Zhi Ming Xu

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EDUCATION

Columbia University | New York, NY   Diploma Expected May 2028

- Bachelor of Science in Computer Engineering
- Cumulative GPA: 3.99/4.0; Dean's List
- Relevant Coursework: Signals and Systems, Data Structures & Algorithms, Introduction to Electrical Engineering, Discrete Mathematics, Multivariable Calculus, Physics I/II, Advanced Programming, Circuit Analysis

SKILLS

Languages: Python, Java, C, C++, HTML, CSS, Bash
Tools/Technologies: Microsoft Office, Git, LTspice, Logic.ly, Linux, STM32CubeIDE, Maven, Spring, Tomcat, GitHub CI/CD
Hardware/Equipment: Oscilloscope, Digital Multimeter, Function Generator, Breadboard, STM32 MCU, Arduino UNO

EXPERIENCE

Research Intern   May 2025 - Present
Billinge Group at Columbia University | New York, NY

- Contributed to the research group's diffpy project by optimizing and enhancing existing algorithms for nanomaterial structure analysis, resulting in a 40% reduction in data processing time.
- Maintained and expanded a Python package called scikit-package that provides tools and best practices for building reusable scientific software, helping over 10 researchers save time and share code more effectively.
- Streamlined the team's workflow by developing a robust development pipeline with GitHub CI/CD and pre-commit hooks to enforce code quality and automate unit testing with pytest.

Web Development Intern   July 2025 - Aug 2025
SaveAway with INSPIRAVE | New York, NY

- Spearheaded the creation of a Similar Items sidebar feature using a Spring stack in Java, managing dependencies with Apache Maven and deploying to Tomcat servers to deliver real-time product recommendations.
- Redesigned key user guides with a fully responsive and structured layout, incorporating dynamic image grids and improved text formatting to boost readability and reduce support inquiries by 25%.
- Optimized API integrations across payment processing (Stripe, PayPal) and e-commerce (eBay, Etsy) platforms to cut transaction errors by 15% while enabling immediate data synchronization.

PROJECTS

STM32 Environmental Monitor   github.com/zmx27/STM32-as-Sensor

- Architected a sensor-based system to measure and process environmental data, utilizing an STM32F401RE microcontroller interfaced with a DHT11 temperature/humidity sensor.
- Wrote custom C code to implement a single-wire communication protocol with a DHT11 sensor, leveraging the STM32 HAL library and timer delays for precise microsecond timing to read the 40 bits of data sent from the sensor.
- Integrated a 16x2 LCD display via I2C at 100 kHz to provide a visual output of both temperature and humidity data.

STM32 GPS Position Tracker   github.com/zmx27/STM32-as-GPS

- Developed an embedded system in C++ using the TinyGPSPlus library to interface an STM32F401RE microcontroller with a GY-NEO6MV2 GPS module, successfully acquiring and displaying live location data with a 2% margin of error.
- Implemented and debugged a UART communication protocol to parse NMEA sentences from the GPS module at a data transfer rate of 9600 bps, ensuring reliable transmission of the latitude and longitude coordinates.