

Preetish Kota

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EDUCATION

- **Rajiv Gandhi Institute of Petroleum Technology, Amethi-229304 (U.P)** CGPA: 7.55 (till 4th Sem.)
Bachelor of Technology - Electronics Engineering 2021- 2025
- **CEERI Vidya Mandir, Pilani-333031(Raj)** Percentage: 93.20
Class 12th(CBSE) - PCM 2020
- **CEERI Vidya Mandir, Pilani-333031(Raj)** Percentage: 92.80
Class 10th(CBSE) 2018

SKILLS SUMMARY

- **Software programming Languages:** Python(openCV, Numpy, Pandas,Matplotlib), C, C++, Linux commands
- **Hardware Description Languages:** Verilog, System Verilog
- **EDA Tools :** Xilinx Vivado, Xilinx Vitis, Xilinx SDK, Questasim
- **Development Boards:** Nvidia Jetson Nano, Avnet ZedBoard, AMD Zynq 7000 SoC ZC702

INTERNSHIPS

- **CSIR - National Aerospace Laboratories** Offline
Student Intern at Structural Technological Division (Full-time) May 2023 - July 2023
 - **Technology:** Digital Image Correlation(DIC): Non-Contact Optical Flow Method for determining Strain and Displacement Fields especially in Aircrafts and other space vehicles.
 - **Softwares:** VIC-2d, VIC-3d, VIC-Snap 9, Python
 - **Tasks:** 1. Studied about Various algorithms of 2D and 3D Digital Image Correlation, debugging of experiment set-up and method of experimenting for accurate results.
2. Successfully obtained the strain and displacement values from the 3D-DIC Setup (reduced error less than 5 % from 20 % earlier)which were cross verified with strain gauge attached to the 1.2m long cylindrical specimen(mimicking a space vehicle).
3. Developed a Dataset of Images of Tensile test of Aircraft Material Al 2024 with 2D DIC setup and software and Validated the Dataset's accuracy with strain gauge.
4. Developed and trained (through self built dataset) a CNN based deep learning model for the prediction of displacement field.

PROJECTS

- **Hardware Acceleration of CNN Based Displacement Measurement in 2D DIC on Avnet Zedboard:** (Work in progress) The Acceleration of the deep learning CNN model to predict displacement of the deformed material is done using the Implementation of the Hardware Accelerator in Xilinx Vivado HLS, compiled and build in Xilinx SDK. (October 2023-present)
- **Unsupervised CNN-based Digital Image Correlation(DIC) for 2D Displacement Measurement :** (completed) Digital Image Correlation is the Optical Flow Method used for strain and displacement calculation in the deformed object. While using the orthodox DIC algorithms is time taking and tedious process and hence CNN based prediction of the 2D displacement becomes a optimal solution. The model is trained on self built dataset and DIC challenge Dataset . (July 2023)
- **Faces Detection and Recognition using Classical Feature-Based Technique (Haar Cascade Classifier):** (Completed)Face detection is a computer vision problem that involves finding faces in photos. It is a trivial problem for humans to solve and has been solved reasonably well by classical feature-based techniques, such as the Haar cascade classifier. This whole model was deployed on Jetson Nano and optimal results were achieved. (Jan 2023)

ACHIEVEMENTS

- Qualified JEE-Advanced and JEE-Mains 2021.
- 1st prize in scientific concept poster competition held at BITS PILANI (2019) - The concept of piezoelectric based roads which generate electricity with vehicles pressure was explained.
- 1st and 3rd prize in Scientific-Essay writing competition organised by CSIR-CEERI on the occasion of CSIR foundation Day in the year 2018 and 2019 respectively.

VOLUNTEER EXPERIENCE

- **Joint-Secretary at IEEE-RGIPT(Amethi) student branch** Amethi,India
Managing Heads of various teams and whole functionality of the IEEE-RGIPT SB. August 2022 - Present
- **Co-Head at Tinkering Club in Science and Technology Council (RGIPT)** Amethi, India
Managing tinkering club, hosted robotics competition, workshops May 2023 - Present
- **Teaching volunteer at Gyanarpan-Project Amethi** Amethi, India
Taught many underprivileged students backed by a government scheme called Project Amethi Aug 2022 - Present