AICTE Training And Learning (ATAL) Academy Sponsored Online FDP
On
Medical Image Processing and 3D Applications
(ATAL Application No: 1614484165)
(5th July 2021 to 9th July 2021)
Organized by
University College of Engineering, Kakatiya University, Kothagudem, Telangana

ATAL Academy:

AICTE Training and Learning (ATAL) Academy is established with the vision to empower faculty to achieve goals of Higher Education such as access, equity and quality. AICTE is committed for development of quality technical education in the country by initiating various schemes launched by Government of India, Ministry of Human Resources Development. It understands the need of the training required for youth of Indian nationals in required skills and demand for skilled faculty members in various disciplines. Training is required for increasing the knowledge and skill set of faculties and students to make them more employable to acquire global competencies.

Kakatiya University, Warangal:

Kakatiya University was established on 19th August 1976 to fulfill the aspirations of the Telangana people for higher education. It is in the historical city, Warangal, the erstwhile seat of the Kakatiya rulers. The founding of the University was in fact a historic event that heralded a new era in the realms of higher education of this region. The University, situated in a sprawling area of about 640 acres, has seven colleges on the campus, with a network of 18 constituents and 529 Affiliated colleges. The University is now offering 222 programmes in the University, constituent and affiliated colleges.

UCE (K.U), Kothagudem:

University College of Engineering, Kakatiya University (KU), a premier Government Technical Educational institution established in the year 1978 to impart the quality education to the engineering students in the eastern region of Telangana state, located at Kothagudem. Initially it was the constituent college of Osmania University, later shifted to KU with offering B. Tech and Ph.D. programmes in Mining, CSE, EEE, ECE & IT. The campus spread over 390 acres with lot of greenery.

Faculty Development Program:

Three-dimensional (3D) medical image processing is an interdisciplinary field that has evolved in recent years, leading to a major improvement in patient care. Hence there is a need to get exposed to the developments in this field and the related software tools to reconstruct 3D Medical Models from 2D Imaging Modalities.

Topics to be Covered:

- Overview of Image Processing
- Introduction to Medical Imaging modalities.
- Feature Extraction and Segmentation.
- Concepts in Microscopy from basics to advanced.
- Image J based processing of images for qualitative improvement.
- Presentation of figures for publication as per journal requirements.
- Introduction to Simpleware software.
- Conversion of CT Scans to 3D Models
- Case study in Maxillofacial surgery.
- Exporting high-quality models to simulation and 3D Printing.
- Contours to 3D Models using MATLAB

Objective of the Programme:

- ➢ To lay foundation needed to understand Medical Image Processing.
- ➢ To emphasize the importance of a comprehensive prototyping environment (MATLAB / Python) in the solution of Medical Image Processing problems.
- ➢ To introduce state of the art tools (Synopsys Simpleware / Mimics) to process Medical images and render 3D Models ready to print.
- ➢ To create awareness how Research in Medical Image Processing benefits the society. (Case Study)

Who should attend:

The programme is open to faculty and Research scholars of Electronics & Communication, Computer Science Engineering, and Mechanical Engineering, polytechnic colleges and other allied disciplines in India.

Resource Persons:

Academicians from IITs / NITs / IIITs/Central Universities in concerned field are invited to deliver lectures in the programme. Speakers from industries are also expecting to deliver as part of the course.

Registration Fee & Other Details:

Registration is allowed from ATAL academy website only and Course Registration is free for all participants. Seats are limited and selection is based on the first-come-first-serve and as per the guidelines of ATAL academy. The Mode of FDP is online, and E-certificate will be provided by AICTE ATAL to those participants with minimum 80% attendance and minimum 60% marks in the test.

Registration Link:
https://atalacademy.aicte-india.org/signup

Important Dates:

Last Date of Registration: 30th June,2021
Intimation Date : 1st July,2021.

Event Date: 5th – 9th July 2021.

Chief Patron
Prof. T. Ramesh,
Hon'ble Vice Chancellor, Kakatiya University, Warangal

Patrons
Prof. K. Purushotham,
Registrar, Kakatiya University, Warangal

Prof. T. Srinivasulu,
Dean Faculty of E&T, Kakatiya University, Warangal

Chairman
Dr. N. Ramana,
Principal, UCE, KU, Kothagudem

Coordinator
Dr. K. Punnam chandar,
Asst. Prof. of ECE, UCE, KU, Kothagudem

Organizing Committee

Dr. M. Sadanandam	Asst. Prof. of CSE
Sri. K. Kishor Kumar	Asst. Prof. of CSE
Sri. T. Jagan Mohan Raju	Asst. Prof. of EEE
Dr. K. Bikshalu	Asst. Prof. of ECE
Smt. K. Sravanthi	Asst. Prof. of CSE
Dr. T. Archana	Asst. Prof. of CSE
Smt. K. Padmaja	Asst. Prof. of CSE
Dr. E. Hari Krishna	Asst. Prof. of ECE
Sri. B. Srikanth,	Asst. Prof. of ECE
Smt. K. Sumalatha	Asst. Prof. of EEE
Sri. V. Ramu	Asst. Prof. of EEE
Sri. K. Cheena	Asst. Prof. of EEE
Smt. Ch. Radhika	Asst. Prof. of MECH

