

# FARHAN HAQUE

Princeton, NJ | [farhan-haque.com](https://farhan-haque.com) | [farhanhaque1906@gmail.com](mailto:farhanhaque1906@gmail.com) | (609) 721-7677

## EDUCATION

**Princeton Day School**, Princeton, NJ - **Grades 10, 11, 12**

September 2021 - Present

**Relevant Coursework:** AP Calculus BC, Precalculus Honors, Geometry Honors, AP Physics C: Mechanics, AP Chemistry, Honors Physics, Honors Chemistry, Honors Biology, Advanced Computing: Coding w/ A Purpose, AP Computer Science A, AP Computer Science Principles

**West Windsor Plainsboro High School North**, Plainsboro, NJ - **Grade 9**

September 2020 - June 2021

**Relevant Coursework:** Advanced Algebra 2 Honors, Honors Biology, Intro to Computer Programming

## STANDARDIZED TESTING

ACT - **36** (36 Math, 36 Science, 36 English, 35 Reading)

SAT- **1570** (800 Math, 770 Reading)

PSAT - **1510/1520** (760 Math, 750 Reading)

AP Chemistry: **5/5**; AP Computer Science A: **5/5**; AP Microeconomics: **5/5**; AP Macroeconomics: **5/5**;

AP Computer Science Principles: **5/5**

## ACADEMIC HONORS & AWARDS

- **AP Scholar with Distinction**, July 2023
  - Scored a **5 on five AP Exams**, receiving the highest-level AP Scholar Award.
- **National Merit Scholarship Semifinalist**, ([PR1](#), [PR2](#)) Sep 2023
  - Scored **226/228** on the NMSQT, placing in the **top 16,000** high school students **nationwide**
- **New Jersey Governor's School of Engineering and Technology Nomination**, Dec 2022
  - Awarded to the **#1 STEM** student from **PDS** (Grade 11)
- **US National Chemistry Olympiad Nomination**, Feb 2023
  - Nominated as **1 of 20 students** from **NJ** to participate in the USNCO
- **Delaware Valley Science Council Nomination**, Feb 2023
  - Selected as **one of 174 students** from **15,000 students** across Delaware Valley (NJ, PA, DE)
- **Gold Presidential Volunteer Service Award**, July 2022
  - Awarded for performing **250+** community service hours in one calendar **year**

## PRE-PROFESSIONAL EXPERIENCE

**Research Assistant**, [The Tripathi Lab](#) @ **Brown University**, Providence, RI ([Demo](#)) June 2023 - Present

- Worked to bring more affordable and accessible medical treatments in underserved areas and in communities without adequate testing capabilities by creating biomedical engineering solutions
- Developed **20+** protocols to **automate extraction and analysis** of proteins from Dried Blood Spots using a robotic liquid handler and PerkinElmer Mass Spectrometer
- Optimized **7 drugs** of abuse on Mass Spectrometer to improve detection accuracy and precision
- Used COMSOL Modeling to simulate laminar fluid flow through a 3-D printed Microfluidic chip to be implemented in low-resource settings to analyze Ovarian cancer treatments
- Co-authored **4 research studies** ([Abstracts](#)):
  - **LC-MS/MS Quantification of PARP-inhibitor Uptake for Validating an Ovarian Tumor on a Chip** (Abstract accepted for presentation at the 2024 Society of Laboratory Automation and Screening (SLAS) International Conference)

- **Electric field-Assisted Automatable Dried Blood Spots Sample Preparation device for Neonatal Abstinence Syndrome Screening** (Abstract accepted for presentation at the 2024 SLAS International Conference)
- **Capillary Flow Sample Preparation Device For Amphetamine Detection Using LC-MS/MS** (Abstract accepted for presentation at the 2024 SLAS International Conference)
- **Electric-field Assisted Sample Preparation of Whole Blood and Dried Blood Spots for Steroid Quantification using LC-MS/MS** (Abstract accepted for presentation at the 2024 SLAS International Conference)
- Co-authored **2 Review Papers**:
  - **Dried Blood Spots for Quantitative Clinical Translation: A Review** (In Publication Process)
  - **A Review of Automated Workflow for LC-MS/MS Sample Preparation using Robotic Liquid Handlers** (In Publication Process)

**Research Assistant, [WAPO](#) (What's Possible and What's Positive) Lab, @ Wayne State** Dec 2022 - May 2023

- Interned under Dr. Ajit Sharma at the WAPO lab in the Department of CS and Psychology, working to create solutions for mental health ailment detection and treatment through technology.
- Researched **Brain-Computer Interface (BCI)** placement around the head for the strongest and most accurate brainwave signals using electroencephalogram (EEG)
- Built **ML Classification algorithm with 85% accuracy** using EEG data to **detect emotions** such as **depression, anxiety, and stress**
- Built a **companion app** using **Python, Pandas, and Sci-kit Learn** to encode the algorithm
- Spearheaded WAPO's efforts to partner with **10 local clinics** in underresourced healthcare regions in **Detroit, MI**, where the app and headsets were implemented as the **first line of support** in mental health diagnoses
- Authored a [Science Communication Article](#) on the role of EEG in emotion detection

**Software Developer, Standard Partners, New York City, NY** ([Demo](#))

June 2023 - Present

- Created a service that programmatically pulls data from the latest **SEC filings** (10-K, 10-Q, etc.) to compile **financial records for all companies in a market segment**
- Developed a **queryable Neo4j industry** database of digital twins of companies/capital structures.
- Designed service to use business segments and product objects to **simulate and predict changes in corporate capital structures** and changes in the stock market due to **mergers, spinoffs, acquisitions**, etc.

