

Akshat Sharma

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EDUCATION

Bachelor of Science in Physics, Expected Graduation Fall 2024 **Minor in Mathematics and Computer Science**

College of Science and Engineering, University of Minnesota- Twin Cities Minneapolis, MN | Cumulative GPA: 3.77/4.0, Dean's Scholar, *University Honors Programs*

SKILLS

Industrial: Advanced physics, mathematics, Python, SQL, C, Java, Flask, HTML, CSS, Javascript, Jinja

Professional: MATLAB, LATEX, Google and Microsoft apps

Laboratory: Graphene exfoliation, spectroscopy, error measurement/correction, Labview, Data analysis and Filtering

PROJECTS/RESEARCH EXPERIENCES

Research: Conductivity of Amorphous Semiconductor Materials | February 2023 – August 2023

- Conducted in-depth research on undoped polycrystalline germanium and n-type hydrogenated amorphous silicon thin films to investigate conductivity behavior concerning temperature and cooling rate.
- Performed rigorous data analysis using integrated software systems like electrometer and thermal compilers, comparing results with established models (e.g. Mott or Efros-Shklovskii variable-range hopping) to advance the understanding of electrical properties.
- Explored theories related to amorphous materials and the mechanisms governing conductivity, contributing to better data interpretation and comprehension of the subject.
- Presented research findings at the Summer Undergraduate Research Expo - Poster, showcasing the significance of the project and contributing to the academic community's understanding of amorphous semiconductor materials.

Project: WeChat- Chat-based Web App | May 2023

- Chat-based web application using HTML, CSS, JavaScript, Flask, SQL, Jinja and JSON, allowing users to communicate with each other in real-time.
- Incorporated user account management features, enabling users to create accounts, log in securely, provide users with meaningful error messages and reset passwords when necessary and incorporated important security measures.

Project: Player vs. Player Chess Game | March 2023

- Designed and developed a fully functional chess game in Java, allowing players to engage in matches against each other on the terminal.
- Implemented object-oriented programming principles by creating classes in Java to represent the chess pieces, board, and game logic and use data structure and algorithms to handle move validation and piece handling

Research: Graphene Super-conductor Exfoliation and Spectroscopy | September 2021 – April 2022

- exfoliated Graphene into quasi-2D nanostructures to explore its super-conductor potential and gained hands-on experience in handling delicate materials and instruments, ensuring the integrity of the experimental setup and measurements.
- Conducted advanced spectroscopic analysis with an optical microscope to distinguish mono-layer and bi-layer graphene, identifying high-quality graphene locations on the silicon disk.

WORK EXPERIENCE

Peer Tutor Mentor | TASC: Tutoring and Academic Success Center | January 2022 to Present

- Mentored over 700 students as an academic resource in mathematics and physics, providing expert guidance and assisting in the development of study and developmental skills for improved academic performance.
- Proactively supported struggling students by reaching out to them, coordinating suitable tutoring options and schedules, fostering an environment of continuous academic progress and success.
- Assumed the role of mentor for new tutors, offering regular check-ins, support, and conducting staff meetings to address tutoring-related topics, contributing to the professional development of the tutoring team.

Residential Youth Counselor | TRIO Upward Bound Summer Program | June 2023 to August 2023

- Provided mentorship and guidance to a diverse group of nearly 50 low-income, first-generation high-school students ultimately committing to empowering disadvantaged youth by contributing to their successful transition to college.
- Displayed remarkable versatility by effectively mediating interpersonal issues, fostering a positive atmosphere, and adeptly handling numerous unprompted medical situations and emergencies, ensuring the safety and well-being of all students.
- Participated in a 4-day trip to Chicago with the students, organizing and preparing campus tours to familiarize them with college life and potential academic opportunities.