



JODHPUR INSTITUTE OF
ENGINEERING AND TECHNOLOGY

EZINE

Dept. of Computer Science & Engineering
Issue - 11 | December, 2016 | Half Yearly Newsletter



JIET

Group of Institutions

www.jietjodhpur.ac.in

Vision & Mission

VISION

To become a globally recognized institution in technical and professional education, and to provide career and research oriented, value based education to serve the society.

MISSION

To develop a holistic educational approach that blends fundamentals and hands-on experience.

To build a diverse academic environment that fosters problem solving ability, team spirit, leadership, and commitment towards quality.

To promote exchange of ideas, innovation, research and entrepreneurial skills so as to face global challenges.

To inculcate ethical values and sense of responsibility towards society.



PROGRAM EDUCATIONAL OBJECTIVES

- 1) To provide students with a solid foundation in Mathematics, Science and engineering fundamentals, required to solve engineering problems using computers.
- 2) To prepare students to excel in postgraduate programmes so that they are able to pursue research and to excel in industry/ technical profession through understanding of advanced concepts of Computer Science.
- 3) To train students with good scientific and engineering breadth so as to comprehend, analyze, design and create novel products and solutions for real life problems.
- 4) To inculcate in students professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and the ability to relate engineering issues to broader social context for industry as well as entrepreneurship.
- 5) To provide students with an academic environment aware of excellence, leadership, written ethical code of conduct and guidelines, and life-long learning needed to become not only successful but best quality Computer Science & Engineering professionals.

PROGRAM OUTCOMES

- To enable graduates to apply knowledge of Mathematics, Science and engineering fundamentals in Computer Science & Engineering.
- Design a computer system with components and processes of desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety.
- Identify and modify the functions of the internal software components such as operating systems and compilers.
- Apply software engineering principles, techniques and tools for software development.
- Acquire programming skills for application development in real-world problem solving.
- Create, collect, process, view, organize, store, mine and retrieve data in both local and remote locations in a secure and effective manner.
- Design and conduct experiments, as well as to analyze and interpret data laying foundation for solving complex problems.
- Develop project management techniques and to work in team for successful reach of information to the end users.
- Create technical reports and presentation for effective communication.
- Participate and succeed in various competitive examinations.
- Realize professional and ethical responsibility and act in accordance with social welfare.

Message...



THE HEAD'S (PG COURSE) WORD

I am happy to learn about the launch of CSE department's latest issue of the biannual newsletter 'EZINE' for the academic year 2016-17. Challenges and opportunities are the two sides of the same coin. Modern education, curriculum development and teaching methodologies have to keep pace with the demand of the economic environment. The department has made tremendous progress in all areas – academic, non-academic, capacity building relevant to faculty members and students. Overall development of the individual is the goal of education and we all have to ensure that there is no stone left unturned to equip the students of today for the challenges of life.



Prof. Ashuthosh Vyas
Assoc. Prof. & Head (PG)
Dept. of CSE, JIET

THE HEAD (UG COURSE) OPINES...



Prof. Mamta Garg
Head
(B.Tech, Dept. of CSE, JIET)

It gives me immense pleasure to congratulate the consolidated efforts of the editorial team of 'Ezine', the biannual newsletter, for its successful launch of the latest edition. I am proud of our strong academic programs, which are based on both theoretical and practical knowledge and match well with the requirements and demands of market. The department is committed to students by offering academic programs that foster critical and analytical thinking and build the necessary skills to succeed in the market and thereby supporting our graduates to excel in their chosen profession.

Dear readers,
Greetings!

“Without continual growth and progress, such words as improvement, achievement, and success have no meaning.”

With this thought, I welcome you all to the 11th edition of Ezine. This is designed to present to its readers, the achievements of the CSE department in Curricular, Co-curricular and Extra-curricular activities of the past half year gone by. This magazine also showcases activities of the department,

I wish everyone success and welcome your comments for improvement.

THE EDITOR JOTS...



