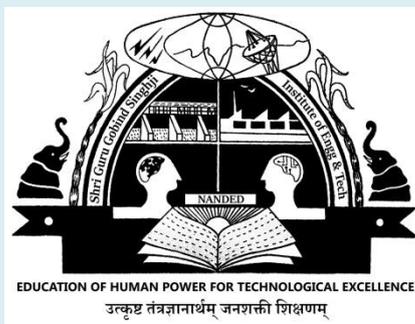


SHRI GURU GOBIND SINGHJI INSTITUTE OF ENGINEERING AND TECHNOLOGY, VISHNUPURI, NANDED 431606

(An Autonomous Institute owned by Government of Maharashtra)



SUMMER INTERNSHIP PROGRAM 2020



❖ *About the Institute*

Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGSIE&T), Nanded established in 1981 has grown to the level of being recognized as a leader in the area of technical education and research. Started with just two undergraduate programs, it now offers 10 undergraduate and 09 postgraduate programs. Pragmatic Management of the Institute has taken proactive steps to depute faculty to various IITs and NITs for higher studies. The faculty not only acquired higher qualifications but also brought back along with them the culture of these premier organizations. SGGSIE&T is rich in highly qualified faculty with more than 50% of the regular faculty being doctorates.

In less than 25 years of its inception, the Institute has made a mark in technical education and quality research. The Institute has state-of-the-art equipment and machinery for teaching as well as research / consultancy services. Faculty have contributed in being way for laboratory development through proposals to various funding agencies like AICTE, DST, BARC, NRB, etc. other than the funding obtained under two phases of TEQIP and from Government of Maharashtra. Most of the laboratories are kept open for the students 24 × 7. Faculty research abilities have led to the establishment of a "Center of Excellence" in the area of Signal and Image Processing under TEQIP. Scholarships are made available to the full time research scholars from Center of Excellence (CoE) in signal and image processing, Technical Education Quality Improvement Program (TEQIP), Quality Improvement Program (QIP) and Visvesvaraya Ph.D. Scheme for Electronics & IT of DeitY. Sponsored and Joint Research projects with various organizations such as BRNS and NRB represent other feathers in the cap of this Institute.

We at SGGSIE&T believe in learning. It is always our endeavour to provide the students with right environment for learning. The Institute has collaborations with a number of premier institutes (including foreign universities) and industries. The research culture of the institute has been proven through publication in thousands of research contributions with good citation record in peer reviewed prestigious national

/ international journals and reputed international conferences. Most of the faculty are reviewers for international journals. A number of books have also been published by the faculty. Patenting is becoming a promising feature of the institute basically because student projects are also getting converted into patents. Establishment of Innovation Laboratory and participation of roughly 15% of the total student strength in various Innovation projects is a key feature of the institution. (www.sggs.ac.in).

❖ *Center of Excellence in Signal and Image Processing*

As a part of ambitious plan of government of India, NPIU has selected 30 best institutions in India through competitive proposals from all over India for establishment Center of Excellence (CoE) for collaborative and multidisciplinary research within specific thematic areas of regional or national importance. The Center of Excellence is supported with research funding of Rs. 5 crores under the World Bank Assisted Technical Education Quality Improvement Program of India (TEQIP)-II. Based on the competitive merit, our institute is one among 27 best institutions selected for establishing Center of Excellence.

The Center runs a multidisciplinary research program involving more than 20 faculty members and 14 research scholars from various departments of engineering and basic science of institute. The Center has started its functioning in its state-of-the-art Signal and Image Processing Laboratory equipped with all the ultra-modern machinery set at par with any international research center. Apart from carrying out frontier research in the areas mentioned above, the center aims at creating technologies that can be commercially exploited by industries. The Center is also engaged in an ambitious plan for generating high caliber manpower and entrepreneurs in the field of Signal and Image Processing.

The key aim of the center is to attract and tap the top class talent to carryout frontier research in Signal and Image Processing. The CoE is expected to contribute to the training of R&D manpower for industry. (<http://www.sggs.ac.in>)

SUMMER INTERNSHIP PROGRAM

Summer Internship Program at SGGSIE&T, Nanded provides an opportunity to spend one of your summers working at Center of Excellence in Signal and Image Processing. Summer Internship provides an exciting opportunity for research oriented students to work with our renowned faculty members and research scholars.

❖ *Who can apply?*

Bonafide students of recognised Universities/ Institutions who are currently in third year of B.E. / B.Tech program or first year of M.E. / M.Tech /M.S. program or fourth year of integrated M.E./M. Tech program of the following disciplines.

- Electronics / Electronics and Telecommunication Engineering
- Instrumentation Engineering
- Computer / Computer Science Engineering
- Information Technology

❖ *Program Details:*

- **No. of Seats** : 18
- **Duration** : 11th May – 10th July, 2020
- **Internship Fee** : Students are supposed to pay ₹ 10,000 as internship fee.
- **Accommodation** : Accommodation for outside students will be provided by the Institute during internship period.
- A participation certificate will be awarded at the end of the programme.

