Meyhar Dudeja

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EDUCATION

Michigan State University **May 2026**
College of Natural Science, Honors College *East Lansing, Michigan*
GPA 3.925

GRANTS & SCHOLARSHIPS

- GSI Helmholtz Centre for Heavy Ion Research Stipend and Travel July 2025 – September 2025
- Michigan State University Honors College Travel Grant for Research in Germany May 2025
- Lyman Briggs College For Project Diophantine Triple Spring 2023
- Michigan State University International Student Tuition Scholarship August 2022 - Present

CONFERENCES & WORKSHOPS

- **GSI Summer Student Presentation 2025** - GSI Helmholtz Centre for Heavy Ion Research
  - Presented "Simulation Studies on UniCell Setup"
- **Isotopes in Motion Workshop 2024** - FRIB - Michigan State University
  - Volunteered in this workshop about communicating FRIB research and nuclear physics to high school students.
- **MCAW 2023** - Midwest Cold Atoms Workshop - University of Chicago
  - Presented "Progress towards Single Atom Microscope"
- **Mid-SURE 2023** - Mid-Michigan Symposium for Undergraduate Research Experiences - Michigan State University
  - Presented EDM3 as "Using Radioactive Molecules to Study the Origin Of Visible Universe"
- **UURAF 2023** - University Undergraduate Research Arts and Forum - Michigan State University
  - Presented "Some Remarks on Diophantine Triples"

ACADEMIC EXPERIENCE

Summer Research Student **July 2025 – September 2025**
GSI Helmholtz Centre for Heavy Ion Research *Darmstadt, Germany*

- **Advisor**: Dr. Jochen C. Ballof, Staff Scientist, Superheavy Element Chemistry group, GSI
- **Project**: Simulation studies on the UniCell Setup
  - Ran SIMION simulation studies on the UniCell setup, which is a novel gas stopping cell to reduce the extraction time of superheavy elements to study chemical properties.
  - The UniCell ion funnel had shorted electrode plates, the simulations done were to find an alternative way to fix these shorts without mechanical repair.
  - Successfully developed a method to have high efficiency without requiring mechanical repair to the funnel.

Researcher **October 2024 – February 2025**
Karmanos Cancer Center (KCC), Wayne State University *Detroit, Michigan*

- **Advisor**: Dr. Ramesh Boggula, Senior Medical Physicist, KCC & Assistant Professor, Department of Oncology, Wayne State University.
- **Project**: Make/Acquire a Compton Camera to test its application in Medical Physics
  - Researched on compton camera to image gamma rays from a patient who has been administered a nuclear medicine like Pluvicto that contains Lu-177. This led to KCC acquiring a compton camera from M3D imaging.

Student Research Assistant I **October 2022 – December 2024**
Facility for Rare Isotope Beams (FRIB), Michigan State University *East Lansing, Michigan*

- **Spinlab Group PI**: Dr. Jaideep T Singh, Associate Professor of Physics, FRIB, Michigan State University
- **EDM3** - Electric Dipole Measurements using Molecules within a Matrix
  - Assembled ion transport instrument with the postdoc (Dr. Jochen Ballof) and grad students on the group; used vacuum chambers and ion funnels to construct the instrument; successful vacuum creation at desired pressures, learned the skills of vacuum operation.
  - Built electrical connection breakout boxes using solder, triax cables and multipin connectors, resulting in reduced noise in measuring pico-amp currents.
- **SAM** – Single Atom Microscope
  - Built the Blackout Enclosure and did other modifications to the existing setup mechanical design skills; used 80-20 aluminium profiles and modified them by either cutting or filing them, leading to a reduction of the optical background of photon counts.
  - Did sharpness of image, theoretical calculations using Zemax OpticStudio and did analysis using python, made graphs using matplotlib.

Researcher **September 2022 - Present**
Lyman Briggs College, Michigan State University *East Lansing, Michigan*

- **Project Diophantine Triple** - Advised by Dr. Aklilu Zeleke, Ph.D. Mathematics, Professor of Mathematics and Statistics, Michigan State University
- **Official Title**: Asymptotic Behavior of Numerical Sequences and Polynomials Generated by Recurrence Relations.
  - Number theory research being done under the guidance of Prof. Zeleke.
  - Created a Python program that generates arrays and then filters out the ones that fits the conditions of being a Diophantine triple; found multiple recurrence relations and now in phase of publishing a paper for results written in Latex.

Researcher **August 2020 – August 2021**
University of California, Santa Barbara, CA (remote) *Delhi, India*

- **Project BabyPIC (Particle in cell code)**
  - Project that simulates particles in form of Finite Phase Fluid Elements (FPFEs) with defined charges in influence of electric and magnetic fields using Leapfrog Integration.
  - Worked on this project theoretically, tested the simulations, and analyzed the results.

COLLEGIATE EXPERIENCE

Service Center Representative **October 2024 – Present**
Michigan State University *East Lansing, Michigan*

- This job is about communicating with residents of dormitories and helping them with packages keys, access cards etc. Also, assist any visitors like parents etc.
- Organizational skills are extremely important in this job as you are managing a desk that services keys, packages and mail.

ACTIVITIES & CERTIFICATIONS

- Dean's List for Academic Excellence (GPA>3.5) Dec 2022, May 2023, Dec 2023, May 2024, Dec 2024, May 2025
- Founder, Core Team Head, VIS Scientia Society Oct 2020 – July 2022
- Won AP Scholar Award July 2021
- Completed Citi Asia Pacific Investment Banking Virtual Reality Intern Experience May 2021
- Completed Goldman Sachs Engineering Virtual Program November 2020
- Completed JPMorgan Chase & Co. Software Engineering Virtual Experience October 2020
- Participated in Harvard Model United Nations, India November 2020
- Completed Trinity College London Graded Examination in Spoken English December 2016

SKILLS

- **Proficient in**: Java, Python
- **Frameworks**: Git, NumPy, Machine Learning
- **Scientific Software**: Altium (circuit maker)
- **Software**: Inkscape, IntelliJ, SIMION, COMSOL