Chanchal Johal
Asst. Prof. (Dept of CSE, JIET)



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EXPERT LECTURES (EXPERTS FROM WITHIN JGI)

- Mr. Pankaj Acharaya (Assoc. Prof. and Head (Dept. of IT (JIET)) delivered an expert lecture on 'Introduction to Operating Systems' to V semester students on 2nd & 11th August'16.
- Ms. Jyoti Vyas (Asst. Prof. (Sr.)) delivered an expert lecture on 'Data Encryption Standard' to VII semester students on 12th & 24th August'16.
- Mr. Manish Gehlot (Asst. Prof. (Sr.) (Dept. of IT)) delivered an expert lecture on 'E-R Diagrams' to V semester students on 29th August' 16.
- Mr. Rajeev Singh (Asst. Prof.) delivered an expert lecture on 'Classification of DMW' to VII semester students on 22nd, 23rd & 27th August'16.
- Mr. Nitesh Agarwal (Asst. Prof.) delivered an expert lecture on 'Basics of C' to III semester students on 4th August' 16.
- Ms Mamta Garg (Assoc. Prof. and Head (Dept. of CSE (JIET)) delivered an expert lecture on 'Application of various Data Structures' to III semester students on 29th August'16.
- Mr. Pankaj Acharaya (Assoc. Prof. and Head (Dept. of IT (JIET)) delivered an expert lecture on 'Introduction to Operating Systems' to V semester students on 22nd August'16.
- Mr. Rajendra Purohit (Asso.Prof.) delivered an expert lecture on 'Confusion & Diffusion' to VII semester students on 31st August'16.
- Ms. Arshi Riyaz (Asst. Prof. (Sr.)) delivered an expert lecture on 'Complexity Analysis' to III semester students on 11th August' 16.
- Ms. Kavita Choudhary (Asso. Prof.) delivered an expert lecture on 'Parsing Techniques' to VII semester students on 27th August & 3rd September'16
- Mr. Ravindra Sharma (Asst. Prof.) delivered an expert lecture on 'Binomial Heaps' to V semester students on 7th September'16.
- Mr. Gaurav Solanki (Asst.Prof.) delivered an expert lecture on 'Query Optimization' to VII semester students on 20th August'16.
- Ms. Prakash Kawar Asawat (Asst. Prof.) delivered an expert lecture on 'Distributed and Parallel Database' to VII semester students on 6th September'16.

- Dr. A.M. Khan (Prof, Dept. of Maths, I Year and Asst. Dean, I Year, JIET) delivered an expert lecture on 'Transportation Problems' to III semester students on 15th October'16.
- Mr. Sandeep Mathur(Prof., Dept. of Maths, I Year and Asst. Dean, I Year, JIET) delivered an expert lecture on 'Transportation Problem' to III semester students on 20th October' 16.
- Mr. Abhishek Karwa (Assoc. Prof., Dept. of ECE, JIET) delivered an expert lecture on 'Electronic Device and Circuits' to III semester students on 8th October'16.
- Mr. Pankaj Acharaya (Assoc. Prof. and Head (Dept. of IT (JIET)) delivered an expert lecture on 'Deadlock' to V semester students on 30th September' 16.
- Mr. Sanjay Bhandari (Assoc. Prof. Dept. of ECE, JIET) delivered expert lectures on 'Register-Transistor & Transistor-Transistor Logic' and 'Introduction to Digital Logic Family' to III semester students on 18th & 19th October' 16.
- Mr. Rajendra Purohit(Assoc. Prof.) delivered an expert lecture on 'Directory Stack Manipulation' to III semester students on 22nd October' 16.
- Mr. Navneet Maru(Assoc. Prof. and Dy. HOD, Dept. of EE, JIET) delivered an expert lecture on 'Introduction & Application of Combinational and Sequential Circuits' to III semester students on 7th October'16.
- Mr. Nitin Mathur (Asst. Prof.) delivered an expert lecture on 'Instruction Pipelining' to V semester students on 4th and 20th October' 16.
- Mr. O.P.Suthar (Asst. Prof.) delivered an expert lecture on 'Advance Grep Filter' to III semester students on 22nd and 24th October'16.
- Mr. Rajendra Purohit (Assoc. Prof.) delivered an expert lecture on 'Cloud Computing' to VII semester students on 10th November' 16.
- Mr. Hemant Jain (Asst. Prof. (Sr.), Dept. of ECE, JIETCOE) delivered an expert lecture on 'Multi Vibrators' to III semester students on 12th November' 16.
- Mr. Nitesh Agarwal (Asst. Professor) delivered an expert lecture on 'Pointers in C and C++' to III semester students on 10th November' 16.
- Mr. Manish Gehlot (Asst. Professor (Sr.) delivered an expert lecture on 'Data Compression Techniques' to VII semester students on 19th October' 16.
- Mr. Sandeep Mathur (Prof., Maths &Assistant Dean (Sciences)) delivered a series of expert lectures in 'Mathematics' to III semester students on 17th, 18th and 19th November'2016.
- Mr. Kamlesh Bhandari (Assoc. Prof., Dept. of Maths, I Year, JIETCOE) delivered an expert lecture in 'Optimization' to III semester students on 19th November' 2016.
- Mr. Sanjay Bhandari (Assoc. Professor, Dept. of ECE, JIET) delivered an expert lecture in 'Digital Logic Families' to III semester students on 15th November'2016.



