Amity University, Noida-Delhi NCR, India
(www.amity.edu)
AMITY EDUCATION OVERVIEW

- 5 Universities, 150+ Institutions, 17 Schools & Preschools
- 100,000 Students
- 1000 Acres of Campuses and over 5 million sq. ft. of hi-tech buildings
- 9 Global Campuses in London, Singapore, New Jersey, California, Dubai, Mauritius, Romania, Beijing (China), Nanjing (China)
- Pan Africa e-Network Project
- 4,000 Faculty & Scientists
- 508 Patents filed & 600 Case Studies developed by faculty in the last years
- 300 hi-tech Science & Technology Labs
- 250 Programmes covering 45 disciplines
- 80 Linkages with universities globally
- 14,000 on-campus Hostel seats
- 15,000 Scholarship Holders
- 300 Research Projects funded by Govt. Deptts.
- 47,000 on-campus Placements in the last years
- 300 Technology ventures incubated
# National Accreditations & Recognitions

| Recognized by University Grants Commission (UGC) | Accredited by NAAC Grade ‘A’ |
| Established under the Amity University Act through Govt. Legislature | Amity University Uttar Pradesh Member of Association of Indian Universities |
| Recognized by Department of Science & Technology, Govt. of India as Scientific & Industrial Research Organisation | Recognition By Statutory Bodies |
| | DEC | BCI | CA | NCTE | PCI | RCI |
# International Accreditations & Recognitions by Govt. & Leading Organisations

<table>
<thead>
<tr>
<th>Certification</th>
<th>Recognition</th>
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</thead>
<tbody>
<tr>
<td>IET U.K. Accreditation for B.Tech Programmes</td>
<td>Accreditation from ASIC, UK</td>
</tr>
<tr>
<td>Accredited Member of Accreditation Council for Business Schools and Programs (ACBSP), USA</td>
<td>Member of AACSB, USA</td>
</tr>
<tr>
<td>Accreditation from Foundation for International Business Administration Accreditation (FIBAA) for Master’s program in Service Marketing</td>
<td>Accreditation to the MBA programme of Amity University Online</td>
</tr>
<tr>
<td></td>
<td>Higher Tourism Education Programme by UNWTO TedQual Network</td>
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</tbody>
</table>
Accredited by NAAC with ‘A’ Grade: Amity University Uttar Pradesh has been accredited by National Assessment and Accreditation Council (NAAC) with "A" Grade.
AMITY INTERNATIONAL CAMPUSES

Amity London
Amity Singapore
Amity New Jersey
Amity California
Amity Dubai
Amity Mauritius
AMITY UNIVERSITY CAMPUS - DUBAI
AMITY INTERNATIONAL SCHOOL-
ABU DHABI

IB School on the water front in Al Bhaya, Abu Dhabi with a capacity of 3000 students with British Curriculum from foundation 1 & 2 until O & A levels plus one year of IB (International Bachelorette)
INTELLECTUAL CAPITAL OF AMITY

Vice Chancellors

- Roorkee
- Bhagalpur
- Rajendra Agriculture University
- Rani Durgawati University
- MS University
- Himachal Pradesh Agriculture University
- Jiwaji University, Gwalior
- Kumaun University
- Symbiosis International Education Centre University
- MS University, Raebareli
- Dr. T.S. Parmer University of Horticulture & Forestry, Solan, H.P.
- Kalpana University (Pvt), Rojgar, Chattisgarh

Vice Chairman, AICTE
- Director, CSIR

Sr. Executives from the Public Sectors

- Chairman, Minorities Commission
- Secretary, Govt. of India
- Ambassador
- Senior Scientists, DST/DRDO
- Principal Scientist, IARI

- PCC of Forests, UP Government
- Sr. IPS Officers
- Vice Chairman, DDA
- Generals, Admirals, and Senior Defence Officers
COURSES VIRTUALLY IN EVERY FIELD...

