# Aliya Tang

ast2196@barnard.edu | (914) 356-0112 | LinkedIn | Github

## EDUCATION

**Columbia University, Barnard College**, New York, NY **August 2022 - May 2026**

*Bachelor of Arts in Computer Science* GPA: 3.8

- **Relevant Coursework:** Data Structures and Algorithms, Databases, Discrete Mathematics, Deep Learning in Computer Vision, Embedded Systems, Calculus, Linear Algebra, Computer Systems, User Interface Design, Machine Learning
- **Activities and Organizations:** Columbia University Robotics Club, Girls Who Code, Rewriting the Code, Gourmand, WBAR
- **Honors:** Barnard College Science Pathways Scholars Program, Dean's List: Fall 2022, Spring 2023, Spring 2024, Fall 2024

## SKILLS AND LANGUAGES

- **Languages:** Java, JavaScript, Python, C, C++, SQL, HTML, CSS
- **Technologies/Frameworks:** MongoDB, Neo4j, MySQL, React, Git, Unix/Linux, Embedded Systems (Petoi Bittle Robot Dog, CrazyFlie 2.0/2.1, ESP32, and Raspberry Pi), OpenCV, ROS/micro-ROS, TensorFlow, PyTorch

## TECHNICAL PROFESSIONAL EXPERIENCE

**Barnard College | The Accessible and Accelerated Robotics Lab (A²R Lab)** **New York, NY**

*Undergraduate Research Assistant* **January 2023 - Present**

- Developed a real-time navigation system on the resourced-constrained *CrazyFlie* drone by integrating MobileNet and MiDaS models for object detection and depth estimation
- Improved real-time obstacle detection and path planning by integrating the TinyMPC predictive control algorithm
- Optimized computer vision models in C++ and Python with model pruning techniques for feature-based visual localization and mapping for the *CrazyFlie*

*Computer Vision Research Intern: Drone Racing* **May 2024 - August 2024**

- Awarded $6,000 research grant from the Barnard College for the Summer Research Institute
- Integrated real-time localization and mapping algorithms onto *CrazyFlie*, improving its navigational precision
- Debugged and enhanced the TinyMPC algorithm codebase, improving its robustness and reliability by 20%

**IBM** **Remote**

*IBM Accelerate Program: Software Engineering* **May 2024 - August 2024**

- Selected from a competitive pool of undergraduate students to prepare for software engineering internships
- Created an accessible to-do list application using the React framework with integrated API usage and security
- Gained hands-on experience with Agile methodologies, cloud-native development, and generative AI

**355Code** **Remote**

*Computer Science Instructor* **May 2023 - May 2024**

- Assisted K-12 students in learning JavaScript, Python, and Java, focusing on improving their debugging skills
- Developed and executed marketing strategies, resulting in a 30% increase in enrollment for 30+ families
- Led high school internship program on computer science, mentoring students in technical and professional skills

## SELECTED PROJECTS

**Galactic Gestures** *September 2024 - December 2024*

*Class Project (Python, PyTorch, PyGame, Deep Learning, OpenCV, Computer Vision)*

- Fine-tuned gesture recognition models using PyTorch, including MobileNetV3, Vision Transformer, and YOLOv8
- Integrated real-time deep learning, computer vision models into a Space Invaders game built with PyGame

**Gamegirl** *December 2024*

*Class Project (C++, Embedded Systems, Game Development, Wireless Communication, Hardware Integration)*

- Developed a multiplayer game on the ESP32 microcontroller using C++ with real-time button-based gameplay
- Implemented wireless communication using ESP-NOW for seamless peer-to-peer data transfer between devices
- Streamlined hardware components, optimizing GPIO pins configuration and software synchronization

## LEADERSHIP

**Columbia University | Gourmand** **New York, NY**

*Digital Committee Lead* **May 2023 - Present**

- Created 10+ event graphics per month for social media using Canva and Figma
- Delegated tasks amongst 20 member committee, ensuring seamless content creation, to over 2,000 followers