FACULTY DEVELOPMENT PROGRAMME 2016

FDP '16 for Department of CSE was held from July 8th to July 19th. During FDP all faculty members were enriched with various expert lectures and lab sessions. Laboratory sessions were also been conducted in NS-2, Image Processing and Web Development which were beneficial for everyone from practical aspect. Each faculty member submitted 3 to 5 project proposals on which they wanted final year students to work as a part of their syllabus. Following are the details:

LECTURES DELIVERED BY FACULTY MEMBERS DURING FDP 2016 (JIET) ARE AS FOLLOWS:

- Mr. Rajeev Singh (Asst. Prof.) on "B-Trees."
- Mr. Nitesh Agarwal (Asst. Prof.) on "Query Processing and Optimization."
- Ms. Vinita Mathur (Asst. Prof.) on "Ajax: Enabled Rich Internet Applications."
- Ms. Priyanka Rani (Asst. Lecturer) on "Basic Structure of Relational Database."
- Mr. O.P.Suthar (Asst. Prof.) on "Deferrable Server Approach."
- Ms. Chanchal Johal (Asst. Prof.) on "Inheritance in Object Oriented Programming."
- Mr. Jakir Hussain (Asst. Prof.) on "KDD (Knowledge Discovery from Data)."
- Ms. Prakash Kanwar (Asst. Prof.) on "Transactions and its Properties."
- Ms. Jyoti Vyas (Asst. Prof. (Sr.)) on "Booth's Algorithm."
- Mr. Jitendra Suthar (Asst. Prof.) on "Introduction to MATLAB."
- Ms. Arshi Riyaz (Asst. Prof. (Sr.)) on "Turing Machine."
- Mr. Ravindra Sharma (Asst. Prof. (Sr.)) on "Minimum Spanning Tree."
- Mr. Suresh Kumar Jha ((Asst. Prof.) on "Parsing: Role of Parser."
- Mr. Nitin Mathur (Asst. Prof.) on "Virtual Memory."
- Mr. Amit Mishra (Assoc. Prof.) on "Different files involved in Compilation of C program."
- Ms. Kavita Choudhary (Asst. Prof. (Sr.)) on "Non Recursive Predictive Parsing."
- Ms. Sunita Godara (Asst. Prof.) on "OSI Model."
- Ms. Anamika Choudhary (Assoc. Prof.) on "Serializability in DBMS."
- Mr. Manish Kumar (Assoc. Prof.) on "Subnetting, Subnet Mask, Routing."
- Mr. Rajendra Purohit (Assoc. Prof.) on "DES (Data Encryption Standard)"
- Ms. Shikha Rani (Asst. Prof.) on "Hashing."
- Ms. Divya Tiwari (Asst. Prof.) on "Queue Data Structure."