Traditional Courses

- Actuarial Sc.
- Anthropology
- Applied Sciences
- Architecture
- Banking
- Commerce
- Communication
- Computer Sciences / IT
- Design
- Economics
- Education
- Engineering
- English Literature
- Fashion
- Finance
- Fine Arts
- Hospitality
- Insurance
- Language
- Law
- Management
- Medical & Allied Sciences
- NGO Management
- Performing Arts
- Pharmacy
- Physical Education
- Physiotherapy
- Psychology & Behavioral Sc.
- Sanskrit Studies
- Social Science
- Telecom
- Travel & Tourism
COURSES VIRTUALLY IN EVERY FIELD...

Innovative Courses & Research

- Advanced Materials & Devices
- Aerospace
- Audiology
- Avionics
- Biocontrol & Plant Disease Mgmt
- Biofertilisers & Biopesticides
- Biotechnology
- Bioinformatics
- Biomedical Science
- Clinical Data Management.
- Clinical Engg./Research
- Cold Chain Management
- Competitive Intelligence & Strategic Management
- Cyber Crime
- Diagnostic Imaging Tech.
- Disaster Management
- Environmental Toxicology Safety & Management
- Food Technology
- Forensic Science
- Forensic Biology & Serology
- Foundation for Development Disabilities
- Global Warming & Eco Studies
- Herbal Management
- Horticulture
- Instrumentation
- Marine Science & Engg
- Medical Lab Technology
- Microbial Sciences
- Microfinancing
- Nanotechnology
- Natural Resources & Sustainable Development
- Neuro Psychology & Neuro Sciences
- Nuclear Science & Technology
- Organic Agriculture
- Orthodontics & Prosthetics
- Post Harvest Technology
- Rural & Urban Management
- Solar & Alternative Energy
- Virology & Immunology
- Water Technology & Management
- Wild-Life Science
UNIQUE VALUE ADDITION TO LEARNING

- Foreign Languages
- Value Added and Personality Development Courses
  - Communication Skills
  - Behavioural Science
  - Human Values
  - 6 Sigma and 9 other Management & Technology focused courses from BSI
- Curriculum updated regularly with industry input
- Strong Mentoring Programme
- Military cum Adventure Training
- 101 Attributes of Amitians
  - Personality (21)
  - Values/Ethics (21)
  - Extracurricular Activities (15)
  - Understanding of Socio-economic and Global Environment (18)
  - Academic Excellence (26)
STONG RESEARCH & DEVELOPMENT FOCUS

- 75 research projects currently operational.
- 120 Books compiled
- 1000 papers published in leading journals
- 508 Patents filed in the area of Nanotechnology, Biotechnology, Biosensors, Herbal, Software, IT, PhotoVoltacs, Electronics, Food Processing, Micro Biology etc.
- Access to over thousand online journals
RESEARCH & COLLABORATION PROJECTS
Research is enhanced by networking in India and abroad
DEVELOPING A CLUSTER OF ENTREPRENEURIAL ACTIVITY

Amity Innovation Incubator (AII)

- Incubated Companies have won awards like Microsoft Bizspark, TATA NEN Hottest Startup Contest
- 100+ Companies being incubated
- 8 Companies graduated and performing well on stand-alone basis
- Employment generated for more than 2500 people
- 3500+ Entrepreneurs, Investors & Technologists attended events fostering entrepreneurship eco-system
- Amity University students have established 42 companies
- 508 patents filed by Incubator for entrepreneurs, faculty and researchers
- Ground breaking technologies being commercialized and are utilized by groups such as Delhi Metro, LG Electronics, Aircel, Punjab Police Department, Maruti, Noida Traffic Police
- Fully integrated with Host Institution
- Close ties to VC and Angel networks
- 150+ International delegations have visited the Amity Innovation Incubator
- Strategic collaboration with Incubators in Europe, USA and Asia
AMITY INNOVATION INCUBATOR

If you’ve a great start-up idea, we can help you script a success story.

“"Innovation Incubator is a dream place to be in. I came here with an idea and we are a successful company now. The environment here allowed me to be at my highest self, work to depth and generate results."

