**Brandon (Yifan) Yang**
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## Education

- **University of Virginia** — Charlottesville, VA
  *B.S. in Computer Science; Major GPA: 3.98/4.00; Cumulative GPA: 3.91/4.00* — *August 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 time step.
- **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 accurate 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* — *August 2024 - Present*
  - Authored comprehensive and interactive 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 Organization 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 ($5000)**: University of Virginia *May 2023*
- **University of Virginia Research Computing Exhibition Finalist**: University of Virginia *April 2024*
- **Entrepreneurship Cup Winner (Received $1000 in funding)**: University of Virginia *November 2023*
- **Dean's List**: University of Virginia

## Presentations

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

## Software 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 overall at VTHacks11 (3/393).
- **Voy**: Collaborated with 7 non-profits to develop Voy, a volunteer and driver management platform using 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 Tools**: React, Node.js, Express, Django