❖ *How to apply?*

Interested students are advised to mention the preferences of research areas of their interest (scroll down to see the research areas) and submit the application online through our website www.sggs.ac.in to apply for the internship.

The last date of receipt of online application is 31th March, 2020.

List of the selected candidates will be displayed on our website. Each selected candidate will be formally associated with one of the renowned faculty member of the Institute. Each candidate will be working on one of the projects in a team comprising of faculties and research scholars of the institute.

RESEARCH AREAS

1. Biometrics or Remote Sensing:



Faculty Supervisor

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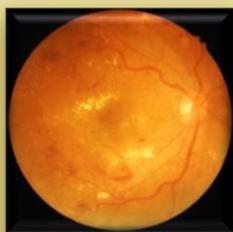
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The field of biometrics examines the unique physical or behavioural traits that can be used to determine a person's identity. Biometric recognition is the automatic recognition of a person based on one or more of these traits. The word "biometrics" is also used to denote biometric recognition methods. For example, fingerprint, face, or iris biometric features are sometimes described as single biometrics. Biometric technology can prevent fraud, enhance security, and curtail identity theft.



Remote sensing is the acquisition of information about an object or phenomenon without making physical contact with the object and thus in contrast to on-site observation, especially the Earth. Remote sensing is used in numerous fields, including geography, land surveying and most Earth Science disciplines (for example, hydrology, meteorology, oceanography, glaciology, geology); it also has military, intelligence, commercial, economic, planning, and humanitarian applications.

2. Diabetic Retinopathy:



Faculty Supervisor

Dr. M. B. Kokare

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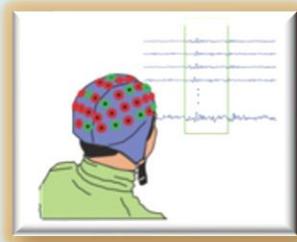
Many important eye diseases as well as systemic diseases which lead to blindness manifest themselves in the retina. Retinal fundus images which show presence/absence of abnormalities are widely used by ophthalmologists for diagnosis purpose. Hence, Automatic retinal image analysis can be used for diagnosis of these diseases.

Our current work focuses on the following areas:

1. Disease Analysis: Developing techniques for detection of abnormalities such as microaneurysms, exudates, haemorrhages, cotton wool spots etc.

2. Content Based Image Retrieval (CBIR) of Retinal Images: Pathology / Anatomy based retinal image retrieval from large databases.

3. Artifacts free EEG :



Faculty Supervisor

Dr. R. R. Manthalkar

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EEG recordings are often affected by the extrinsic artefacts due to power line interferences and intrinsic physiological artefacts due to ocular activities (eye blink, saccades, and fixations), muscle activity, and cardiac activity. However, it is challenging for the subjects to avoid their ocular activities. Therefore, it is very crucial to remove the blink related activities.

4. Medical Image Processing/ Analysis:



Faculty Supervisor

Dr. S. N. Talbar

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Study and analysis of different image modalities like X-Ray, CT, and MRI as well as image pre-processing and segmentation techniques for detection of abnormalities like lung cancer, brain tumour and breast cancer etc. This area also deals with image registration and fusion techniques applied to medical images

5. Advance Driver - Assistance System:



Faculty Supervisor

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Advanced driver-assistance systems (ADAS), are systems to help the driver in the driving process. When designed with a safe human-machine interface, they should increase car safety and more generally road safety. Advanced driver-assistance systems are systems developed to automate, adapt and enhance vehicle systems for safety and better driving. The automated system which is provided by ADAS to the vehicle is proven to reduce road fatalities, by minimizing the human error. [2] Safety features are designed to avoid collisions and accidents by offering technologies that alert the driver to potential problems, or to avoid collisions by implementing safeguards and taking over control of the vehicle

6. Computer Vision for Agriculture Application



Faculty Supervisor

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According to a report of the Food and Agriculture Organization (FAO), our world population is anticipated to hit 9.1 billion in 2050. Therefore, agricultural production needs to be increase up to 70% to fulfil the food requirements of a steadily growing population. thus, an accurate and a faster detection and identification of diseases in plants could help to increase agricultural yield. Recent developments in Deep Neural Networks have allowed researchers to drastically improve the accuracy of object detection and recognition systems. Proposed research presents a deep-learning-based

approach to detect diseases and suggest preventive measures for particular diseases in plants using images captured in-place by smartphone camera devices which will help farmers to diagnose plant diseases.

❖ *Contact Information*

Course Co-ordinator

Dr. Manesh B. Kokare,

Co-ordinator,

Center of Excellence (S&IP)

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If you have any queries, feel free to contact us...

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