# Avigya Paudel

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## EDUCATION

**Union College**  —  *Sept 2024 – June 2028*
*Bachelor of Science in Computer Science and Mathematics*  —  Schenectady, NY

- GPA: **4.0/4.0** — **Honors**: Union Scholar
- **Relevant Coursework:** Object Oriented Programming, Data Structures and Algorithms, Linear Algebra, Discrete Mathematics, Multivariable Calculus, Integral Vector Calculus
- **Activities:** Union College ICPC Team Member, ACM-W Member, CodePath Advanced Technical Interview Prep (Certificate), Goldman Sachs Possibilities Summit, Harvard CS50x Introduction to Computer Science (Certificate)

## EXPERIENCE

**Undergraduate Research Assistant**  —  *Sept 2024 – Present*
*Union College Department of Computer Science*  —  Schenectady, NY

- Researching algorithmic optimizations for **matrix multiplication** with a team of 6 student researchers
- Implementing and evaluating the Cohn-Umans **group-theoretic framework** in **C++** to improve matrix multiplication complexity
- Analyzing Strong Uniquely Solvable Puzzles (SUSP) to reduce algorithmic complexity from $O(n^3)$ to $O(n^{2.505})$

**A-Levels Computer Science Tutor**  —  *Sept 2023 – Aug 2024*
*Self-employed*  —  Remote

- Developed and delivered personalized curriculum for A-Levels Computer Science to 3 students, resulting in average grade improvement of 15%
- Created hands-on programming exercises in **Python** focusing on **Object-Oriented Programming**, **Data Structures**, and Algorithms
- Designed bi-weekly assessment with targeted feedback loops, significantly increasing student concept retention

**Web Development Intern**  —  *Aug 2023 – Nov 2023*
*Nobel Navigators*  —  Remote

- Led development of two AI-themed interactive web projects for EXPO, engaging over 115 attendees and receiving 92% positive feedback
- Engineered responsive websites using **WordPress**, implementing modern UI/UX design practices and custom CSS
- Co-facilitated 5 training workshops for 20+ interns on leadership skills and WordPress development techniques

## PROJECTS

**Smart Medication Management System** | [GitHub] | *C++, Arduino, React Native, Firebase, REST API*

- Engineered an Automatic Pill Dispenser system with **Arduino** microcontroller and servo mechanisms for medication adherence targeting elderly and visually impaired users
- Developed embedded **C++** firmware implementing scheduled dispensing algorithms, emergency override protocols, and user authentication
- Created iOS companion app using **React Native** and **Firebase**, achieving real-time synchronization with hardware through RESTful API integration

**NLP-Powered Content Assistant** | [GitHub] | *JavaScript, HTML, CSS, Chrome Extension API, OpenAI API*

- Developed a Chrome extension that leverages **GPT-4 API** to summarize and translate web content across 5 languages
- Implemented secure API integration with token management and rate limiting to optimize natural language processing workflows
- Created intuitive UI with responsive design principles using **HTML**, **CSS**, and **JavaScript**

## TECHNICAL SKILLS

**Programming Languages:** Python, C/C++, Java, JavaScript/TypeScript, SQL

**Web Development:** HTML, CSS, React, Next.js, Node.js, Angular, RESTful APIs, Firebase

**Tools & Technologies:** Git/GitHub, VS Code, Arduino, Docker, MongoDB, MySQL, PostgreSQL