WORKSHOPS, CONFERENCES AND DEPARTMENTAL ACTIVITIES

- A three day workshop was conducted by WSCube Technologies on 'Search Engine Optimization' on 15, 16 and 18 July 2016. The resource person was Mr. Kushagra Bhatia (Director (WS Cube Technologies)). In three days' workshop, faculty members learned about different types SCO techniques with practical session that how to increased website ranking by different methods of SCO.
- An online test was conducted by Career Launcher for the students of Final Year (7th sem) on 16th& 19th August'16.
- Mr. Manish Bhandari delivered an expert lecture on 'How to write a paper for conference' to CSE students on 31st August'16.
- Inauguration of Virtual Labs in JIET Campus which runs under IIT Delhi on 5th September 2016. Faculty, staff members and students attended the session on the use of Data structure lab, Image processing Lab, Digital Logic Design, Computer Programming, and Computer Graphics etc.
- An open session on 'How to access Spoken Tutorial', video lectures on 21st September' 2016 for faculty and staff members.
- Inauguration of FOSS Center and Spoken Tutorial on 23rd September 2016. Ms. Nidhi Sony (Training Coordinator, Rajasthan and Spoken Tutorial Project, IIT Bombay) introduced about FOSS and Spoken Tutorial. She said that students may learn these Open Source softwares by using Spoken Tutorial Videos and they can even use these softwares as they all are free. She gave a number of Open source Software examples.
- Essay writing Competition conducted on Hindi Diwas on 'Google is spoiling creativity and the ability to think?'
- A student technical computer club 'Tech Smith' has been inaugurated by Dean Engineering Prof. O.P. Vyas on 18th October'16.
- Ujjawal Gaur (Alumni, Mechanical Engineering Department) working in an MNC and also has startup "Carl Zeiss" (A German Based Company) interacted with V semester students regarding 'Skill Development and Market Scenario in IT industry' on 3rd November' 2016.
- Panel Discussion was conducted by Ms. Kavita Choudhary (Asso. Professor) based on the theme 'Public Participation in Promoting Integrity and Eradicating Corruption' organized by Indian Oil Corporation Limited, Western Region Pipelines, Salawas, Jodhpur on 5th November'2016 during Vigilance Awareness week(30.10.2016-5.11.2016) at Jodhpur Institute of Engineering &Technology.
- The department has organized an in-house session on 'Web Application Development in Java' for enhancement of faculty members from 21st November' to 24th November'2016.



ORIENTATION PROGRAMME

A six day orientation program for students of II, III and Final Year was organized in the department of CSE from 1st August to 6th August. Various sessions' i.e. information related to career opportunities in CSE branch, GATE preparation, project development, paper presentation and ways to crack Company Written Test. These sessions were taken by HOD, Dy. HOD and Faculty members.

OPEN HOUSE 2016

Chart Competition

Position	Name of Student	Semester	Title
I	Titiksha Mathur Tapasya Thani Mansi Mathur	3B	Role of Young Engineers to Reform Core Sectors
II	Pawan Parihar Harshita Gehlot Divya Chouhan	5A	Artificial Intelligence
III	Shivani Dave Sakshi Lodha Snehal Saraf	5B	Ten Strategies for Making Big Leap

Model (Live) Competition

Position	Name of Student	Sem.	Title
I	Himanshu Dadheech Harshita Mehta Gaurav Purohit Diksha Malviya Himanshu Dayma Digvijay Baloch Jaideep Suthar	3A	Cross Platform
II	Tushar Mishra	7B	Network Port Security
III	Jitender Rahul Yadav , Suresh Kumar Sen	7F	Mini Game

Model (Static) Competition

Position	Name of Student	Sem.	Title
I	Neha Malhotra Nilesh Prajapati Nitesh Gaur Naveen Kumar Dudi	5A	Earthquake Resistant Bed
II	Jitendra Suresh Kumar Sen	7F	Railway Anti collision System
III	Rohit Vyas Ajay Sharma Dheeraj Bohra	3K	Pollution Board

OPEN HOUSE 2016



ACADEMIC RESULTS

III Semester/ II Year (Batch 2014-18)

Ist Shift

Position	Names	Percentage
I	Pragya Bhati	83.60%
II	Bhagyashree Chopra	80.30%
III	Sagar Choudhary	79.70%

