

Ravin Chowdhury

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WORK EXPERIENCE

STEAM Project at Colorado Space Grant Consortium (CoSGC) (May 2022 - May 2023)

- Collaboratively developed code to simulate X-ray spectra measured by Amptek spectrometers using different X-ray sources.
- Developed code to calibrate spectrometers using data from known X-ray sources.
- Obtained spectra from multiple radioisotopes and calibrated Amptek spectrometers.

Undergraduate Physics Research Assistant (Jan 2020 - May 2023)

Noel Clark Liquid Crystal Physics Group - CU Boulder

- Trained CNNs (YOLOv5, MaskRCNN) for the analysis of island dynamics in smectic bubbles.
- Developed neural networks (modified UNet and custom network) to analyse topological defect coarsening in quenched smectic-C films (Paper: <https://link.aps.org/doi/10.1103/PhysRevE.107.044701>).
- Reflected light microscopy, dynamic light scattering and liquid crystal sample synthesis experiments.

PISEC Volunteer (Aug 2019 - Jan 2020)

- Astrophysics and physics undergraduate mentor at Timberline PK-8, Longmont.

PROJECTS

Physics Electrons Lab Project - Electronic Safe Box github.com/chowravc/PHYS3330Project

Electronic safe box demonstrating various principles studied in electronics lab.

Scientific Computing Project - Gravitational Waves github.com/chowravc/ASTR3800Project

Analyzed LIGO event data, comparing it to simulated gravitational wave chirps.

EDUCATION

B. A. at University of Colorado Boulder (August 2019 - May 2023)

Physics GPA: 3.982/4.0, *summa cum laude* | **Astrophysics** GPA: 3.982/4.0

SKILLS

Programming Languages

- C#, Fortran, HTML, IDL, Java, LaTeX, MATLAB, Mathematica, and Python (packages like NumPy, Pandas, SciPy, SymPy, Scikit-learn, Darknet, Tensorflow, Keras and PyTorch)

Software Packages

- Adobe After Effects, Anaconda, Blender, Docker, DppMCA, GitHub, Inkscape, LabVIEW, LTSpice, Microsoft Office Ensemble, and OriginPro

Experimental Experience

- Electrostatic discharge (ESD) safety, gaseous nitrogen purging, hazardous chemical handling, laser-based optical system, machining (lathe, mill, etc.), optical microscopy, preparation of colloidal mixtures, telescope observation and radiation safety