

# Vinayak Sharma

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## EDUCATION

### University of Waterloo

September 2023

*MASc in Electrical and Computer Engineering*

*Current Grade Point: 88.5/100*

**Courses:** ECE 606 - Algorithm Design and Analysis, ECE 650 Methods and Tools for Software Engineering, CS 647 - Software Testing, Quality Assurance and Maintenance

**Awards:** International Master's Award of Excellence (IMAE) (5x), Graduate Research Scholarship (6x), MITACS Globalink Graduate Fellowship

**Teaching Assistant:** ECE 351 - Compilers, ECE 459 - Programming for Performance

### Shri Mata Vaishno Devi University

August 2019 – May 2023

*B.Tech in Electronics and Communication Engineering*

*Grade Point: 8.26/10.0*

## EXPERIENCE

### ChainCode Labs | *Software Developer*

January 2023 – August 2023

- Designed and Developed over 15+ Bitcoin-related concepts as interactive web-based lessons.

### Indian Institute of Technology BHU | *Research Intern*

January 2023 – May 2023

- Researched a deep-learning framework for tuberculosis detection in chest X-rays, achieving 96.35% accuracy in segmentation and 99.29% in classification, with significant metrics like a Jaccard index of 90.38% and a Dice coefficient of 94.88%.
- Utilized Gradient-weighted Class Activation Mapping (Grad-CAM) for visualizing tuberculosis lesions, achieving 99% alignment with radiologist-identified lesions in the upper lungs, enhancing diagnostic precision in low-resource settings.
- Published research paper: V. Sharma, Nilmami, S.K. Gupta, K.K. Shukla, "Deep learning models for tuberculosis detection and infected region visualization in chest X-ray images," *Intelligent Medicine*, 2024.

### MITACS Globalink Athabasca University | *Research Intern*

July 2022 – October 2022

- Curated a chatbot and its frontend and backend processes to assist students in using MEGA World MEGA World, is an interactive educational game to streamline coursework.
- Published research paper: V. Sharma, M. Chang, "Chatbot and Bridge of Multiplayer Educational Game World and Summary Generation Service," *Metaverse and Artificial Companions in Education and Society, (MetaACES 2023)*, 7.

### Summer of Bitcoin - Blockstream | *Open Source Developer*

May 2022 – August 2022

- Augmented Blockstream's existing Bitcoin Blockchain explorer, Esplora with Lightning Network Explorer to link on-chain and off-chain footprints of the channels.
- Planned and launched a NodeJS-based server for parsing raw gossip messages and storing them in a PostgreSQL database.

### Google Summer of Code - Python Software Foundation | *Open Source Developer*

May 2021 – September 2021

- Created a node module for serving SVG icons to React, Vue2, and Vue3 frontend frameworks as well as added features for maintenance and automatic updates.
- Added tree-shaking capability for only adding the load of a particular icon(1.0Kb approximately).
- Semantic release for pushing the latest updates to the node module automatically.

## LEADERSHIP

### Google Summer of Code - Python Software Foundation | *Mentor*

February 2022 – September 2022

Guided 2 interns in their assigned Open source projects. Projects Involving TypeScript, Strapi, GraphQL, GitHub Actions, and Next.js.

## SKILLS

**Languages:** C/C++, Python, Java, Rust, JavaScript/TypeScript, HTML/CSS, GoLang  $\text{\LaTeX}$

**Tools:** Git/GitHub, Unix Shell, GitHub Actions, VS Code, CLion, Figma

**Frameworks:** React, Node.js, Next.js, Vue Flask, JUnit, Material-UI

**DBMS:** SQL, MySQL, PostgreSQL, MariaDB, MongoDB, Firebase, GraphQL