II nd Shift

Position	Names	Percentage
I	Kaushal Solanki	73.50%
II	Pradeep Kumar Jeengar	72.30%
III	Bhagaram Patel	70.60%

IV Semester/ II Year (Batch 2014-18)

Ist Shift

Position	Name of Student	Percentage
I	Ankita Bharti	81.3%
II	Anshul Katta Shivani Dave	79.9%
III	Priyanka Verma	79.3%

II nd Shift

Position	Name of Student	Percentage
I	Vaibhav Mathur	74.7%
II	Chirag Mathur	73%
III	Pradeep Kumar Jeengar	72.9%

VI Semester/ III year (Batch 2013-17)

Ist Shift

Position	Name of Student	Percentage
I	Saijal Jain	84.20
II	Sashi Kanwar	81.10
III	Akshay Mathur	80.80

II nd Shift

Position	Name of Student	Percentage
I	Prerna Harwani	80.80
II	Pankaj Kumar	77.10
III	Kratika Purohit	75.50



PLACEMENTS



Names	Company
Saijal Jain	Infosys Ltd.
Rashya Sharma	Infosys Ltd.
Akshay Mathur	Infosys Ltd.
Noopur Jain	Infosys Ltd.
Hiren Jain	Capgemini
Suhani Mehta	Capgemini
Kratika Purohit	Capgemini
Debobrata Das	Capgemini
Gaurav Prajapati	Capgemini
Vishal Soni	Capgemini
Tushar Mishra	Capgemini
Deepak Choudhary	Capgemini
Manvendra Singh Panwar	Capgemini
Mukesh Kumar Sain	Capgemini
Ranu solanki	Universal Hunt Pvt. Ltd.
Yatindra Singh Panwar	Universal Hunt Pvt. Ltd.
Tarun Kumar Gujar	Universal Hunt Pvt. Ltd.
Samvit Purohit	Just Got Real Studio (Off Campus)

FACULTY ACCOMPLISHMENTS

- Ms. Kavita Choudhary (Assoc. Prof.) qualified UGC Net Examination July' 2016 and participated in National Workshop on 'Outcome Based Learning Using Pedagogy Framework Model' organized by Teaching Learning Centre, BITS Pilani, Pilani Campus in collaboration with Centre for Educational Technology, IIT Kharagpur, during November 28-29,2016.
- A paper titled "Sniffer Detection and Load Balancing using Aglets in a Cluster of Heterogeneous Distributed System Environment" penned by Mr. Amit Mishra (Assoc. Prof. and Dy.HOD, II shift) was published in PIICON 2016 at Government Engineering College, Bikaner.
- A paper titled, "Aglet and Kerrighed as a Tool for Load Balancing and Scheduling in Distributed Environment" penned by Mr. Amit Mishra(Assoc. Prof. and Dy.HOD, II shift) in ICRAIE 2016 at Poornima University, Jaipur.
- A paper titled, "A Study of Internet Marketing Research in Business Decision Making" penned by Ms. Anamika Choudhary (Assoc. Prof.) in the National Conference on "Opportunities and Challenges in E-Commerce and Digital Marketing" at Biyani Group of Colleges, Jaipur.
- A paper titled, "An Overview on the Performance and the Security of RSA and ECC Algorithm" penned by Mr. Rajendra Purohit (Assoc. Prof. and Dy.HOD, I shift) is published in IC QUEST 2016 at Bapurao Deshmukh College of Engineering, Sevagram.
- A paper titled "Implementation of Image Restoration Techniques in MAT LAB" co-authored by Mr. Rajendra Purohit (Assoc. Prof. and Dy.HOD, I shift) and Mr. Jitendra Suthar (Asst. Prof.) in IJRCE (ISBN No. 2347 – 3207).

