as fuel for the cells. The leachate is highly polluted and can

contaminate groundwater if left untreated. However, it contains organic and inorganic nutrients, which release energy when broken down.

"The microbial cells also help reduce the COD (chemical oxygen demand) levels in the leachate, thereby treating wastewater partially. This water can be treated further and released into water bodies," said Ghosh. "Other conventional methods use electricity for the treatment of water. The microbial fuel cells are the most effective way of generating electricity and simultaneously treating water."

The team's newly developed electrodes using conducting polymers are resulting in higher organic matter oxidation and power generation. "We believe our electrodes are the cheapest compared to existing literature," said Ghosh.

The research paper on 'Landfill leachate: A promising substrate for microbial fuel cells' by Ghosh, Jayesh Sonawane and Samuel Adeloju was published in the International Journal of Hydrogen Energy. "Fuel cells have attracted considerable attention due to their potential to produce electrical power from a wide variety of waste water while achieving partial treatment," said the paper. Domestic waste water, distillery waste water, farm manure, etc can be used as feedstock in the MFCs, said Ghosh, but the researchers have achieved the best performance using leachate.

February 7

Attention GATE 2019 aspirants! J&K govt asks candidates to register who missed flights due to bad weather

<https://www.abplive.in/education-news/attention-gate-2019-aspirants-jk-govt-asks-candidates-to-register-who-missed-flights-due-to-bad-weather-913644>

GATE 2019: The government today issued a notification saying that the candidates may register themselves with the authorities who missed their flights because of the bad weather.



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GATE 2019: The Jammu and Kashmir government has come to the rescue of Graduate Aptitude Test in Engineering (GATE) aspirants who have sought help from the authorities to reach their entrance examination venues saying their flights got cancelled due to bad weather and the concerned authorities haven't rescheduled their flights yet. The government today issued a notification saying

that the candidates may register themselves with the authorities who missed their flights because of the bad weather. The notification read, "Attention GATE aspirants

GATE aspirants who missed their flights last two days due to bad weather in Srinagar May kindly get themselves registered with the Assistant Commissioner Central in the office of Divisional Commissioner Kashmir. ACC Qazi Irfan Sb. 9419484646 acckashmir@gmail.com."

The GATE is scheduled to be held on 9th and 10th February. The aspirants of GATE had on Wednesday sought immediate rescheduling of their cancelled flights saying they will miss the entrance test if there is further delay. "We have to appear for the entrance test, but due to bad weather, our flight has been cancelled. The authorities even knowing that we were going to appear for the important examination, they have not rescheduled the bookings, citing the reasons of hike in fare prices. We won't be able to sit in the examination," the GATE aspirants was quoted as saying by Rising Kashmir.

GATE examination of Electronics and Communication Engineering (EC) is going to be held on February 9, 2019. On the same day, the examination of Electrical Engineering (EE) is also scheduled. The entrance examination of Civil Engineering is scheduled on 10th February 2019.

UGC NET 2019: NTA Releases Exam Notification for June Session Online at ntanet.nic.in; Check Important Dates, Revised Syllabus & Other Details Here

<https://www.latestly.com/india/education/ugc-net-2019-nta-releases-exam-notification-for-june-session-online-at-ntanet-nic-in-check-important-dates-revised-syllabus-other-details-here-630332.html>

The National Testing Agency (NTA) is gearing up to conduct the National Eligibility Test (NET) in June 2019. NTA has already released the exam schedule, and it is available online on the official websites; nta.ac.in, ntanet.nic.in. According to the NET 2019 notification, the registration process will begin from March 1 and will continue till March 30. Besides, the admit cards will be available for candidates to download from May 15. Here are all the examination details and important NTA NET 2019 related dates for those who are participating in the upcoming coveted test.

NTA has also updated or revised the syllabi of all papers for University Grants Commission (UGC) NET June 2019 examination. NET is conducted in a single three-hour duration with two papers. Those who qualify the exam for Junior Research Fellowship will be eligible to receive a fellowship of UGC under various schemes. In their notification, NTA stated that the UGC had updated the syllabus of all the NET subjects including Paper 1 on General Awareness. Students can check the updated program on the UGC NET website; ugcnetonline.in.