Siddhanth Rathi, Founder@ Udaan Ventures

“"On behalf of the Eduvative team, I would like to thank Amity Innovation Incubator for helping us when we needed the most. The willingness to help and give their time, resources and stupendous infrastructure was a great boost for our company. We are very thankful to the whole Amity Innovation Incubator staff for such a good Effort & Initiative, which will surely help many students who have decided to take different paths in life and have decided to pursue entrepreneurship."

Lavi Nigam, Founder@ Eduvative

“"Amity Innovation Incubator is a startup booster I would say. I joined in there as a student intern and a few years down the line I am amongst India’s youngest CEO’s and my startup is amongst India’s top 20 hottest startups of the year. From mentoring to funding to recruiting people, the incubator has been supportive in many ways."

Siddhant Satija, Founder@ Ritsan Media Pvt. Ltd.
Honorary Doctorate Conferred by Amity University

H.E. Dr. Abdullah Gul, President of Turkey

Dr. Karan Singh

Dr. Montek Singh Ahluwalia

Dr. R.A. Mashelkar
WIDESPREAD INTERNATIONAL LINKS
Bring World to Amity and Amity to World

UNIVERSITIES IN EUROPE
WIDESPREAD INTERNATIONAL LINKS
Bring World to Amity and Amity to World

UNIVERSITIES IN NORTH AMERICA
WIDESPREAD INTERNATIONAL LINKS
Bring World to Amity and Amity to World

UNIVERSITIES IN ASIA, AUSTRALIA & SOUTH AFRICA

IN ASIA

Korea University
BIT China
Kangwon National University
National Tsing Hua University

IN AUSTRALIA

Deakin University

IN SOUTH AFRICA

Al Akhawayn University
NATION BUILDING

Training conducted for over 22,000 Volunteers for Common Wealth Games 2010 in New Delhi

Training conducted for over 50,000 personnel of

- Armed Forces (208 Offr’s & 240 PBORs)
- CPOS - BSF, CRPF, CISF, ITBP (230)
- State Police (46,000)
- IFS Officers (851)

- IAS (79)
- State/Central Government Officers (616)
- NGO/Farmers (637)
- PSUs (3600)
THE UNIVERSITY POLITEHNICA OF BUCHAREST, ROMANIA, HAS HONOURED OUR RESPECTED FOUNDER PRESIDENT WITH HONY. DOCTORATE.
THE FUTURE

- 35 Amity Universities in every State & Union Territory of India
- 100 campuses across the country
- Overseas campuses planned
Faculty of Engineering & Technology
Amity School of Engineering and Technology
Department of Electronics & Communication Engineering.

Amity University, Noida-Delhi NCR, India
(www.amity.edu)
# AMITY UNIVERSITY
UTTAR PRADESH
AMITY SCHOOL OF ENGINEERING & TECHNOLOGY

<table>
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<tr>
<th>Engineering Departments in AMITY SCHOOL OF ENGINEERING &amp; TECHNOLOGY</th>
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</tbody>
</table>
Department Profile of Department of Electronics & Communication Engineering.

Established: 2005
Total Students (UG, PG, Doctorate): 960
Total Teaching Faculty: 60
Technical Staff: 20
Administrative Staff: 3
Research groups: 6
Department of Electronics & Communication Engineering: Programmes Offered

UG Courses
1. B.Tech in Electronics & Communication Engineering
2. B.Tech in Electronics & Communication Engineering + MBA (Dual Degree)

PG Courses
1. Electronics & Communication Engineering
2. VLSI Design
3. Embedded Systems and Technology

PhD Courses
In the areas of
1. Microelectronics & VLSI
2. Communication Systems
3. Robotics
4. Signal Processing
## Research Groups in the Dept. of Electronics and Communication Engineering

