DEPARTMENT OF COMPUTER ENGINEERING

The Department of Computer Engineering at Hacettepe University was established as a graduate school in 1974 under the name The Institute of Informatics. Three years after its creation, it underwent a transformation and opened its doors to the first intake of 20 undergraduate students, making Hacettepe University the first Turkish university to offer a Bachelor's degree in computer engineering. The three main divisions of the department are Computer Science, Computer Software, Computer Hardware. Within the last 5 years, the Department has expanded its faculty to include 15 new members which strengthens the department's research ability across multiple diverse areas.

Unique infrastructure

The Department has a separate infrastructure from the rest of the campus to the meet the requirements of the undergraduate and graduate students and the faculty. Current facilities include fully equipped computer and research laboratories, a server room with high-end servers and storage devices. Recently, its infrastructure has been expanded with high-end Google Internet of Things (IoT) related technologies, and programmable GPU servers and GPU cards, which are used for both educational and research activities.

Research profile

The Department employs both very talented young and highly experienced senior faculty members. This allows rapidly emerging, cutting-edge research, and ideas to be explored within the department's research centers. Lately, the Department has been granted many national and international research and teaching awards, which include:

- TUBITAK research grants (career development, scientific and technological research, and public institutions research projects)
- Google Multimedia search and audio/video processing Research A ward
- Google IoT Technology Research Award
- NVIDIA Hardware Research Grant
- NVIDIA GPU Education Center Award

At a glance

Professors	3
Associate Professors	7
Assistant Professors	15
Graduate Students	174

Keywords

animation, graphics and game technologies • autonomous flight and UAV platforms • big data • cloud computing • communication systems • computer vision • computer/sensor networks • cryptography • database systems • digital design • dynamics and control • embedded systems • forensics • geographical information systems • health informatics • information and network security • internet of things • mechatronics • machine learning • natural language processing • robotics • software engineering

Research groups

AUTON — Autonomous Systems Lab
- Automatic control systems
- Unmanned air vehicles (UAVs)
- Information, Surveillance and Reconnaissance (ISR) Systems
- Swarm intelligence
- Embedded systems

COMPGEO — Computational Geoscience Research Lab
- Deformation modeling, geodynamics and natural hazards
- Fractal and complexity in geosciences
- Geographic Information Systems (GIS) in Earth Sciences
- Geological remote sensing
- Geoscientific data models
- Knowledge discovery in geosciences
- Quantitative methods in geomorphology
- Syntactic data production for geoscientific problems

HUCVL — Computer Vision Laboratory
- Action and activity recognition
- Visual saliency estimation
- Concept learning
- Historical document analysis
- Computational photography
- Image retrieval
- Internet vision
- Language and vision
- Video summarization
- Visual tracking

HUMIR — Multimedia Information Retrieval Lab
- Multimedia content analysis and search
- Knowledge discovery in databases
- Graph mining
- Multimedia retrieval models and systems
- Vertical search engines
- User interaction for multimedia content access
- Content management

HUNLP — Natural Language Processing Research Group
- Example-based machine translation
- Factoid question answering systems
- Sentiment analysis
- Syntax and morphology
- Text mining
- Text summarization
- Word sense discovery

HUSE — Software Engineering Research Group
- Empirical studies and experimentation in software engineering
- Software quality assurance and management
- Software project management
- Software process improvement
- Software metrics
- Process maturity, attributes and performance
- Software testing, and software test engineering
- Software requirements, software maintenance and software documentation
- Search-based Software Engineering (SBSE)

INFOSEC — Information Security Research Lab
- Intrusion detection, malware analysis and detection, insider threats
- Trust and incentive management in distributed systems
- Anonymity in peer-to-peer systems
- Secure, tolerant distributed filesystems
- Information and network security
- Privacy and security in wireless, ad hoc and sensor networks
- Digital certificates and public key infrastructures
- ID-based cryptography
- Authentication and key agreement protocols
- Application-level Network security protocols
- E-commerce and e-payment systems

Funded research projects

- Effective and efficient software test-code engineering
- City security management system
- Unsupervised joint learning of morphology and syntax in Turkish
- Improving the energy efficiency of the random access procedure of the LTE-advanced standard for machine-to-machine communications
- Visual servoing of mobile systems, mapping and implementation on FPGA
- Do you want to install an update of this application? A rigorous analysis and detection of updated malicious mobile applications
- Towards a unified framework for finding what is interesting in videos
- Understanding images and visualizing text: Semantic inference and retrieval by integrating computer vision and natural language processing
- Machine learning based analysis and recognition of human interactions
- The use of multiple cues and contextual knowledge in computer vision

Contact

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