

EDUCATION

Georgia Institute of Technology <i>Ph.D. Machine Learning</i>	Aug 2023 – Present <i>Atlanta, GA</i>
Georgia Institute of Technology <i>M.S. Robotics, GPA: 4.00</i>	Aug 2021 – May 2023 <i>Atlanta, GA</i>
University of Arkansas <i>B.S. Mechanical Engineering, Minor in Mathematics, GPA: 4.00</i>	Aug 2017 – May 2021 <i>Fayetteville, AR</i>
▪ First-Ranked Senior Scholar, Honors College Fellow, Governor's Distinguished Scholar	

RESEARCH EXPERIENCE

People, AI, and Robots (PAIR) Lab <i>Advised by Prof. Animesh Garg</i>	Aug 2023 – Present <i>Atlanta, GA</i>
▪ Scaling robot learning by harnessing diverse sources of data	
▪ Enabling robots to learn from internet-scale video and perform dexterous manipulation	
Healthcare Robotics Lab <i>Advised by Prof. Charlie Kemp</i>	Oct 2021 – Aug 2023 <i>Atlanta, GA</i>
▪ Led creation of a hierarchical robotic policy that predicts haptic subgoals conditioned on text	
▪ Devised computer vision algorithms to visually estimate contact in collaboration with Meta Reality Labs	
Medical and Soft Robotics Lab <i>Advised by Prof. Yue Chen</i>	Sep 2019 – Jun 2021 <i>Fayetteville, AR</i>
▪ Designed/patented berry picking robotic gripper, created novel peristaltic pump	

INDUSTRY EXPERIENCE

Toyota Research Institute <i>Intern, Large Behavior Models Team</i>	May 2025 – Present
▪ Designing algorithms to leverage video generation models for pre-training robotic foundation models	
▪ Training robotic foundation models at scale (5B+ params, 100+ GPUs) using Amazon SageMaker	
EleutherAI <i>Volunteer Researcher</i>	May 2023 – Aug 2023
▪ Explored text-conditioned image generation with limited access to text-image pairs	
Dorabot <i>Engineering Intern</i>	Jul 2021 – May 2022
▪ Curated datasets for instance segmentation algorithms	
▪ Designed and simulated robotic sorting systems to demonstrate ROI to clients such as DHL	
Marshalltown Company <i>Mechanical Engineering Intern</i>	May 2019 – Aug 2019
▪ Improved robotic welding cell, increasing production speed of \$3M in products annually	
▪ Characterized manufacturing defect on high-priority product, increasing production by 75%	
J.B. Hunt Transport Services <i>Application Development Intern</i>	May 2018 – Aug 2018
▪ Optimized codebase of flagship marketplace software (Shipper 360) to meet user specifications	
DaVoice <i>Quality Control and Logistics</i>	May 2015 – Aug 2017
▪ Directed the sale and shipping of products through Amazon throughout high school	

PUBLICATIONS

- **TAPESTRY: A Single Backbone for Video Generation and Robot Control**
Jeremy A. Collins, Seungjae Lee, Rachanon Wachakorn, Krishnan Srinivasan, Animesh Garg, Vitor Campagnolo Guizilini, Paarth Shah
In submission. [Paper](#)
- **AMPLIFY: Actionless Motion Priors for Robot Learning from Videos**
Jeremy A Collins*, Loránd Cheng*, Kunal Aneja, Albert Wilcox, Benjamin Joffe, Animesh Garg
IEEE International Conference on Robotics and Automation (ICRA) 2026. [Paper](#)
- **COBALT: Crowdsourcing Robot Learning via Cloud-Based Teleoperation with Smartphones**
Ayush Agarwal*, Ansh Gandhi*, Jeremy A Collins, Omar Rayyan, Aryan Sarswat, Ranjani Koushik, Kaavya Menon, Masoud Moghani, Ajay Mandlekar, Animesh Garg
IEEE International Conference on Robotics and Automation (ICRA) 2026. [Paper](#)
- **FLASH: Flow-Based Language-Annotated Grasp Synthesis for Dexterous Hands**
Hrshit Leen, Jeremy A Collins, Kunal Aneja, Nhi Nguyen, Priyadarshini Tamilselvan, Sri Siddarth Chakaravarthy P, Animesh Garg
Conference on Robot Learning (CoRL) 2025 Workshop on Dexterous Manipulation (Spotlight). [Paper](#)
- **RoCoDA: Counterfactual Data Augmentation for Data-Efficient Robot Learning from Demonstrations**
Ezra Ameperosa*, Jeremy A Collins*, Mrinal Jain, Animesh Garg
IEEE International Conference on Robotics and Automation (ICRA) 2025. [Paper](#)
- **DexMOTS: Dexterous Manipulation with Differentiable Simulation**
Krishnan Srinivasan, Jeremy A Collins, Eric Heiden, Ian Ng, Jeannette Bohg, Animesh Garg
International Symposium of Robotics Research (ISRR) 2024. [Paper](#)
- **ForceSight: Text-Guided Mobile Manipulation with Visual-Force Goals**
Jeremy A Collins*, Cody Houff*, You Liang Tan*, Charles C Kemp
IEEE International Conference on Robotics and Automation (ICRA) 2024, CoRL 2023 demo. [Paper](#)
- **PressureVision++: Estimating Fingertip Pressure from Diverse RGB Images**
Patrick Grady, Jeremy A Collins, Christopher D Twigg, Chengcheng Tang, James Hays, Charles C Kemp
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2024, CVPR 2023 demo. [Paper](#)
- **Visual Contact Pressure Estimation for Grippers in the Wild**
Jeremy A Collins, Cody Houff, Patrick Grady, Charles C Kemp
IEEE/RSJ International Conf. on Intelligent Robots and Systems (IROS) 2023, IROS 2023 demo. [Paper](#)
- **Force/Torque Sensing for Soft Grippers using an External Camera**
Jeremy A Collins, Patrick Grady, Charles C Kemp
IEEE International Conference on Robotics and Automation (ICRA) 2023. [Paper](#)
- **Visual Pressure Estimation and Control for Soft Robotic Grippers**
Patrick Grady, Jeremy A Collins, Samarth Brahmhatt, Christopher D Twigg, Chengcheng Tang, James Hays, Charles C Kemp
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2022. [Paper](#)
- **Tendon-Driven Soft Robotic Gripper for Blackberry Harvesting**
Anthony L Gunderman, Jeremy A Collins, Andrea Myers, Renee Threlfall, Yue Chen
IEEE Robotics and Automation Letters (RA-L) 2022. [Paper](#), [Patent](#)