STUDENTS' ACHIEVEMENTS

- Harshul Mathur (II Year (III sem) cleared an entrance test conducted by Tactilesense Technologies, Jodhpur on 17th August 2016. He won a scholarship for Internship and Training by Tactilesense Technologies, Jodhpur
- Titiksha Mathur(II Year (III sem) secured first position in the 'All Rajasthan Pukh Raj Mathur Memorial English Debate 2016' held on 21st October 2016 at Lachoo Memorial College of Science & Technology, Jodhpur.
- Jaipal Singh (Final year) secured first position in the sport of Athletics (Relay) & 200m Men's in Varchas 2016 conducted at IIT Jodhpur.
- Chandramohan and Rishi Raj Singh Rathore won medals in Varchas-A sports activity organized by IIT Jodhpur.
- Titiksha Mathur(III Semester/ II Year) secured first position in Panel Discussion based on the theme 'Public Participation in Promoting Integrity and Eradicating Corruption' organized by Indian Oil Corporation Limited, Western Region Pipelines, Salawas, Jodhpur on 5th November'2016 during Vigilance Awareness week(30.10.2016-5.11.2016) at Jodhpur Institute of Engineering &Technology.
- Tapasya Thani(III Semester/ II Year) secured first position in the Essay Competition based on the theme 'Public Participation in Promoting Integrity and Eradicating Corruption' organized by Indian Oil Corporation Limited, Western Region Pipelines, Salawas, Jodhpur on 5th

November'2016 during Vigilance Awareness week(30.10.2016-5.11.2016) at Jodhpur Institute of Engineering &Technology. .

- Saumya Rai (III Semester/ II Year) has attended National Workshop on Intel HPC Code Modernization (Parallelization & Optimization) in collaboration with Intel and Wipro during 12th – 14th October 2016 at Manipal University Jaipur.
- Saumya Rai (III Semester/ II Year) has participated in 2 days' workshop on Android Apps Development at IIT-Delhi during Robothon 2016 on 21st-24th October'2016 organized by Robosapiens Technologies Pvt. Ltd. in association with Rendezvous-2016(An Annual Cultural festival of IIT Delhi).
- Archi Singhvi(III Semester/ II year) won two gold medals and one bronze medal in Volleyball, Tug of War and Board Making respectively in the National Integration Camp-1 Udaipur-2016 SD/SW/JD/JW conducted by NCC GROUP HEADQUARTERS UDAIPUR held at Udaipur (Rajasthan) from 15/17 October' to 26th October'2016.
- Vivek Dadheech, Prateek Bhati, Piyush Mathur, Himanshu Mewra, Pawan Parihar, Nitish Purohit and Yashi Saxena has participated in Rangmanch at the college fest, "Oneiros'16", Manipal University Jaipur.
- Karni Charan (III Semester/ II Year) has participated in 2 days' workshop on Cloud Computing at IIT-Delhi during Robothon 2016 on 21st-24th October'2016 organized by Robosapiens Technologies Pvt. Ltd. in association with Rendezvous-2016(An Annual Cultural festival of IIT Delhi).
- Sriram Asawa (III Semester/ II Year) participated in Table Tennis Inter State sports Competition organized by RTU Kota and won gold medal.
- Arzoo Patwal (III Semester/ II Year) participated in Badminton Inter State sports Competition organized by RTU Kota.



USE YOUR COMMON SENSE !

(TECHNICAL QUESTION BANK)

- Human beings are referred to as Homosapiens, which device is called Silico Sapiens?
a. Monitor b. Hardware c. Robot d. Computer
- An error in software or hardware is called a bug. What is the alternative computer jargon for it?
a. Leech b. Squid c. Slug d. Glitch
- EBCDIC can code up to how many different characters?
a. 256 b. 16 c. 32 d. 64
- A hybrid computer:
a. Resembles digital computer b. Resembles analog computer
c. Resembles both a digital and analog computer d. None of the above
- What was the name of the first commercially available microprocessor chip?
a. Intel 308 b. Intel 33 c. Intel 4004 d. Motorola 639
- A physical connection between the microprocessor memory and other parts of the Microcomputer is known as:
a. Path b. Address bus c. Route d. All of the above
- What is auto negotiation?
a) A procedure by which two connected devices choose common transmission parameters
b) A security algorithm
c) A routing algorithm
d) None of the mentioned
- Adaptive or dynamic directory used in packet routing changes:
a. within each user session b. with each user session
c. at system generation times only d. both A and B
- Frames from one LAN can be transmitted to another LAN via the device:
a. Router b. Bridge c. Repeater d. Modem
- When an input electrical signal $A=10100$ is applied to a NOT gate, its output signal is
a. 01011 b. 11011 c. 10001 d. 11001