NTA UGC NET 2019 Exam Important Dates

Online Registrations: March 1 to March 30, 2019

Availability of NET Admit Card: May 15, 2019

UGC NET 2019 Exam Dates: June 20, 21, 24, 25, 26, 27 and 28, 2019

UGC NET 2019 Result: Tentatively in July

NTA UGC NET 2019 Syllabus

The candidates for UGC NET 2019 should be aware with the syllabus before they appear for the exam. NTA NET 2019 will consist of two papers—Paper 1 will be a common paper, and Paper 2 will be subject based. Note that all the subjects including Paper 1 have been updated by the UGC. The paper is common for all the candidates, and it is compulsory for everyone to qualify. The detailed NTA NET 2019 syllabi revised by UGC can be accessed online at ugcnetonline.in.

NTA first conducted the NET 2019 in December in which about 65.3 per cent candidates appeared in the exam on day one, and 72.8 per cent aspirants appeared on the day two of exam. NTA conducted the UGC NET 2018 at 235 cities for a total of 85 subjects. The UGC NET 2019 exam for June session will be conducted in 84 subjects at 91 selected cities. Those who qualify will be eligible for Assistant Professor post only or Junior Research Fellowship or both.

IIT Ropar researchers invent pen-size inverter

<https://timesofindia.indiatimes.com/city/ludhiana/iit-ropar-researchers-invent-pen-size-inverter/articleshow/67876103.cms>



Researchers at IIT Ropar have invented a pocket-size inverter, which is almost the size of a pen. The researchers claimed that the inverter would cost around Rs 5,000, which is very cheap than any commercially available inverter.

The compact sized inverter is useful for UPS, electric vehicles and renewable energy power conversion applications. Owing to the rising harmful effects of pollution and depletion of natural resources, generation of electrical power using renewable energy sources and demand for pollution-free electric vehicle technologies is the need of the hour.

DON'T GO BY THE SIZE

<p>➤ 4kVA inverter is just the size of 14×5cm but can drive up to 5HP field machines</p>	
<p>➤ 4 times more power supply than offhome UPS inverters</p>	
<p>➤ The researchers claim that inverters being used in homes can convert and</p>	<p>A pocket inverter made by the IIT Ropar research students</p>
<p>supply power up to 1.1kV, whereas this new compact design is capable of supplying power up to 4kW</p>	<p>➤ 4kW power supply by this inverter against up to 1.1kV power converted and supplied by inverters used in homes</p>

Having dimensions of 14×5 cm, the designed inverter is 4KVA, which is capable of driving up to 5HP field machines. The researchers claimed that if compared, this pocket-size inverter can supply the power four times more than the home UPS inverters. The researchers said that inverters being used in homes could convert and supply power up to 1.1KV, whereas this new compact design is capable of supplying power up to 4KV.

Its design comprises two-layer printed circuit board (PCB), where the components are accommodated on two sides of the board. “The batteries have to be attached in a similar way as it is used with other inverters. However, our newly designed inverter is four times more powerful than the home inverters. One can carry this compact inverter, having current rating up to 10A, while travelling in vehicles,” said A V Ravi Teja, assistant professor at electrical engineering department, IIT Ropar.

The research has been conducted by Teja and his PhD scholars Ashwani Kumar Rana and Muddasani Satyanarayana in the institute.

February 6



Bosch Opens Center for Data Science and Artificial Intelligence at IIT Madras

<https://www.dqindia.com/bosch-opens-center-data-science-artificial-intelligence-iit-madras/>

Deep Reinforcement Learning is at the cutting edge of the new Artificial Intelligence revolution and is responsible for the many path-breaking developments in AI recently

The Robert Bosch Center for Data Science and Artificial Intelligence (RBC-DSAI) was inaugurated at the Indian Institute of Technology Madras (IIT-M) today. “Artificial Intelligence is a core technology for all areas of connected life – from connected mobility to buildings, factories, and cities. The expertise of our Indian engineers contributes to expanding the AI skills set of Bosch,” said Dr. Michael Bolle, member of Bosch’s board of management, during the opening ceremony. Bosch will invest 20 crores (2.5 million euros) over five years in the center. The mission of the new center is to create societal impact through multidisciplinary interactions with government, academic, research and industrial collaborators on core challenges in Data Science (DS) and Artificial Intelligence (AI).

The RBC-DSAI will undertake foundational research in many areas of AI and Data Science, namely deep learning, reinforcement learning, network analytics, interpretable machine learning, and domain aware AI. The areas of activity include research projects, knowledge management and dissemination, outreach projects, and setting up collaborative facilities and laboratories. “The center’s mandate requires interaction with industry and other universities, including international student and faculty exchanges. The objective is to advance scientific innovation for societal benefit,” says Prof. Bhaskar Ramamurthi, Director, IIT-Madras.

