

# BRANDON (YIFAN) YANG

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## EDUCATION

University of Virginia, School of Engineering and Applied Sciences, Charlottesville, VA

May 2025

- **B.S. in Computer Science**, GPA: 3.9 / 4.0
- **Awards**: UVA Dean's Engineering Research Scholarship (**Top 30** students), [VTHacks11 Winner](#) (**3<sup>rd</sup> Place Overall**)
- **Relevant Coursework**: Machine Learning, Deep Learning, Reinforcement Learning, Optimization, Data Structures & Algorithms, Theory of Computation, Adv. Software Development, Computer Systems Organization (**Lab Lead TA**)

## SKILLS

**Programming**: Python, Java, C, JavaScript, TypeScript, HTML/CSS, Git, Bash

**Tools**: PyTorch, TensorFlow, OpenCV, ROS, Linux, Docker, HPC, SQL, LaTeX, Express, React, Flask, Django

**Skills**: Computer Vision, NLP, Robotics, ML/RL, Research, Software Development

## EXPERIENCE

AI/ML Research Intern, *UVA Link Lab*, Charlottesville, VA

May 2023 – Aug 2023

- Pioneered development of **AI Image Editing tool** GLOMA: Grounded Location for Object Manipulation, securing **50% rise** in image features similarity score and **36% improvement** FID (visual quality) score, enabling real-time object location manipulation in images via textual inputs.
- Integrated **NLP** and **Diffusion** components by fine-tuning language (**LLaMA 2**), vision models using **Python**, **PyTorch**, Hugging Face Transformers (**LoRA**), leading to **80%** increase in image generation accuracy.
- Led project as **primary contributor** in team of 3, demonstrating leadership, initiative, and effective collaboration.
- Pioneered integration of GLOMA into Goal-Conditioned RL (**GCRL**) tasks, enhancing robots' ability to understand and act on human textual instructions.
- **Presented** GLOMA at multiple research symposiums, submitted work for **RSS 2024** (Robotics Conference), currently under review.

Research Assistant, *Collaborative Robotics Lab*, Charlottesville, VA

May 2022 – Present

- Innovated **5** new multi-agent robotics tasks in **IsaacGym** codebase, integrating over **40** modules using **Python**, **CUDA**, **PyTorch**, resulting in **50%** reduction in training time and **70%** leap in system scalability.
- Engineered Robot Tool-Grasping System, incorporating **deep learning**-based object detection algorithm using **AprilTag** and **ROS**, achieving **95%** accuracy rate in tool identification and selection, showcased demos at multiple workshops.
- Spearheaded research in Multi-agent Reinforcement Learning (MARL), developing Sequence Learning Algorithm that boosted offline MARL task efficiency by **20%**.

## LEADERSHIP

Lab-Lead TA, *Computer Systems Organization*, Charlottesville, VA

Jan 2023 – May 2023

- Delivered concise and engaging **10-minute presentations** in **C programming** and **x86-64** architecture during weekly labs, facilitating understanding of complex computer system topics for **80+ students**.
- Collaborated with course staff in biweekly meetings to identify areas for improvement and implemented changes to enhance course content for **500+ students**.

## PROJECTS

**Multi-Player Tetris AI** | *Python, PyTorch* ([GitHub](#), [Technical Report](#))

- Spearheaded development of **state-of-the-art** multi-agent **AI system** for multiplayer Tetris, utilizing Centralized MARL and DQN, resulting in **87%** matches won, **19% higher** score, and **23%** more lines cleared than single-player agents.
- Led development of robust system using **Python** and integrated deep learning components with **PyTorch**, designed innovative reward functions, achieving **20% improvement** in training time.

**Smart Office Hour Queue System** | *Python, PyTorch, TypeScript* ([GitHub](#))

- Co-developed **AI-driven** platform to optimize TA-student office hour interactions, implementing real-time data processing and user-friendly dashboards using **JavaScript** and **TypeScript**.
- Led development of AI Q&A and question similarity detection with **BERT** and **PyTorch**, which reduced student queue times by **40%** by allowing students with similar questions to be helped at once.
- Created pipeline for session summarization and TA feedback to students using **GPT-3** by generating LaTeX-formatted PDF.
- Won **3<sup>rd</sup>** place overall at [VTHacks 11](#), the largest hackathon in Virginia.

**Sneaker Recommendation System** | *Python, TensorFlow, JavaScript* ([GitHub](#))

- Engineered **deep learning**-based recommendation engine with **TensorFlow** Recommenders (Python), utilizing content and collaborative filtering techniques, achieved personalized recommendation accuracy of over **80%** across **2500+** sneakers.
- Integrated system by building a full stack app using **JavaScript**, **MongoDB**, **Express**, **React**, and **Flask**.