SKILLS

- **Programming Languages:** Python, C, C++, Arduino, MATLAB, Java
- **Tools:** PyTorch, TensorFlow, NumPy, Einops, SageMaker, OpenCV, Pandas, ROS, Isaac Gym, Git
- **Misc. Skills:** Competitive Rubik's Cube solver, trumpet player, amateur chocolatier

INVITED TALKS

- **AMPLIFY: Actionless Motion Priors for Robot Learning from Videos**
Gemini Robotics Team, Google DeepMind
RoboPapers Podcast
Jul 2025
Aug 2025
- **Causality, Consciousness, & Video Learning for Robotics**
Georgia Tech AI Podcast
Mar 2025

TEACHING

Georgia Institute of Technology

- Head Teaching Assistant, CS 8803 Deep Reinforcement Learning
Aug 2025 – Dec 2025
- Teaching Assistant, CS 6601 Artificial Intelligence
Aug 2023 – May 2025

SELECTED PROJECTS

Robot Learning from Human Feedback Mar 2023 – Apr 2023

- Trained a robotic policy by optimizing for human preferences using OpenAI gym
- Crowdsourced data collection by obtaining preferences from video pairs using Amazon Mechanical Turk

Video Prediction using Latent Diffusion Sep 2022 – Dec 2022

- Used an autoregressive transformer to predict future frame embeddings from Stable Diffusion encoder
- Predicted embeddings are denoised and decoded to produce future video frames

Learning Robotic Tasks from Video Observation Sep 2022 – Dec 2022

- Designed robotic system to learn behaviors using video data of expert demonstrations in OpenAI Gym

Multi-Agent Reinforcement Learning Feb 2022 – May 2022

- Implemented RL algorithms (SAC, PPO) using TensorFlow to explore human-robot interaction
- Simulated complex interactions between humans and robots using OpenAI Gym

HONORS/AWARDS

- Coauthor of funded proposal (\$30k) from Georgia Tech Research Institute
May 2025
- Coauthor of funded proposal (\$60k) from AI-CARING
Oct 2022
- Southern US Champion – Rubik's Cube Fewest Moves Challenge
Jun 2019
- Best Poster, 2018 FEP Honors Innovation Symposium (Track 6)
Apr 2018
- Presented independent research at the Joint Mathematics Meetings (JMM) funded by MAA
Jan 2018
- 1st place, Fall 2017 J.B. Hunt Hackathon
Nov 2017

COMMUNITY INVOLVEMENT

- President, Georgia Tech Robotics Graduate Student Organization
May 2024 – Present
- Reviewer, ICRA 2023, NeurIPS 2024, CoRL 2024, ICRA 2024, CoRL 2025
Nov 2023 – Present
- Member, AI Safety Initiative at Georgia Tech
Sep 2022 – Present
- Mentor and judge, HackMIT 2022-2023, HackGT 2022
Oct 2022 – Sep 2023
- President and founder, UArk Speedsolving Club (Rubik's Cube Club)
Aug 2017 – May 2021
- Vice President, University of Arkansas Mathematics Club
Aug 2019 – Dec 2019