

Kakatiya Institute of Technology and Science

(An Autonomous Institute under Kakatiya University)

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foCuS



**Insights
Views
Articles**

**Department of
Computer Science & Engineering**

VIEWS

It gives me immense pleasure to know that the next issue of newsletter is ready. I congratulate all those who have contributed in bringing this out. I appreciate the efforts of the editor board in collecting the information related to this newsletter.

- Dr. Y. Manohar
Director



I am grateful with the idea of this newsletter. It gives overall views on the current evolving technologies which are trending in computer science field.

- Dr. P. Venkateshwar Rao
Principal



It's a pleasure to announce the release of foCuS which majorly comprises articles with the updates in the latest technology. The unique feature of this newsletter is that it is being planned and designed by the students.

- Dr. P. Niranjana
Head of the Department



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Vision:

Attaining center of excellence status in various fields of Computer Science and Engineering by offering worth full education, training and research to improve quality of software services for ever growing needs of the industry and society.

Mission :

1. Practice qualitative approach and standards to provide students better understanding and profound knowledge in the fundamentals and concepts of computer science with its allied disciplines.
2. Motivate students in continuous learning to enhance their technical, communicational, and managerial skills to make them competent and cope with the latest trends, technologies, and improvements in computer science to have a successful career with professional ethics.
3. Involve students to analyze, design and experiment with contemporary research problems in computer science to impact socio-economic, political and environmental aspects of the globe.

Program Educational Objectives (PEOs)

- I. Graduates with fundamental knowledge should escalate the technical skills within and across disciplines of Computer Science Engineering for productive career by maintaining professional ethics.
- II. Graduates should develop and exercise their capabilities to demonstrate their creativity in engineering practice and exhibit leadership with responsibility in teamwork.
- III. Graduates should refine their knowledge and skills to attain professional competence through life-long learning such as higher education, research and professional activities.

Program Specific Outcomes (PSOs):

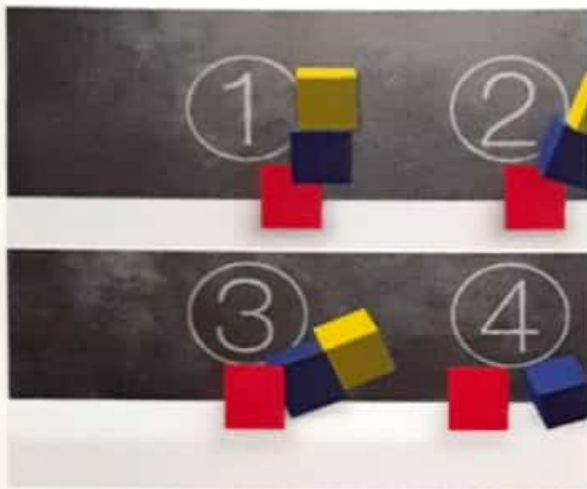
After completion of program Engineering Graduates will be able to:

- I. **Software Development and Quality assurance:** Transform various legacy or manual systems into computer automated systems using Modern Programming Languages, Integrated Development Environments, and apply Testing Tools for efficient verification and validation of those software systems
- II. **Maintenance:** Demonstrate knowledge in fixing and updating multidisciplinary software problems working in real time environment.
- III. **Immediate professional practice:** Work as a software practitioner or continue higher education by adopting advanced technologies in various fields of computer science and Engineering.

Computer systems predict objects' responses to physical forces

Results may help explain how humans do the same thing.

By building computer systems that begin to approximate these capacities, the researchers believe they can help answer questions about what information-processing resources human beings use at what stages of development. Along the way, the researchers might also generate some insights useful for robotic vision systems.



Two-way street:

It is an unusual approach to machine learning, a technique in which computers learn to perform computational tasks by analyzing huge sets of training data. In a typical machine-learning system, the training data are labeled: Human analysts will have, say, identified the objects in a visual scene or transcribed the words of a spoken sentence. The system attempts to learn what features of the data correlate with what labels, and it's judged on how well it labels previously unseen data.

These systems are trained to infer a physical model of the world - the 3-D shapes of objects that are mostly hidden from view, for instance. But then it works backward, using the model to resynthesize the

input data, and its performance is judged on how well the reconstructed data matches the original data.

Divide and Conquer

System needs to be trained on data that include both visual images and 3-D models of the objects the images depict. Constructing accurate 3-D models of the objects depicted in real photographs would be prohibitively time consuming, so initially, the researchers train their system using synthetic data, in which the visual image is generated from the 3-D model, rather than vice versa. The process of creating the data is like that of creating a computer-animated film.