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<tr>
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<tbody>
<tr>
<td>1</td>
<td>VLSI and Microelectronics Research Group.</td>
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<tr>
<td>2</td>
<td>Communication Research Group</td>
</tr>
<tr>
<td>3</td>
<td>Signal Processing Research Group</td>
</tr>
<tr>
<td>4</td>
<td>Antenna Theory and Design Research Group</td>
</tr>
<tr>
<td>5</td>
<td>Embedded Systems Research Group</td>
</tr>
<tr>
<td>6</td>
<td>Robotics &amp; Automation Research Group</td>
</tr>
</tbody>
</table>
Amity School of Engineering & Technology
Department of Electronics & Communication Engineering

Signal Processing Group

Biometrics
Medical Image Retrieval
Audio Signal Processing
Watermarking Multimedia Security

Multimedia Signal Processing Lab
1. **Current Research Areas**
4. Medical Image Segmentation & Classification
5. Analysis and Classification of Malign and Benign Masses for Early Detection of Breast Cancer.
6. Identification and Analysis of Brain Signals for Biomedical Application
8. Audio Signal Processing – Feature extraction and analysis.
10. Encryption algorithms for template security.
12. Object tracking in video databases.
Focus: Digital Watermarking of Audio Signals

Research Problem:
Design and Optimization of Efficient, Perceptually Transparent and Robust Watermarking Algorithms.

Research Objectives:

1. To design, implement and analyze audio watermarking algorithms meeting the requirements of perceptual transparency and robustness.
2. To find the highest watermark bit rate under perceptual transparency constraint and design algorithms to approach the limit.
3. To optimize the conflicting requirements of audio watermarking such as data rate, imperceptibility and robustness.
4. To increase the overall robustness of signal processing attacks on audio watermarking systems by attack characterization during watermark embedding.
5. To design algorithms for countering the challenging attacks of time synchronization attacks and compression.
6. To design algorithms for application specific or content based.
7. To investigate new applications of audio watermarking.

M.K.Dutta
mkdutta@amity.edu

Arashdeep Kaur
akaurs@amity.edu
Focus: Digital Watermarking of Images

Research Problem:

Research Objectives:

1. To evaluate the new schemes using application scenarios of copyright protection, tamper detection and authentication.
2. Based on the above goal mentioned, the following research problems will be dealt:
   a) Optimization of the conflicting requirements of digital watermarking.
   b) Major challenges in robust watermarking.
   c) How to reduce the computational cost and complexity of a robust watermarking scheme.
   d) Exploring the domain that suits the requirements for robust watermarking.
   e) Possibility to create a multipurpose watermarking scheme for copyright protection, tamper detection and content authentication.
   f) To find the highest watermark bit rate under perceptual transparency constraint and design algorithms to approach the limit.
Focus: Encryption & Security of Biometric Data

Research Problem:
Design and Optimization of Efficient and Robust Encryption Algorithms for biometric Templates.

Research Objectives:

1. To design, implement and analyze efficient, computationally cheap encryption algorithms in compressed and uncompressed domain meeting the requirements of perceptual and cryptographic security and apply these for security of biometric templates.

2. Explore the possibility to design schemes which includes joint effort of encryption and digital watermarking for security of Biometric templates.

3. Design algorithms to increase the overall robustness of encryption system to differential and statistical attacks.

4. To optimize the conflicting requirements of template encryption such as perceptual security, robustness and computational complexity.

5. To investigate new potential applications of image encryption.
Focus: Feature Analysis from Audio Signals.

Research Problem:
Modeling and extraction of multipurpose features from audio signals.

Research Objectives:
1. Develop new set of audio features and strategic combination of different features that achieves high discriminatory power and robustness and selection criteria of the optimal parameters based on their relevance to a given classification task.
2. Music information retrieval where only sampled audio is available i.e. where higher level information about songs such as scores, lyrics or artist names is unavailable.
3. Optimization of the conflicting requirements of audio features and to reduce the computational cost and complexity of existing feature extraction scheme.
4. To design real time application that analyses an incoming unknown audio query and identifies it in few seconds comparing its extracted feature with hundreds (or possibly thousands) of pre computed feature stored in database.
5. Matching of telephonic speech with actual voice of a person with better accuracy and less computational time. The telephonic speech may be distorted by noise, cross talk etc.
7. To construct a multipurpose audio feature and this may be used in more than one application.
Focus: Biometric Based Digital Watermarking

Research Problem:
Biometric based unique key generation for authentic digital watermarking.

