

## Arshbir Singh

farshbi000@citymail.cuny.edu — The City College of New York, 160 Convent Ave, New York, NY 10031

Phone: (914) 207-3048

### Education

**The City College of New York, NY**

B.S. in Physics, Minor in Mathematics (*Summa Cum Laude candidate*)

**Expected Graduation: Fall 2024**

### Technical Skills

- **Programming:** MATLAB, Python, Julia
- **Hardware:** Arduino, Raspberry Pi, Keithley Sourcemeters, Olympus
- **Tools:** TeXShop, LightField, AutoCAD, Power BI, LabView
- **Languages:** English, Punjabi, Hindi, Urdu, Basic Japanese

### Research Experience

**Fabry-Pérot Microcavities and 2D Materials**

2023-2024

*LaNMP, CDI, NY*

- Conducted research on CrSBR, MoS<sub>2</sub>, WS<sub>2</sub>, MoSe<sub>2</sub> for photonics applications.
- Gathered/analyzed data using MATLAB, LightField, and RATcatcher program.

**Research on NHQM**

2024-Present

*The City College of New York, NY*

- Applications of Green's Functions and Non-Hermitian Quantum Mechanics to study resonance and tunneling phenomena in different potentials.

### Projects

**Speed of Sound Measurement with Real-time FFT**

2023

- Measured the speed of sound (under standard conditions) with a smartphone, Arduino, and FFT analysis.

**Radiation Experiments**

2024

- Studied radiation phenomena in Cr-137, Co-60, Sr-90 using a Geiger-Müller tube.

**Brachistochrone Problem in an O'Neill Cylinder**

2024

- devised a solution for the brachistochrone curve in a fast-spinning space-ship.

**Phyphox Experiments**

2023

- Analyzed subway speeds and cantilever vibrations using Phyphox/MATLAB.

**Modeling Gyroscopic Precession**

2023

- Modeled gyroscopic behavior using Julia and Plotly based on real-world data.

### Work Experience

**Retail Associate, ConocoPhillips, 2021-2023**

**Furniture Mover, CBD Movers, 2020**

**Marketing and Sales Associate, Hannah direct, 2019-2020**

**Farm Worker, Fragapane Farms, 2019**

### Honors and Awards

- **Bernard B. Levine Scholarship, 2023, 2024**
- **Sidney Millman Award, 2024**
- **CCNY USG Scholarship, 2023**
- **The Harry Soodak Prize, 2023**
- **Ira and Cecille Weber Scholarship, 2024**
- **Norman Weissman Memorial Scholarship, 2024**
- **Sam and Clara Lindner Scholarship, 2022**
- **ORCA Fellowship, 2023**
- **Deans' List, 2021-2024**
- **Faith full fellowship by Hillel at City College, 2024**
- **City College Fellows Program, 2023-Present**