Once the system has been trained on synthetic data, however, it can be fine-tuned using real data. That's because its ultimate performance criterion is the accuracy with which it reconstructs the input data. It's still building 3-D models, but they don't need to be compared to human-constructed models for performance assessment.

All that fall

As with the work on visual discrimination, the researchers train their system on synthetic data before refining it with real data.

In tests, the researchers' system again outperformed its predecessors. In fact, in some of the tests involving billiard balls, it frequently outperformed human observers as well.

"The key insight behind their work is utilizing forward physical tools - a renderer, a simulation engine, trained models, sometimes - to train generative models". "This simple yet elegant idea combined with recent state-of-the-art deep-learning techniques showed great results on multiple tasks related to interpreting the physical world."

Bots that talk more like people

AI platform allows chatbots to draw on robust language database to better navigate human conversation.

The platform was inspired by the way episodic memory works in the human mind: We understand each other by drawing from past experiences in context. This platform uses AI algorithms and crowd sourced annotators to build a natural-language database, compiled "bottom-up," from archived sales and customer support transcripts.

Chatbots draw on this robust database to better understand and respond, in real time, to fluctuating, nuanced, and sometimes vague language.



The platform leverages archived data to understand everything said in real time and uses that to make suggestions about what a bot should say next.

Human-machine collaboration

In conversation, people tend to express the same intent with different words, potentially over several sentences, and in various word orders.

"Unlike other Chatbot-building platforms, it is to learn authentic variation in the way people expresses different thoughts, and to do it bottom-up from real examples."

There are many algorithms comb through anywhere from 50 to 100 transcripts from sales and customer

support conversations, identifying language variations of the same intent, such as "How can I help you?" and "What's your concern?" and "How may I assist you?" These are called "utterances." All utterances are mixed around into chunks of test scripts for people to judge for accuracy online.

"Conversations break down into events, events break down into utterances, and utterances break down into many different examples of saying the same thing with different words." This builds a robust language database for chatbots to recognize anywhere from a few to more than 100 different ways to express the same sentiment - including fairly abstract variations .

The real world examples are Amazon's Alexa , IBM's Watson , Sophia and Telecommunications added their assistant which acts as Chatbots are Siri (Apple's) ,Google Assistant (Google's) ,Cortona(Microsoft's) and Bixby(Samsung's).

Oracle Unveils World's First Autonomous Database Cloud

Also introduces Oracle Autonomous Data Warehouse Cloud that has Demonstrated Performance of 10x Faster at Half the Cost of Amazon

At Oracle OpenWorld 2017, Oracle Chairman of the Board and CTO Larry Ellison unveiled his vision for the world's first autonomous database cloud. Powered by Oracle Database 18c, the next generation of industry-leading database, Oracle Autonomous Database Cloud uses ground-breaking machine learning to enable automation that eliminates human labour, human error and manual tuning, to enable unprecedented availability, high performance and security at a much lower cost.

"This is the most important thing we've done in a

long, long time," said Ellison. "The automation does everything. We can guarantee availability of 99.995 percent, less than 30 minutes of planned or unplanned downtime."

World's First
"Self-Driving"
Database



No Human Labor - Half the Cost
No Human Error - 100x More Reliable



The Oracle Autonomous Database Cloud eliminates the human labour associated with tuning, patching, updating and maintaining the database and includes the following capabilities:

- **Self-Driving:** Provides continuous adaptive performance tuning based on machine learning. Automatically upgrades and patches itself while running. Automatically applies security updates while running to protect against cyberattacks.

- **Self-Scaling:** Instantly resizes compute and storage without downtime. Cost savings are multiplied because Oracle Autonomous Database Cloud consumes less compute and storage than Amazon, with lower manual administration costs.

- **Self-Repairing:** Provides automated protection from downtime. SLA guarantees 99.995 percent reliability and availability, which reduces costly planned and unplanned downtime to less than 30-minutes per year.

The Oracle Autonomous Database Cloud handles many different workload styles, including transactions, mixed workloads, data warehouses, graph analytics, departmental applications, document stores and IOT. The first Autonomous Database Cloud offering, for data warehouse workloads, is planned to be available in calendar year 2017.

Oracle Autonomous Database Cloud is powered by the next generation of the world's #1 database, Oracle Database 18c. Oracle Database 18c delivers breakthrough automation capabilities, as well as greatly enhanced OLTP, analytics and consolidation technologies.





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