Research Objectives:
To develop a watermarking method for digital signals where the watermark will be generated from biometric traits which will be unique for every individual and can be claimed for ownership. This will address the ownership issues of a digital watermark.

The detailed objectives are as follows:
1. Collect biometric traits like iris, fingerprints etc. to build a database.
2. Use signal processing methods to process these biometric data.
3. These biometric data will be saved as templates in a database.
4. Generate pseudorandom number sequences from the biometric templates.
5. Process these sequences as seeds of digital watermark for watermarking digital signals like image, audio signal, biomedical signals etc using Signal Processing techniques.
6. Insert these watermarks in digital signals using proper algorithms.
7. Test the perceptual transparency and robustness of the techniques.
8. Recover this biometric based watermark from the digital signals.
9. Identification and authentication of these recovered biometric generated key.
Focus: Breast Cancer Detection using Image Processing

Research Problem:
Analysis and Classification of Malign and Benign Masses for Early Detection of Breast Cancer

Research Objectives:

1. Study of different proposals on mass and microcalcification detection and their critical analysis.
2. To improve the detection accuracy.
3. To improve false positive reduction.
4. Analysis and classification of masses as benign or malignant.
Focus: Brain Signal Processing

Research Problem:
Identification and Analysis of Brain Signals for Biomedical Application

Research Objectives:

2. Identification of the stage (mild, moderate, severe Alzheimer’s, Parkinson's disease).
3. Coherence analysis of the EEG.
4. To investigate nonlinear EEG dynamics in AD to understand the role of nonlinearity in brain functions.
Focus: Fusion of information received through image & audio signals

Research Problem:
To design an effective interface which is able to recognize emotional state of a human by fusing the information retrieved through facial expressions & acoustic features of voice using machine learning and pattern recognition techniques.

Research Objectives:
1. To study the state of art of related work in the field of Affective Computing.
2. To identify a suitable framework through multiple modalities.
3. To design and implement algorithm suitable for enhancing the emotion recognition capability.
4. To simulate human computer interaction for both able-bodied and disabled user.
Focus: Medical Image Analysis

Research Problem:
Segmentation of Brain lesions from 2D MR Images

Research Objectives:

1. Develop an Automatic segmentation technique for Segmentation of Brain lesions.
2. Develop an algorithm that can skip the registration step for medical images.
3. Develop an algorithm that is robust to inter-slice intensity variation.
5. To design a suitable threshold for accurate segmentation of brain lesions.

M. Partha Sarathi
psmangipudi@amity.edu
Focus: Image Retrieval

Research Problem:
Image Retrieval Framework based on Visually Significant Feature Points

Research Objectives:

1. Visually significant feature point extraction from edge information.
2. Use of wavelet methods to extract the edge information.
3. Develop an algorithm that is robust to geometric transformations like rotation and scaling.
4. Use of spatial information of local structures for Image Retrieval task.
5. Testing of Algorithm on standard test databases.
6. Comparing our algorithm against existing techniques.

M. Partha Sarathi
psmangipudi@amity.edu
Focus: Medical Image Segmentation for Retinal Images.

Research Problem:
Design and Development of Computer Aided Diagnosis of Eye Diseases (Diabetic Retinopathy & Glaucoma) and Watermarking of Medical Images for Tele-Ophthalmology.

Research Objectives:

1. Design and development of Software for Analysis and segmentation of retinal image for identification of Diabetic Retinopathy.
   Extraction of blood vessels, microaneurysms, hemorrhages, exudates & neovascular fronds.
   Labeling of blood vessels, microaneurysms, hemorrhages and exudates.
   Classification into different levels of diabetic retinopathy.

