Pranjal Choudhury

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Ph.D
Physics
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EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
PhD	Indian Institute of Technology Guwahati	10.00	2020-present
M.SC (5 year integrated)	Tezpur University	8.73	2014-2019
Senior Secondary	Assam Higher Secondary Education Council	87.0%	2014
Secondary	CBSE	10.0	2012

EXPERIENCE

- **PhD** *September 2020 - Present*
  Indian Institute of Technology Guwahati
  - Development of a Python based software for super resolved image reconstruction in Single Molecule Localization Microscopy (SMLM) images.
  - Development of an adaptive thresholding method for fluorescence image segmentation and proper PSF detection.
  - Development of a CNN based method for accurate PSF detection in SMLM images with dense emitters.
  - Development of a cross-correlation based drift correction algorithm for fluorescence images.
- **Visiting PhD Student** *May 2024 – July 2024*
  Department of Physics, Imperial College London
  - Development of robust hardware based autofocusing system for SMLM image acquisition.

PUBLICATIONS

- **Localization and Image Reconstruction in a STORM based Super Resolution Microscope** *2024*
  Image Processing Online https://doi.org/10.5201/ipol.2024.496
- **Adaptive image thresholding and localization of point spread functions with enhanced precision for single molecule localization based super-resolution microscopy** *2024*
  Optics and Lasers in Engineering https://doi.org/10.1016/j.optlaseng.2024.108234
- **Neural network-assisted localization of clustered point spread functions in single-molecule localization microscopy** *2024*
  Journal of Microscopy https://doi.org/10.1111/jmi.13362
- **Tuning the excitation laser power in a stochastic optical reconstruction microscope for Alexa Fluor 647 dye in Vectashield mounting media** *2024*
  Review of Scientific Instruments https://doi.org/10.1063/5.0217409

TECHNICAL SKILLS

- **Programming**: Python, MATLAB, C, Java*
- **Tools**: Mathematica, LabVIEW
- **Frameworks**: Keras, Tensorflow, Scikit-image, OpenCV
- **Operating Systems**: Windows, Linux ** Elementary proficiency*
- **Instrument:** Optical microscope (Fluorescence), SLM

KEY COURSES TAKEN

- **M.Sc. Physics**: Mathematical Physics, Classical Mechanics, Thermodynamics, Statistical Mechanics, QuantumMechanics, Atomic and Molecular Physics, Nuclear and Particle Physics, Condensed Mater Physics
- **PhD Coursework**: Laser Physics and Nonlinear Optics, Fourier and Guided Wave Optics, Computational Physics

POSITIONS OF RESPONSIBILITY

- **Assistant Prefect**, Patkai Men's Hostel, IIT Tezpur University *July. 2017 - June. 2019*

ACHIEVEMENTS

- Institute Gold Medal, Integrated M.Sc. Tezpur University *2019*
- CSIR JRF/NET, GATE (PH), JEST *2020*
- *Global Development Hub Fellowship, Imperial College London* *2024*