Applied research will begin in four verticals: manufacturing analytics, financial analytics, smart cities, systems biology and health care. Several technologies currently require large datasets to improve their accuracy and to adapt these technologies for the Indian context. There are basic issues in the way we collect and share data; these need to be solved in a collective and open-sourced manner. To address this issue, Prof. B. Ravindran, who heads RBC-DSAI, says, “The center, in addition to fundamental research, is setting out on an ambitious task of creating a portal of curated, India specific data sets that are easy to access and interpret through a set of open tools and interfaces.”

Deep Reinforcement Learning is at the cutting edge of the new AI revolution and is responsible for the many path-breaking developments in AI recently. RBC-DSAI has the largest Deep Reinforcement Learning group in India. Researchers at RBC-DSAI are also looking at networked data across different disciplines – biology, transportation, water distribution, process modelling, online social media, telecom, and reaction networks.

“Bosch has funded two important technology areas with Cyber Physical Systems and Data Sciences & AI at IISc (Indian Institute of Science) and IIT-M. By working together and conducting aligned R&D activities, they could accelerate major breakthroughs which will have wider societal impact,” says Dr. Vijendran Venkoparao, head of technology strategy and university relations at Robert Bosch Engineering and Business Solutions. “This collaboration between Bosch and IIT-M takes a long term view for India. It uses big data and artificial intelligence to accelerate positive impact for society”, says Vijay Ratnaparkhe, president and managing director at Robert Bosch Engineering and Business Solutions.

IIT Mandi team uses diesel soot to mop up oil, chemicals from water

https://www.business-standard.com/article/pti-stories/iit-mandi-team-uses-diesel-soot-to-mop-up-oil-chemicals-from-water-119020600867_1.html

Researchers at IIT Mandi have created recyclable sponges incorporated with soot emitted by diesel engines that can mop up oil and other organic pollutants from water.

Diesel engines are known to emit significant amounts of soot, which is formed in the fuel rich regions of the burning diesel jets.

Increasing environmental concerns, as well as stringent emission standards require new ways to reduce this soot, researchers said.

Rahul Vaish, associate professor at Indian Institute of Technology (IIT) Mandi, along with his research students Vishvendra Pratap Singh and Moolchand Sharma said that while it is impossible to bring down soot emissions to zero, it is possible to find use for the soot produced.

It is known that carbon species can adsorb various organic pollutants in water, researchers said. Carbon nanotubes, filter paper, mesh films, and graphene have been used for removing oil from water.

Given that the typical carbon content of soot is between 90 and 98 per cent, the team explored the possibility of using this pollutant as an adsorbent of oil and organic contaminants in water.

"There is a rapid increase in oil and chemical leakages from oil tankers or ships and industrial accidents with expansion in oil production and transportation in the last few decades," researchers wrote in the study published in the journal *Environmental Science and Pollution Research*.

Previously, Vaish had used candle soot to successfully remove two cationic dyes, rhodamine B and methylene blue from water, thereby showing the possibility of organic chemical removal by soot.

Extending this earlier work, the research team incorporated diesel exhaust soot into polymer sponges to study their capability to adsorb oil and other organic materials from water.

This hydrophobic sponge showed high absorption capacity for various oils, without need for complex pre-treatments. An interesting observation was that the sponges were recyclable and retained 95 per cent efficiency even after 10 cycles.

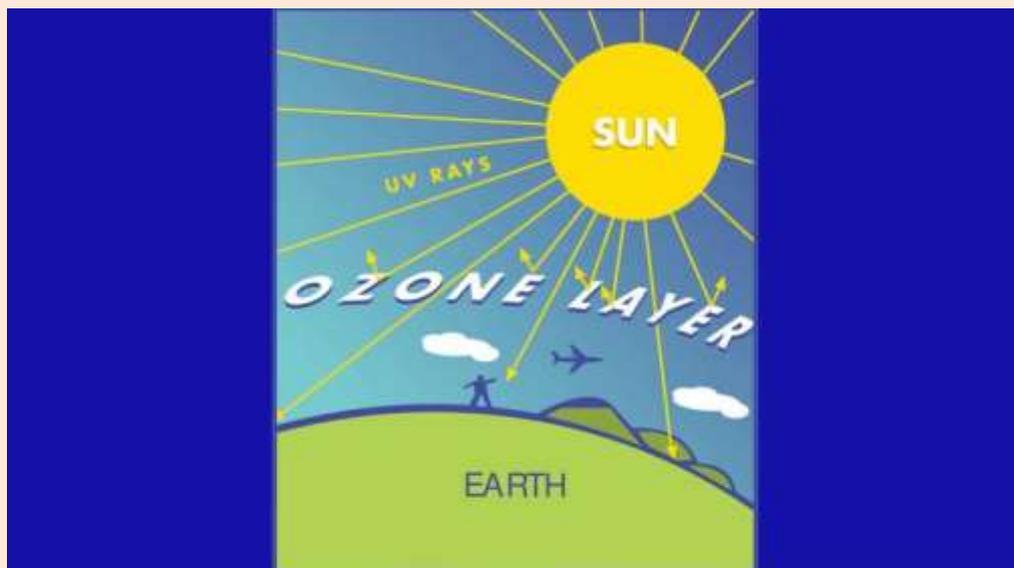
The diesel soot impregnated sponge could also absorb pollutants like methylene blue, ciprofloxacin, and detergent from the water. This has practical implications, researchers said.

