# Yizhi Wang

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## EDUCATION

**Columbia University** New York, NY
**MS in Computer Engineering**, GPA 3.6/4.0 Aug 2023 – Expected Dec 2024
**Courses:** Algorithms, Cloud Computing, Formal Verifications, Intro to Blockchain, Database, Computer Networks, Embedded Systems, Hardware Security

**Ohio State University** Columbus, OH
**BS in Electrical and Computer Engineering**, GPA 3.5/4.0 Aug 2018 – Dec 2022
**Honors:** Cum Laude, Dean's List for Spring 2020, Autumn 2020, Spring 2021, Autumn 2021, and Spring 2022
**Teaching Assistant** of Introduction to Digital Logic Jan 2022 – May 2022
**Courses:** Operating System, Computer Architecture, Advanced Digital Design, Software Development & Design

## SKILLS

**Programming Language**: C, C++, C#, Assembly, Java, Python, Promela, SystemVerilog, VHDL, HTML
**Software Proficiency**: Database management (DataGrip, MySQL), Embedded development (ArduinoIDE, Xilinx), Scientific computing (MATLAB), IDEs (Eclipse, Visual Studio), Code management (Git, Github), OS (Windows, Linux), AI and machine learning (PyTorch), Containerization and Virtualization (Docker, Kubernetes, QEMU, KVM), Cloud computing (AWS, Azure, FaaS), CAD (Solidworks), Script and network monitoring (Wireshark, Bash), Security and debugging (GDB, SMT solver).

## RESEARCH AND PROJECT EXPERIENCE

**Columbia University** New York, NY
**ARM TrustZone Streaming Client Project (Hardware Security)** Jan 2024 - Now
- Designed and implemented a secure streaming media client based on ARM TrustZone (TZ) technology to ensure the confidentiality of video content
- Developed a Rich Application (RA) to receive encrypted video streams from the server and pass them to the Trusted Application (TA) for decryption
- Created the TA application to securely store the private key and provide video decryption functionality, leveraging the OP-TEE framework to simulate the communication between TEE and Rich Execution Environment

**Columbia University** New York, NY
**Build An Online Job Search Platform** Aug 2023 - Dec 2023
- Crafted an intuitive user interface with customizable features through the AWS Management Console with a group
- Leveraged Amazon's Simple Storage Service (S3) as the primary storage mechanism for all application data, ensuring high security, real-time updates, and efficient data management
- Adopted a modular approach by designing and deploying different modular using AWS microservices

**Columbia University** New York, NY
**Formal Verification Proxy Server Project** Aug 2023 - Dec 2023
- Served as a developer, focusing on a proxy server for simultaneous client-server communications
- Verified eight critical safety and liveness properties to enhance system stability and efficiency using Promela and SPIN
- Enhanced skills in multithreading and formal verification methods, improved software reliability and system performance
- Gained expertise in TCP/IP protocols, deepening the understanding of network communications and security principles

**The Ohio State University** Columbus, OH
**The Affection of Adding Noise on Discriminator in Generative Adversarial Network (GAN)** Jan 2022 – Dec 2022
- Established an automated fuzzing system to enhance output image quality by updating noises in a discriminator
- Created train and test sets using Python with defined epoch and learning rate for both generator and discriminator
- Added four different kinds of noises to discriminator and formed a feedback mechanism
- Automated updating of noises based on received feedback and monitored trend of losses

**Cornell University** Ithaca, NY
**Smart Assistive Cane Design Project** Jun 2022 – Jul 2022
- Utilized the Robot Operating System (ROS) framework to install a robot application for a smart assistive cane
- Constructed an analysis module written in Python and related parts in both breadboard and Raspberry Pi
- Proposed a graph & sensor-based motion planning algorithm and integrated all modules to achieve state estimation, motion planning, action controls, and evaluation test