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RESOURCE PERSONS

Debdoot Sheet is an Assistant Professor of Electrical Engineering at the Indian Institute of Technology Kharagpur and founder of Skin Curate Research. He received MS and PhD degrees in computational medical imaging and machine learning from the Indian Institute of Technology Kharagpur in 2010 and 2014 respectively. He was a DAAD visiting PhD scholar to TU Munich during 2011-2012. His research interests include deep learning and domain adaptation, computational medical imaging, image and multi-dimensional signal processing, surgical analytics and informatics, visualization and augmented reality technology design. He has widely published in journals including Medical Image Analysis (MedIA) and conferences like the IEEE international symposium on biomedical imaging (ISBI). He is a member of IEEE, SPIE, ACM, IUPRAI and BMESI and serves as an editor of IEEE Pulse since 2014.

Prof. Debdoot Sheet
IIT Kharagpur

Ravi Kumar is an Associate Professor in Mechanical Engineering Department at National Institute of Technology (NIT), Warangal. He obtained B.Tech Degree in Mechanical Engineering from JNTU, Kakinada in 2000, M.E in Computer Integrated Manufacturing (CIM) from PSG College of Technology, Coimbatore in 2002, Ph.D. in Mechanical Engineering from Osmania University, Hyderabad in 2011 and Post-doctorial research in 3D Printing at Milwaukee School of Engineering, USA in 2012. He has supervised more than 30 M.Tech Projects and produced "04" Ph.D.'s and guiding "04" more Ph.D. theses. He has published more than 60 research papers in National and International conferences and journals. He has filed "01" **International patent** and "02" **Indian patents** in the area of 3D Printing. He is instrumental in setting up **Rapid Prototyping laboratory** at NIT Warangal. He started **M.Tech Program in Additive Manufacturing** in collaboration with Central Manufacturing Technology Institute (CMTI) Bangalore, first time in India of its kind. He has established a world class **"Metal 3D Printing Facility"** at NIT Warangal under TEQIP-III grant. He has conducted more than "15" training programs across India and trained around "900" participants in the area of "3D Printing". He received **"Young Engineer of the Year 2009 Award"** from the Government of Andhra Pradesh and The Institute of Engineers (India). He has executed sponsored R&D Projects worth of **1.24 Crore Rupees** in the area of 3D Printing. He is the Life Member of ISTE, IE and RPSI Societies. He visited countries like **Australia, Sweden, Singapore, Finland, France and USA.**

Dr. Yennam Ravi Kumar
NIT Warangal

Dr. Naresh K **Scientist 'C'**	**Dr. Naresh K Scientist-C, Division of Tissue Culture, BMT Wing, Sree Chitra Tribunal Institute for Medical Sciences and Technology, Trivandrum, India, since Oct 2017.** Postdoctoral Research Assistant & Co-Lab Manager, Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom, Jan 2016 - Aug 2017. Junior Research Scientist, Institute of Macromolecular Chemistry, Prague, Czech Republic, Jul 2015 - Dec 2016. Postdoctoral Fellow, Institute of Macromolecular Chemistry, Prague, Czech Republic, Dec 2014 - Jun 2015. Visiting Postdoctoral Fellow, Department of Zoology, University of Oxford, Oxford, United Kingdom, Jun - Dec 2014. Postdoctoral Fellow, Institute of Macromolecular Chemistry, Prague, Czech Republic, Oct 2012 - Jun 2014. Lecturer in Biotechnology, Government City College, Hyderabad, India, Jun - Dec 2006. Invited Session Co-Chair and Oral Presentation Evaluation Panel Member, International Conference on Biomedical Materials Innovations 2020, organized by SBAOI and STERMI in association with Bharathiar University, Coimbatore 2020. First Prize in Group Presentation Competition: 10th Training Program on Science, Technology and Emerging Trends in Governance, organized by Indian Institute of Public Administration, New Delhi, India, 2021. Filed 06 Indian Patents, and registered 03 designs. He has widely published in reputed science citation index journals and authored Books.
Prof. T. Satya Savithri **Jawaharlal Nehru** **Technological University,** **Hyderabad.**	Ph.D. in Digital Image Restoration Techniques, JNTU (2002-2006). M.E in Microwave and Radar Engineering, Osmania University with First (1995-1997). B.Tech in Electronics and Communication Engineering, NIT Warangal (REC) with First Class with Distinction (1988-1992). Research Project: *Reconfigurable SoC based Design for High Speed Data Acquisition System,* funded by TEQIP - 2,95,000 (sanctioned in 2019 duration of 2 years) *MODROPS-VLSI & ECAD Laboratory,* funded by AICTE - 10.42 lacs (2017 – 2019). Madam has widely published in reputed journals like IEEE, Elsevier. Filed 02 Indian Patens. Visited University of California, Barkley, Barkley, California, 23-10-2013 to 25-10-2013 and Presented research paper in World Congress on Engineering and Computer Science, International conference.
Srinivasulu Tadisetty **Kakatiya University,** **Warangal.**	**Srinivasulu Tadisetty** is a Professor and Dean of Faculty of Engineering Kakatiya University, Warangal. He has 29 years of experience in teaching and R & D. He has successfully completed minor and major research projects. He has widely published in many reputed international conferences and Science Citation Index Journals. He was granted patent titled "Microprocessor based solid state control (MBSC) system for haulers in coal mines" and transferred the technology to National Research Development Corporation.