"Apart from oil spills, organic pollutants such as traces of dyes and detergent coming from industries and households are a major contributor to water pollution," said Vaish.

The soot impregnated sponge can help in developing cost-effective remediation processes for common domestic and industrial pollutants. Such a development would additionally serve to repurpose automobile waste.

Study from IIT Kharagpur provides more evidence of the recovering Antarctic ozone hole

<https://researchmatters.in/news/study-iit-kharagpur-provides-more-evidence-recovering-antarctic-ozone-hole>



Study from IIT Kharagpur provides more evidence of the recovering Antarctic ozone hole

Without the quintessential ozone layer, which protects the Earth by absorbing the harmful ultraviolet radiations from the Sun, life may not have evolved the way it did. However, in recent decades, there was alarming news of the ozone layer thinning due to the use of ozone-depleting substances like chlorofluorocarbons (CFCs) used in refrigerators and air conditioners. This news prompted the signing of the Montreal Protocol in 1989 to regulate the use of ozone-depleting substances. Thanks to the stepped up efforts of many countries; the Antarctic ozone hole is on its way to recovery.

Scientists recognised the loss of ozone by studying the ozone layer above Antarctica and identified a giant 'hole' in the 1980s. In reality, there is no 'hole' that is entirely devoid of ozone; it is the decreasing volume of ozone in a column of air that is referred to as a 'hole'. When this volume, measured from ground to the top of the atmosphere has a value below 220 Dobson Units (DU), it becomes a cause for concern. The Dobson Unit is a measure of the ozone concentration. A column of air with one DU ozone concentration would contain about 2.69×10^{16} ozone molecules for every square centimetre of area at the base of the column. The average thickness of the ozone layer is about 300 DU.

In a recent study, researchers from the Indian Institute of Technology Kharagpur have provided more evidence to support that the ozone hole is recovering by analysing data from ozonesondes and satellites over Antarctica. An ozonesonde is a balloon-borne instrument for measuring atmospheric ozone. The device has significant design contributions from renowned Indian scientist Anna Mani. The current study, published in the journal *npj Climate and Atmospheric Science*, examined data from ten different stations in Antarctica, including India's research station Maitri, for the period between 1979 and 2017.

The researchers observed significant changes in the ozone loss saturation layer—a stretch in lower stratosphere between 13–21 km, where there is a near-zero concentration of ozone. The data showed that loss of ozone started in the early 1980s, and worsened to a negligible amount of ozone

for the first time in 1985. Subsequently, an almost complete ozone loss recurred in 1987 and continued during the following winters, except for the winters of 1988 and 2002, which were warmer than the rest. However, during 2001-2017, although there was continued ozone loss, it was less frequent than earlier and the ozone concentration gradually increased.

“This is the emergence of an important milestone in ozone recovery”, says Prof. Jayanarayanan Kuttippurath from IIT Kharagpur, who is also the lead author of the study.

Interestingly, the researchers also observed that the loss of ozone was not uniform at all altitudes. A complete loss of ozone began at the height of about 12 km and continued until 22 km into the atmosphere from the surface of the Earth. The whole stretch of 13-16 km encountered a recurring loss of ozone. The satellite measurements corroborated with the data from ozonesonde and showed a similar pattern.

“This change in the vertical distribution of ozone is significant for ozone loss saturation—a unique phenomenon of the complete loss of ozone at altitudes between 12 and 21 km.”, says Prof. Pandey, who is also the founder director of National Centre for Polar and Ocean Research, adding that “any change in the vertical distribution of ozone has both short and long-term implications for climate change in the southern hemisphere.”

