NEIL GHUGARE

Education

The Ohio State University — 08-2022 – **Present**
Bachelor of Science in Physics — *Columbus, Ohio*

- German and Honors Math Minor | Expected completion: 05-2026
- Notable club memberships include AI Club and the Society of Physics Students

Olentangy Liberty High School — 08-2018 – **05-2022**
High School Diploma — *Powell, Ohio*

- Cumulative GPA 4.311 (weighted) / 3.978 (unweighted)
- College Credit Plus Program tield to Columbus State Community College (GPA 4.000)
- AP Scholar w/ Distinction; German Honor Society

Experience

The Ohio State University — 01-2023 – **Present**
Undergraduate Research Assistant — *Columbus, Ohio*

- Worked in experimental Condensed Matter Physics under Dr. ChunNing Lau and PhD Student Jiayin Wang.
- Participated in the OSU Physics Summer Research Program 2023.
- Worked on a project related to AI identification of Graphene layers through unsupervised clustering algorithms.

The Ohio State University — 07-2023 – **Present**
Student Assistant - Grader — *Columbus, Ohio*

- Assist professors with teaching through grading homework and assignments.
- Classes graded: Math 3345 (Foundations of Higher Mathematics)

Zooniverse — 04-2023 – **Present**
Volunteer — *Remote*

- Aided in scientific research through classification tasks, many of which involve or will help train AI projects.
- Contributed to eight projects including CERN Displaced Vertex Identification and Cool Neighbors (brown dwarf movement searching).

Certifications

Wolfram Mathematica Level 1 Certification — 04-2023

- Demonstrated proficiency in using the Wolfram Mathematica software, including use of notebooks.

Wolfram Language Level 1 Certification — 04-2023

- Demonstrated proficiency in using the Wolfram Language, including how to do use different methods of data representation, visualization, and the neural net and other frameworks.

PCEP Certified Entry-Level Python Programmer — 07-2022

- Demonstrated proficiency in entry-level python programming skills.
- Given by the OpenEDG Python Institute | Certification ID: w5Aq.PwDt.ArRc

Technical Skills

Programming Languages: Python, Java, C++, MATLAB, and Mathematica. Familiarity with C and FORTRAN.
Tools: LaTeX, Git, Gradle, Maven, Jupyter Notebooks, Conda/PyPI/Venv, and Tensorflow/Scikit-Learn
Language Skills: English (Native), German (CEFR Level B1-B2), and understands Marathi

Select Projects

Graphene Layer Identification AI — 07-2023

- Employed unsupervised clustering algorithms like DBSCAN and GMM along with CV2 image pre-processing to automatically identify layers of Graphene on an Si/SiO_2 substrate.
- This project completed it's preliminary phase on 07-2023. The project work is still ongoing.

Hemoglobin Binding Cooperativity — 04-2023

- Use MATLAB to compare models (Non-Cooperative/Pauling/Adair) of oxygen binding to hemoglobin.