Dr. Giri Babu Kande **Professor**	**Giri Babu** is an Professor & Dean of studies at Vasireddy Venkatadri Institute of Technology, Guntur, Andhra Pradesh. He has 23 years of teaching experience, filed one Indian Patent titled " *Methods and Systems for Diagnosing Optic Neuropathic Conditions and Segmentation of Optic Disc and Cup*" ,published one book titled "Signals and Stochastic Process" . He has got funding worth 90,00, 000 from different Indian Funding agencies. He has widely published in Journals like IET, Elsevier, Taylor and Francis, Imaging Science journal, Journal of Medical Imaging , Journal of Digital Imaging and many other reputed journals. He is a member of IEEE, IEI, ISTE and IAENG.
Rahul A Gujar **Faculty & Researcher**	Working in Pimpri Chinchwad college of Engineering, Pune(Maharashtra) Experience: 13 years (Industry and Academics) Research Area: Biomechanics, Biomedical, CT-scan Image processing, Mechatronics He has published papers in reputed journals like Taylor and Francis and also published one book with International publisher (Lambert Academic Publication). Presented research work in national and international conferences. He is working as a reviewer in Springer and T&F. Appointed as a member of the Board of Examiners for Mechatronics trade from Indo-German Commerce Chamber. He has Professional membership registration for Indian Society of Mechanical Engineers (ISME) and INSTICC (Institute for systems and technologies of information, control and communication, Lisbon (Portugal). Award Winner at "MEDIC-2017" organised by COEP, Pune in association with IIT, Bombay BETiC. Winner at "MEDHA" organised by B.J.Medical in association with IIT, Bombay. He has filed 02 Indian Patents and 01 copyright.
Jigyasu **Application Engineer** **Integrated Microsystem**	Works with Image Processing Tools, Material modelling, CAD, FEA and CFD models based on 3D image data. Looks over the technical support for Simpleware software and closely works with Simpleware customers to help them with their designing and modelling needs. Provides demonstrations to various IITs, NITs faculties & hospitals who are working in the field of Medical Image Processing, Patient-Specific Implants design, Surgical Planning, 3D Printing, Materials Modelling, manufacturing, and Simulation. Also works closely with engineers and researchers to solve problems through service projects, technical support, and training. The Simpleware Product Group at Synopsys develops software for the conversion of 3D scan data into high-quality computer models used for engineering design and simulation. The Simpleware products address a wide range of product design and data analysis applications in the life sciences, consumer products, aerospace, automotive, defence, oil and gas industries. Simpleware is a proven tool for medical image processing and is being used by various industries and institutes in India.

FDP SCHEDULE

Day	09:30- 11:30	11:30 - 11.35	11.35-1.35	1.35-2:30	2:30 -4.30
Day1	Registration and Inauguration	Tea Break	Introduction to Medical Image Processing (Prof. **Debdoot sheet**)	Lunch	Feature Extraction and Segmentation (Prof. **Debdoot sheet**)
Day2	Overview of Image Processing (**Prof. T Satya savithri**)		Retina Image Processing (**Prof. K. Giribabu**)		Image Processing Using MATLAB (**Mathworks**)
Day3	Image Processing (**Prof. T.Srinivasulu**)		Image J based processing of images for qualitative improvement (**Scientist Naresh Kasoju)**		Presentation of Figures for publication as per journal requirement (**Scientist Naresh Kasoju**)
Day4	Introduction to Synopsys simpleware software (**Synopsis S/W**)		GUI Overview of Simpleware software tools (**Synopsis S/W**)		Conversion of CT Scans to 3D Models (**Dr. Rahul Gujar**)
Day5	Contours to 3D Model using MATLAB (**Mathworks**)		Case study on Maxillo facial surgery (**Prof. Y. Ravi Kumar**)		Stress Management and Valedictory