Answers

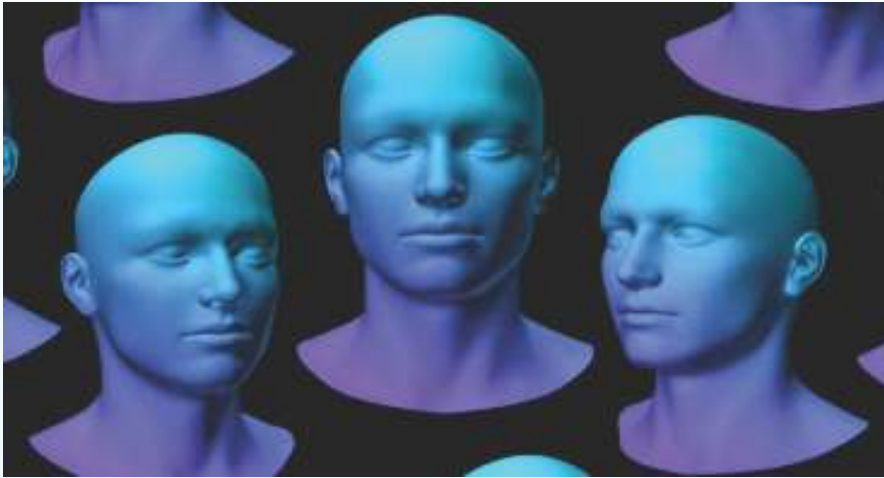
- d
- d
- a
- c
- c
- b
- a
- b
- a
- a



Questions

LATEST TECHNOLOGY

How the Brain Recognizes Faces: Machine-Learning System Spontaneously Reproduces Aspects of Human Neurology



MIT researchers and their colleagues have developed a new computational model of the human brain's face-recognition mechanism that seems to capture aspects of human neurology that previous models have missed.

The researchers designed a machine-learning system that implemented their model, and they trained it to recognize

particular faces by feeding it a battery of sample images. They found that the trained system included an intermediate processing step that represented a face's degree of rotation—say, 45 degrees from center—but not the direction—left or right.

This property wasn't built into the system; it emerged spontaneously from the training process. But it duplicates an experimentally observed feature of the primate face-processing mechanism. The researchers consider this an indication that their system and the brain are doing something similar.

"This is not a proof that we understand what's going on," says Tomaso Poggio, a professor of brain and cognitive sciences at MIT and director of the Center for Brains, Minds, and Machines (CBMM), a multi-institution research consortium funded by the National Science Foundation and headquartered at MIT. "Models are kind of cartoons of reality, especially in biology. So I would be surprised if things turn out to be this simple. But I think it's strong evidence that we are on the right track."

Indeed, the researchers' new paper includes a mathematical proof that the particular type of machine-learning system they use, which was intended to offer what Poggio calls a "biologically plausible" model of the nervous system, will inevitably yield intermediary representations that are indifferent to angle of rotation.

Poggio, who is also a primary investigator at MIT's McGovern Institute for Brain Research, is the senior author on a paper describing the new work, which appeared today in the journal *Computational Biology*. He's joined on the paper by several other members of both the CBMM and the McGovern Institute: first author Joel Leibo, a researcher at Google DeepMind, who earned his PhD in brain and cognitive sciences from MIT with Poggio as his advisor; Qianli Liao, an MIT graduate student in electrical engineering and computer science; Fabio Anselmi, a postdoc in the IIT@MIT Laboratory for Computational and Statistical Learning, a joint venture of MIT and the Italian Institute of Technology; and Winrich Freiwald, an associate professor at the Rockefeller University.

Read more at: <http://phys.org/news/2016-12-brain-machine-learning-spontaneously-aspects-human.html#jCp>

Team Work



PATRON

Prof. (Dr.) Rajendra Karwa
Campus Director - JIET



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