**Machine Learning Intern, [WhizAI](#), Somerset, NJ** ([Internship Letter](#) - [Demo](#))

July 2022 - June 2023

- Lead intern, creating density-based and distribution-based **Machine Learning clustering algorithms** using Python, Pandas, Flask, and RestAPI to **track TRx** (total prescription) volumes across **5 factors** (**region, customer type, payer, plan, and prescription type**)
- **Deployed** as a company offering to **identify healthcare disparities** and **improve healthcare quality** in underserved areas
- Exceeded expectations, and the **internship** was **extended** by **1 year**

## COMMUNITY SERVICE

### **Founder, [Zehn](#): Muslim Mental Health**

October 2022 - Present

- Founded a **non-profit**, Zehn (Arabic for 'mind'), operating in two countries: USA & India
- Integrated **peer-reviewed** and **validated scientific literature**, including research from the [Stanford Muslim Mental Health and Islamic Psychology Lab](#), with guidance from the Quran to provide **culturally relevant psychological support** (CR-CBT) to all Muslims, especially refugees.
- **Iteratively tested the app** and its meditations at the WAPO lab to incorporate important user feedback to make the app more user-friendly
- **Partnered** with **5 organizations**, directly working on the ground with refugees and in the domain of mental health
- Developed a [Mental Health Application](#) for use by partner organizations and individuals dealing with **high levels of stress, anxiety, trauma, and PTSD**
- Impacted **~2000 users** in partnership with [International Organization for Education and Social Services \(IOESS\)](#) and [Aligarh Muslim University Alumni \(AMU\) Association Lucknow](#)
- [Partnered](#) with [MoodRx](#) to connect users with **licensed therapists** and **psychiatrists** for **official diagnosis and treatment**

### **Teacher, Muslim Center of Greater Princeton, Weekend Learning School, East Windsor, NJ**

Sept 2021 - Present

- Teaching Assistant and Teacher for **65** students in grades **3, 5, 7, and 9 (Highest grade at MCGP)**
- Developed curriculum & assessments and led classroom instruction on core Islamic values, along with discussions on contemporary issues of mental health and women's rights
- Taught a class alongside Imam Khalil Abdullah, **Princeton University Muslim Chaplain**, on **Interfaith Healing**
- Received **Gold Presidential Volunteer Service Award** for **250+** hours of instruction

### **Volunteer, AMUOBA, Lucknow, India**

June 2017 - Present

- Distributed ration packs, clothes, winter blankets, and garments in underprivileged areas
- Fundraised to help women and girls secure full-ride scholarships to higher education institutions
- Helped establish sewing centers to create jobs and provide employable skills for better livelihoods

## EXTRACURRICULARS

### **Mock Trial Team - Captain and Prosecution/Plaintiff Attorney ([News Release](#))**

Nov 2021 - Present

- **Mentored & led a team of 14 to New Jersey State Champions (1/209 teams)** for the first time in PDS history
- Awarded **"Best Attorney"** & **"Best Witness"** titles
- **Only Junior** (From PDS) to be appointed **Attorney**
- **Placed 20/47 in Nationals**

### **VEx Robotics Team - Co-Captain and Programming Lead**

September 2021 - Present

- Led a team of **31** to the **top 16 statewide**
- Head of programming team and build teams to develop software for autonomous and driver-controlled periods and build the chassis and various mechanisms
- Achieved **>98%** accuracy of hardware-software integration and designated as robot driver for competitions

**PantherHack - Computer Science Club** - Co-Head, Head of [Hackathon](#) Planning September 2021 - Present

- Successfully spearheaded hackathon organization and operations involving **Finance, Outreach,** and **Logistics** with **350+ attendees** from **5 countries**
- Raised **\$30,000** as corporate sponsorships for the event and hosted [15 workshops](#) on ethical AI usage, refining tech skills, career pathways, etc.

**Asian Pacific-Islander Desi American Affinity Group (APIDA)** - Co-Head September 2021 - Present

- Organized **five school-wide programs** to highlight APIDA holidays in collaboration with DEI board for **90+ students**
- Led discussions on current events, issues, and identities pertaining to Asian Americans

## SUMMER PROGRAMS

**Qiskit Global Summer School** ([Certificate](#))

July - Aug 2022

*Quantum Simulation: Focus on Quantum Chemistry*

- Designed Quantum Circuits to perform operations on real-life Quantum systems using Qiskit
- Performed Hamiltonian time evolution to measure projection, coherent, and incoherent noise

**Brown University, Pre-College Program** ([Certificate](#))

July - Aug 2021

*Introduction to Computational Mathematics and Big Data Analysis*

- Understood and applied numerical and data analysis concepts, computational mathematics, and data visualization to various case studies, including analyzing parallel task allocation and computing

**QubitXQubit** ([Certificate](#))

July - Aug 2021

*Introduction to Quantum Computing*

- Taught by IBM Quantum, MIT, and Stanford, focused on foundations of Quantum computing, mechanics, algorithms, and Quantum Information Science and Engineering (QISE)

## SKILLS

Proficient in English, French, Hindi, & Urdu

Proficient in Java, Python, C++, JavaScript, HTML, CSS, & Octave