The researchers attribute the change in the ozone layer to the three-decades-old Montreal Protocol. Their analysis shows an evident decline in the frequency of complete loss of ozone layer after the implementation of this protocol. The findings also support the recent report by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) that the ozone hole will completely heal by 2060.

Although it is hard to stay optimistic in a world dogged by several environmental problems, the healing of ozone hole is a reason to cheer.

‘UAVs for Disaster Management’ by IIT Madras wins Microsoft challenge

<https://www.theindianwire.com/education/uavs-disaster-management-iit-madras-wins-microsoft-challenge-99721/>



The “Codefundo++ National Challenge” conducted under Microsoft’s Academia Accelerator Programme held on Tuesday, January 5th, themed under “build state of the art technology to

predict or manage natural disasters better”, the winner for the challenge was emerged to be ‘UAV’s for Disaster Management’ presented by IIT Madras.

The IIT Madras project constitutes Artificial Intelligence powered drones which will have the ability to provide information about the exact location where the disaster has occurred.

IIT Guwahati, that emerged to be the runner-up for the challenge presented a Mixed Reality App that will perform basic tasks such as communication, navigation, and current status of the rescuers making it easy for them to communicate.

According to the statement released by the Microsoft, the winners will be awarded ₹5 lakh, ₹3 lakh, and ₹1 lakh.

In July 2017, the Microsoft in order to put AI at work for the future of Earth granted \$50 million as a five-year commitment. To give the Commitment a push, they will be providing technical and educational support through the AI for Earth to the winning teams and will also award them with \$5000 in Azure Credits.

“India has immense potential to be a hub of development for AI-driven solutions. Microsoft’s engagement with the Academia reiterates our commitment to engage and enrich the innovation journey of students in Engineering schools,” Chitra Sood, Director Business Management, Microsoft India (R&D) Private Ltd., said in a statement.

February 5

IIT Madras claims victory in challenge to facilitate AI drones for disaster management

<https://www.devdiscourse.com/article/technology/369056-iit-madras-claims-victory-in-challenge-to-facilitate-ai-drones-for-disaster-management>



Artificial Intelligence (AI)-powered drones to provide precise information about where exactly people are stuck when a disaster strikes emerged as the top winner of a challenge under Microsoft's Academia Accelerator programme here on Tuesday. The solution was showcased by a team from the

Indian Institute of Technology Madras (IIT Madras). The other two winning teams of the challenge are also from IITs.

For making a Mixed Reality app that makes basic tasks like communication, navigation and current status monitoring easy for rescuers, the team from IIT Guwahati was judged the first runner up in the competition, Microsoft said. The IIT Jodhpur team's Internet of Things (IoT)-based solution that acts as an early warning system and takes precautionary measures on detection of disasters was placed third in the competition.

The three winning teams will be awarded Rs 5 lakhs, Rs 3 lakhs and Rs 1 lakh respectively, Microsoft said. The theme for "Codefundo++ National Challenge" under Microsoft Academia Accelerator was "build state of the art technology to predict or manage natural disasters better".

The winning teams will receive technical and educational support through the AI for Earth grantee community and each winning team will also be awarded \$5,000 in Azure credits from AI for Earth. Launched in July 2017, AI for Earth is a \$50 million, five-year commitment from Microsoft to put AI at work for the future of the planet.

"India has immense potential to be a hub of development for AI-driven solutions. Microsoft's engagement with the Academia reiterates our commitment to engage and enrich the innovation journey of students in Engineering schools," Chitra Sood, Director Business Management, Microsoft India (R&D) Private Ltd., said in a statement. Academia Accelerator is one of Microsoft's most comprehensive campus engagement programmes aimed at building a deep, long-term association between industry and academia in India.

IIT-M researchers generate laser from carrots

<https://newstodaynet.com/index.php/2019/02/05/iit-m-researchers-generate-laser-from-carrots/>

Researchers at Indian Institute of Technology, Madras, have generated laser from carrots, which will lead to advancements in research in optical spectroscopy and sensing, claimed reports on Monday.

"This finding by the IIT Madras team, a first of its kind development even globally, promises significant advancements in scientific and industrial research on optical spectroscopy and sensing," said a press release.