2. Design and development of Software for Analysis and segmentation of retinal image for identification of Glaucoma:
   Extraction of the Optic nerve head (ONH).
   Qualitative (e.g. Optic disc hemorrhages) and quantitative (eg. Optic disk size, Optic Cup/Disk ratio) evaluation of Optic nerve head.
   Classification into different stages and forming a Glaucoma Risk Index (GRI) based on the analysis.

M.K.Dutta
mkdutta@amity.edu

Dr. Radim Burget
burgetrm@feec.vutbr.cz
Recent Selected Publications


Recent Selected Publications. (Contd.)

7. Vaclav Uher, Radim Burget, Jan Masek, Malay Kishore Dutta, “3D Brain Tissue Selection and Segmentation from MRI” 36th IEEE International Conference on Telecommunications and Signal Processing (TSP-2013) July, Rome, Italy - Accepted for Publication.


Recent Selected Publications. (Contd.)


Recent more Selected Publications. (Contd.)


Some more selected Publications (Contd.)


32. Garima Vyas “Fingerprint compression using wavelet” National conference at Devi Ahilya university Indore, Dec 2010

33. Garima Vyas “Shadow detection of moving and static objects using RGB” National Conference at Lingaya university, Faridabad, Feb 2010
Call for papers
International Conference on
Signal Processing & Integrated Networks (SPIN-2014)
20-21 February, 2014, Amity University, Noida- Delhi NCR, India

SPIN 2014
February 20-21
www.spin2014.com

Technically Co-Sponsored by IEEE UP Section.
IEEE Conference record number # # 32500
All accepted & presented papers of the Conference by duly registered authors,
will be published in IEEE Xplore Digital Library.

Prospective authors are invited to submit full papers of no more than six (6) pages including results, figures and references in standard IEEE double-column format. Submission is through the conference website and must adhere to guidelines available at the website.

IMPORTANT DATES:
Submission Deadline: 15 Nov. 2013
Acceptance Notification: 1 Jan 2014
Camera Ready Paper &
Registration deadline: 20th Jan. 2014

Submissions: Original papers and not
under review elsewhere may be submitted
online through Easychair through the link
provided in the conference website. All
submitted papers will be blind reviewed.
Submitted papers must be in IEEE format.
Details may be found on Conference website
www.spin2014.com

Topics of Interest include, but are not limited to:


Communication and Networking: Adhoc Networks, Application of DSP in
Remote Sensors, Cellular Networks, Cognitive Radio & Dynamic Spectrum
Management, Content Distribution Networks, Flow and Congestion Control,
Geophysical / Radar / Sonar/Optical/ Smart Sensor Signal Processing, Integrated
Services Digital Networks (ISDN), Mobile and Wireless Technologies (UWB, MIMO,
WiMAX, etc.), Multiple Access Techniques, Network security and Threat
Management, Network Signal Processors, Networking Issues and Challenges
in Cloud Computing, Next Generation Networks, Optical Networking, Technologies,
Switching and Network Elements, Routing, Switching & Addressing, Signal
Detection and Spectrum Estimation, Signal Processing in CDMA / WCDMA, Smart

Organizing Core Team
Chief Patron: Dr. B. Shukla
Patron: Dr. Ravi Prakash
Dr. K. M. Soni
General Chair: Dr. M. K. Dutta
Technical Prog. Chair: Dr. P. Banerjee
General Co-Chairs: Dr. J.K. Rai
Dr. Sujata Pandey
Organizing Chairs: Dr. Pradeep Kumar
Mr. Ashutosh Gupta
Publication Chair: Dr. Anu Mehra

Our Academic Partners
Institute of Radio Physics &
Electronics, University of
Calcutta. India

Advanced Networks Research Lab,
School of Computing and Mathematics,
Charles Sturt University, Australia.

Submission Deadline: 15 Nov. 2013
www.spin2014.com

Broadly we are open
to all areas of Signal
Processing, Communication and Networking.
Look Forward to See you in Delhi, India on 20 -21 Feb 2014, In SPIN-2014.

www.spin2014.com
Thank You !