Aliya Tang

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EDUCATION

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

Bachelor of Arts in Computer Science GPA: 3.8

- **Relevant Coursework:** Deep Learning in Computer Vision, Creative Embedded Systems, Advanced Programming in C, Intro to Databases, Discrete Mathematics, Data Structures and Algorithms in Java, Calculus III, Linear Algebra
- **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

SKILLS AND LANGUAGES

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

TECHNICAL PROFESSIONAL EXPERIENCE

Barnard College | The Accessible and Accelerated Robotics Lab (A^2R Lab) **New York, NY**

Undergraduate Research Assistant **January 2023 - Present**

- Integrated computer vision algorithms with ROS and micro-ROS, elevating compact *Petoi Bittle Robot Dog* navigation
- Conducted 100+ literature reviews to enhance accessible hardware and software for the robotic platform
- Optimized C++ and Python code for peak performance in direct and feature-based visual odometry algorithms

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

- Collaborated with a research team to secure research funding from the Barnard College Science Research Institute for developing cost-effective software for tiny drones
- Integrated real-time object identification and trajectory algorithms onto CrazyFlie, improving its navigational precision
- Debugged and enhanced the TinyMPC algorithm codebase, improving its robustness and reliability

Computer Vision Research Intern: Tiny Robots **May 2023 - August 2023**

- Received research funds at Barnard College Science Research Institute over Summer 2023 to support computationally constrained vision algorithm deployment on the *Petoi Bittle Robot Dog*
- Enhanced visual estimation algorithms for global mapping on cost-effective computing systems
- Showcased findings through Lida Orzeck '68 Poster Session on the integration of Visual Simultaneous Localization and Mapping (VSLAM) and Visual Inertial Odometry (VIO) on embedded systems

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

Tiny Drone: Computer Vision *May 2024 - Present*

Research Project (Python, OpenCV, Git, Ultralytics, Tkinter)

- Developed a real-time object classification algorithm to be integrated with a Model Predictive Control algorithm
- Coordinated with hardware team to refactor computer vision algorithm onto CrazyFlie 2.1

Web Page Downloader *October 2023*

Class Project (Sockets API, HTTP, TCP/IP, File I/O, Unix/Linux, Git)

- Developed a web downloader utility using Sockets API, similar to the 'wget' tool with limited functionality
- Implemented HTTP 1.1/1.0 protocol to download a single file from the Internet into the current directory
- Applied network programming techniques for data transmission and incorporated file I/O operations

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