According to reports, Professor C Vijayan and Assistant Professor SivaramaKrishnan from the Physics Department and a PhD scholar used a process first discovered by Nobel laureate C V Raman in this finding, and it is said to be bio-friendly, robust and reliable. It also had good linear response to temperature, added the release.



“In this case, a particular class of lasers called random lasers have been demonstrated in carrots where a Raman process plays a central role along with the cellulose network,” the release added.

The lasers were indispensable in a range of products and technologies, including communication, lithography, medicine, military operations, scientific research, engineering, displays, and data storage, it said.

Organic bio-pigments like carotenoids in carrots (which also contains cellulose fibres that contribute to multiple scattering of photons and resultant optical amplification) and porphyrins found in chlorophyll were optically active media because of their visible light absorption properties, said Assistant Professor Sivarama Krishnan.

“Although the fluorescence quantum yield of carotenoids is much less compared to standard organic laser dyes, the vibrational spectra can be obtained even with extremely low concentrations of carotenoids. The research team naturally chose carotenoid, as a possible lasing source,” he further added.

IIT Kharagpur to have Research and Innovation Unit to encourage MSMEs, startups

<https://knnindia.co.in/news/newsdetails/sectors/iit-kharagpur-to-have-research-and-innovation-unit-to-encourage-msmes-startups>



IIT Kharagpur to have Research and Innovation Unit to encourage MSMEs, startups

The Centre of Excellence in Advanced Manufacturing Technology at the Indian Institute of Technology (IIT) Kharagpur is coming up with a Research and Innovation Unit to encourage Micro, Small and Medium Enterprises (MSMEs) and startups for entrepreneurial initiatives.

Union Minister of State for Heavy Industries and Public Enterprises, Babul Supriyo while interacting with media in Kharagpur, said that the industrial facilities will play a pivotal role for connecting the centre of excellence with people.

Congratulating the leadership team of IIT Kharagpur while visiting the Centre, Supriyo asserted that the Centre of Excellence has the planning in place to be one of the best.

He expressed that IIT Kharagpur has worked in industrial domain specific to high end manufacturing technology in area of training, engineering and has helped in cost-effective solutions for affordable and accessible technology to industry and people.

Besides, he emphasized that it will also be encouraging industrial transformation in entire value chain including high end technology and employment opportunities.

Director IIT Kharagpur, Professor Partha Pratim Chakrabarti, said the utility of industrial monitoring, robotics and high end technology for the solutions is another area where the progress will help development and growth of industrial sector as a whole.

He added that the industrial domain technology areas including high end analysis of the manufacturing will be quintessential component where Centre of Excellence will provide solutions for manufacturing.

February 3

Interdisciplinary Research center launched by IIT Gandhinagar

<https://www.brainbuxa.com/education-news/interdisciplinary-research-center-launched-by-iit-gandhinagar-9097>



IIT Gandhinagar has announced the launch of its Interdisciplinary Research center named as Dr. Kiran C Patel center for Sustainable Development. Through the research center, IIT Gandhinagar aims to solve the local and global issues of the society and promote sustainable development in India.

According to the institute, the Center will also set up network researchers and experts on sustainability and will undertake the research on issues such as water, pollution, waste management, energy, natural resources and climate change.

In an official statement, the Center said "it will research sustainability and related challenges of high societal importance and promote cost-effective and sustainable solutions through its strong outreach and technology-transfer programs".

The center has been set up with an endowment from philanthropist Dr. Kiran C Patel, a cardiologist based in Florida, USA and was launched on January 31, 2019.

Speaking about this center, Prof Sudhir K Jain, Director, IIT Gandhinagar, said, "Dr.. Patel's exceptional generosity for an institution with which he has no earlier connection touches us deeply and inspires us greatly. The gift will enable our faculty and students to work on developing practical solutions to major sustainability challenges through the integration of advanced research, traditional knowledge and field understanding."

February 2

Techno fest kicks off at IIT-BBS

<https://timesofindia.indiatimes.com/city/bhubaneswar/techno-fest-kicks-off-at-iit-bbs/articleshow/67804196.cms>

A three-day techno-management festival - Wissenaire'19 - started at the Indian Institute of Technology (IIT)- Bhubaneswar at Argul on Friday with the theme "Augmented reality: The perceptual enhancement of reality for the genesis of anthropocentric technology".

The techno-management fest was inaugurated by K Radhakrishanan, former chairman of Indian Space Research Organisation (ISRO), and now serving as an adviser to the ISRO. Radhakrishanan delivered a lecture on augmented reality and human space exploration.

