Brandon (Yifan) Yang

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brandonyifanyang.com

Education

- **University of Virginia** — Charlottesville, VA
  Bachelor of Science in Computer Science; GPA: 3.91/4.00 — *Aug. 2021 – May. 2025*
- **Relevant Coursework**: ML, RL (G), NLP (G), Probabilistic ML (G), Human-Robot Interaction (G), Optimization, Data Structures & Algorithms, Theory of Computation, Computer Systems Organization, Software Engineering

Research Experience

- **Learning and Interactive Robotics, University of Virginia** — Charlottesville, VA
  Advisor: Prof. Yen-Ling Kuo — *Aug 2024 - Present*
  - **Ongoing Senior Capstone**: Vision-Language-Action (VLA) model for robotic manipulation.
  - Investigating VLA model outputting both language and corresponding actions within a unified transformer output space, grounding both domains simultaneously at each timestep.
- **University of Maryland** — College Park, MD
  Advisor: Prof. Jia-Bin Huang — *May 2024 - Present*
  - **Semantically Aware 3D Gaussian Splatting**
    - Developed novel method to inject semantically aware embeddings into 3D Gaussian Splatting (3DGS) scenes for 3D understanding and segmentation tasks.
    - Leveraged video segmentation from SAMv2 to maintain temporal consistency in injection of CLIP features from 2D training set to 3DGS scene, ensuring stable and accuracte 3D embeddings.
- **Collaborative Robotics Lab, University of Virginia** — Charlottesville, VA
  Advisor: Prof. Tariq Iqbal — *May 2022 - May 2024*
  - **Grounded Location for Object Manipulation (GLOMA)**
    - Zero-shot image-editing model grounded by language instructions for object relocation and manipulation tasks, designed for downstream robotic applications using goal-conditioned RL.
    - Integrated language grounding with visual perception using bounding box guidance from pre-trained language models, enabling precise object relocation without external supervision.
    - Collected and annotated custom dataset for fine-tuning pre-trained language and vision models.
  - **Centralized multi-agent RL for Collaborative Tasks**
    - Developed long-horizon on/offline centralized MARL for robotic bolt screwing tasks.
    - Designed and optimized custom reward functions in multi-agent framework for task completion and agent collaboration.
    - Deployed and tested custom simulated environments in IsaacGym for training and evaluation.

Teaching Experience

- **Teaching Assistant**
  Machine Learning w/ Prof. Rich Nguyen — *Aug 2024 - Present*
  - Authored comprehensive course notes to support student learning and understanding.
- **Teaching Assistant**
  Theory of Computation w/ Prof. Mark Floryan — *Jan 2024 - May 2024*
  - Held weekly office hours and review sessions to assist students with course material.
- **Lab Lead Teaching Assistant**
  Computer Systems Organizaiton w/ Prof. John Hott — *Jan 2023 - May 2023*
  - Led weekly lab sections with short lectures and hands-on activities for 70+ students.

Honors

- **Dean's Engineering Research Scholarship (Awarded $5000)**: University of Virginia
- **University of Virginia Research Computing Exhibition Finalist**: University of Virginia
- **Entrepreneurship Cup Winner (Given $1000 in funding)**: University of Virginia
- **Dean's List**: University of Virginia

Presentations

- **Mechanistic Interpretability in Large Language Models**
  - University of Virginia Research Computing Exhibition, Charlottesville, VA *Spring 2024*
- **GLOMA: Grounded Location for Object Manipulation**
  - University of Virginia Fall Engineering Research Expo, Charlottesville, VA *Fall 2023*
  - University of Virginia Spring Thornton Society Dinner, Charlottesville, VA *Fall 2023*
  - University of Virginia Summer Research Symposium, Charlottesville, VA *Summer 2023*
- **Robot Tool Grasping with AprilTag**
  - University of Virginia Engineering Open House, Charlottesville, VA *Fall 2022*

Projects

- **notie-markdown**: Open-source React component for Markdown rendering, built with TypeScript.
- **SmartOH**: AI-assisted office hour queueing system, built with Python, PyTorch, and TypeScript. Placed 3rd at VTHacks11.
- **Voy**: Volunteer and driver management platform for non-profits, built with Python and TypeScript. Received funding from UVA's Entrepreneurship Cup.

Programming Skills

- **Languages**: Python, C/C++, Java, JavaScript, TypeScript, HTML/CSS
- **Technologies**: PyTorch, TensorFlow, Linux, Git, Docker, LaTeX
- **Web Technologies**: React, Node.js, Express, Django