"Wissenair has been growing gradually since its first edition in 2011. The previous editions witnessed participation of hundreds of students from academic institutes from different cities of India. The trend will continue this time too," said IIT-BBS director R V Rajakumar.

The fest, which will conclude on February 3, will offer an array of things to the tech-savvy generation such as a collection of competitions, workshops, exhibitions and guest lectures on the scientific, technical and managerial domains. "The techno fest will provide a challenging platform to young minds," said Rajakumar.

As part of the event, IIT-BBS will organise national level competitive examinations for the students of Class VIII, IX and X with an aim to bring about improvement in school education in the country. This will provide a platform to the participating students to interact with the students and faculties of IIT-BBS.

Moreover, workshops will be organised on various subjects such as artificial intelligence and machine learning, augmented reality and virtual reality, automobile and IC engine, cyber security and ethical hacking, bridge design, digital marketing, innovation and communication and internet of things.

Experts from various fields will also interact with the students of IIT-BBS and the students participating in the competitions during the event. The experts include Paul Sandip, founder of Paul Studio, Suhasini Paul, eminent toy designer, Siddhartha Dash, founder of Siddhartha Das Studio, Luis Dias, founder of Child's Play India Foundation, among others.

Tech-based health hub at IIT-Kgp soon

<https://timesofindia.indiatimes.com/city/kolkata/tech-based-health-hub-at-iit-kgp-soon/articleshow/67801224.cms>

IIT Kharagpur will set up a common research and technology development hub for affordable healthcare, an initiative aligned with its 400-bed superspecialty hospital.

The initiative, supported by the Centre's department of scientific and industrial research, will address the issues of accessibility and affordability, challenging the mode-rn healthcare system with technological innovations.

"Access to quality primary healthcare remains a major challenge in rural parts of India, with over 80% of healthcare technology being imported and escalating the cost of delivering services. Also, the concentration of leading healthcare units in urban areas leads to accessibility issue," said Satadal Saha, visiting professor at the IIT's School of Medical Science and Technology.

February 1

Budget 2019 for Higher Education: IITs, IIMs, IISER, UGC and AICTE face allocation cut

<https://www.financialexpress.com/budget/budget-2019-for-higher-education-iits-iims-iiser-ugc-and-aicte-face-allocation-cut/1469533/>

Budget 2019 for Education: Out of the total allocation for 2019-20, Rs 37,461.01 crore has been assigned for higher education, while the rest of the amount, Rs 56,386.63 crore has been allocated for school education.



Budget 2019 for Higher Education!

Budget 2019 for Higher Education: Piyush Goyal, the Union Minister for Finance and Corporate Affairs on Friday presented the interim budget for 2019-20 and earmarked Rs 93,847.64 crore for the education

sector. The allocation this year has seen an increase of 10 percent from last year. The center during the Budget 2018 presentation had allocated Rs 85,010 crore for the sector. Out of the total allocation for 2019-20, Rs 37,461.01 crore has been assigned for higher education, while the rest of the amount, Rs 56,386.63 crore has been allocated for school education.

The center has given a major boost to the Indian Institutes of Technology (IITs) and National Institutes of Technology (NITs) as they have proposed the setting up of 'Schools of Planning and Architecture' (SPA). While talking about the same, FM Piyush Goyal proposed the setting up of two new full-fledged SPAs that will be selected on challenge mode. Along with this, he also said an addition 18 SPAs will be established in the IITs and NITs as autonomous schools.

While there is a boost for IITs and NITs in terms of the establishment of SPAs, there has been a decline in the budget outlays for IITs, IIMs, IISER, UGC and AICTE. While the Human Resource Development Ministry has called in for the implementation of 10 pct reservation for the economically weaker sections from the upcoming session onwards along with the increase in seats at varsities for the poor, the Higher Education sector this year has faced a massive loss.

As per the interim budget 2019, the budget outlay for the Indian Institutes of Management (IIMs) as seen a decline of 59.9 per cent from last fiscal's allocation from Rs 1,036 crore to Rs 415.41 crore. The IITs have also seen a decline in their budget from Rs 6,326 crore in 2018-19 to Rs 6,223.02 crore this year. However, this is not the first time when there has been a cut in the budget outlay for the IITs. The top technical institution saw a cut in the last fiscal from Rs 8,337.21 crore in 2017-18 to Rs 6,326 crore in 2018-19.

Along with these two top higher education institutions, the budget outlay for the Indian Institute of Science, Education and Research (IISERs) has also seen a drop from Rs 689 crore in 2018-19 to Rs 660 crore in 2019-20.

Apart from these educational Institutions, the statutory and regulatory bodies such as UGC and AICTE have also witnessed a decline. There has been a decrease from Rs 4,722.75 crore in 2018-19 to Rs 4,600.66 in the budget outlay for the University Grants Commission (UGC). On the other hand, the outlay of All India Council for Technical Education (AICTE) has come down to Rs 466 crore this year as compared to Rs 485 in 2018-19.

Three-day meet at IIT-Madras discuss personalised cancer treatment strategies

<https://timesofindia.indiatimes.com/city/chennai/three-day-meet-at-iit-madras-discuss-personalised-cancer-treatment-strategies/articleshow/67796284.cms>



Researchers in the field of biotechnology across the country have come under one-roof to exchange ideas on 'Cancer Precision Medicine and Personalised Therapeutics' at the Pan IIT Biotech Meet.

The three-day meet, which will conclude on Saturday, will have experts also discussing innovation in cancer genomics among others. The meet is organised by IIT-Madras, Office of International and Alumni Relations, Department of Biotechnology, Bhupat and Jyoti Mehta School of Biosciences and The Mehta Family Foundation, Houston, US.

“We want to create programs in key areas needed for India's growth such as quantum computing, artificial intelligence, robotics, energy, advanced materials and even new areas in life sciences like population health. These are things that are going to change India's landscape,” said Rahul Mehta, founder, The Mehta Family Foundation, at the inaugural session earlier on Thursday.

The conference has brought together scientists from IITs, Indian Institute of Science and Educational Research (IISERs) and Indian Institute of Science (IISc), Bengaluru, as well as the international researchers to also discuss drug development, target selection and the impact of new discoveries in personalized treatment strategies.

“Young people entering this field, through such conferences, will get a very good idea of how various people are approaching cancer treatment and get a snapshot of recent advancements,” said IIT Madras director Bhaskar Ramamurthi.

Indian Institute of Technology, Ropar and ID Tech Solutions (P) Ltd. Sign MoU for Joint R&D to Address Growing RFID and IoT Markets

https://www.business-standard.com/article/pti-stories/indian-institute-of-technology-ropar-and-id-tech-solutions-p-ltd-sign-mou-for-joint-r-d-to-address-growing-rfid-and-iot-markets-119013100684_1.html

ID Tech announced that it has entered into an agreement with the Indian Institute of Technology Ropar to identify and enhance joint research and development in the field of IoT and RFID. Prof. Harpreet Singh (Dean, ICSR&II, IIT Ropar) and Mr. Saurav Khemani - Director, ID Tech Solutions (P) Ltd., signed a Memorandum of Understanding (MoU) at Indian Institute of Technology, Ropar, and Punjab, India.

Under this MoU, IITRPR and ID Tech will jointly work on value creation for major Government initiatives across smart cities, as well as for the logistics and transportation domain, by leveraging advanced technologies. One of the areas this joint R&D aims to explore is the use of RFID to optimize the movement of vehicles through different tolls across the country, which can reduce long queues thereby reducing fuel consumption and pollution of idling vehicles across the various toll plazas in India. There are also plans to commercialize Intellectual Property Rights (IPR) achieved through this collaboration.

The objective was also to facilitate prestigious institutions such as the IITs achieve a better understanding of emerging technology requirements of IoT and RFID in different applications. Jointly they would be working on newer RFID technologies in various Smart City applications, such as smart vending machines, animal tracking, parking management and waste management. Apart from this hospital, industries and jails are using RFID tags for tracking their patients, workers, inmates

respectively. ID Tech and IIT will jointly explore various use cases where RFID and IoT can be used to achieve efficiency.

"The Indian Institute of Technology, Ropar is a relatively new IIT with young Faculty. We are steadily building research capabilities in collaboration with companies like ID Tech in R&D. We believe that such cooperation would open up new avenues of research for our brilliant students and faculty members. We look forward to a fruitful collaboration, which can make a significant impact on the society," said Prof. Harpreet Singh from Indian Institute of Technology, Ropar.

Mr. Saurav Khemani at the MOU signing stated, "The signing of this MoU further strengthens the existing tie between ID Tech and the Indian Institute of Technology, Ropar. Through this joint R&D effort, we aim to address social challenges posed by rapid urbanization and economic development in India, such as improving the efficiency of logistics networks, reducing road congestion and air pollution, and achieving smarter and safer cities."