Dhruva Bansal

Stanford, CA 94305 | 4045433347 | bdhruva@stanford.edu | www.dhruvabansal.com

EDUCATION

Stanford University | Stanford, CA September 2021-June 2023

Master of Science in Computer Science, Concentration: Artificial Intelligence, GPA 3.96/4.0

Teaching Assistant: CS 193x (Winter 2022), CS 231n (Spring 2022)

Georgia Institute of Technology | Atlanta, GA August 2018-May 2021

Bachelor of Science in Computer Science, GPA 3.97/4.0, Concentration: Intelligence and Theory

PROFESSIONAL EXPERIENCE

DeepMind Technologies | Mountain View, CA | *Research Engineering Intern* June 2022-September 2022

• Integrating DeepMind's state-of-the-art research in Natural language and Meta learning into innovative products at Google.

Amazon Robotics | Boston, MA | *Software Development Engineer Intern* May 2021-August 2021

• Owned a service that automated setup for 15k+ warehouse stow stations by leveraging state-of-the-art computer vision.

• Trained ResNet-34 and Darknet-53 models on 50+ warehouses to compute unknown parameters and enable automation.

• Employed evaluation metrics such as IoU to verify the service's 99.95% accuracy in computing parameters on the test set.

• Architected and containerized production-ready training and inference pipelines using Python, PyTorch, and Docker.

• Deployed inference pipelines to AWS using a Flask-based web server, SageMaker, EC2, Lambda, S3, DynamoDB, and SNS.

Honeywell Inc. | Atlanta, GA | *Software Engineer Intern* May 2019-July 2019

• Built an app to extract relational data from scanned documents using Python, TensorFlow, and OpenCV at 92% accuracy.

• Employed topological sort based algorithms alongside data structures to recover relationships and document layout.

• Launched APIs for analyzing data from IoT devices installed at factories using JavaScript, Node.js, and MongoDB.

• Delivered production-ready code with 95% test coverage to serve over 3 million requests every month.

RESEARCH EXPERIENCE

Stanford Vision Lab | Stanford, CA |*Graduate Research Assistant* September 2021-Present

• Exploring RL algorithms that leverage SAC, upper confidence bounds and scene graphs under Prof. Fei-Fei Li's leadership.

• Formalized and implemented a novel RL algorithm in PyTorch to learn tasks using human feedback at 10x sample efficiency.

Georgia Tech RAIL | Atlanta, GA | *Undergraduate Researcher* January 2020-May 2021

• Paper on learning instance-level n-ary semantic knowledge for service robots published at RSS'21.

• Paper on anticipatory human-robot collaboration via multi-objective trajectory optimization published at IROS'20.

• Implemented Transformers in PyTorch for commonsense reasoning, outperforming baselines by 11% on search accuracy.

• Predicted human motion with 92% precision using Gaussian Mixture Models to optimize trajectory using Python and ROS.

Georgia Tech CCG | Atlanta, GA |*Undergraduate Researcher* August 2018-May 2021

• Paper on using sign language recognition to help deaf children acquire language skills published at CHI'21.

• Recognized American Sign Language using HMMs, Transformers, and vision-based hand tracking using Python and PyTorch.

• Demonstrated that HMMs outperform Transformers for ASL recognition by 17% in user-independent settings.

• Received the President's Undergraduate Research Award from Georgia Tech for ASL recognition efforts.

PROJECT EXPERIENCE

Learning from Suboptimal Demonstrations | *Georgia Tech* March 2021-May 2021

• Derived a novel semi-supervised RL algorithm for directly learning tasks from partially labeled suboptimal demonstrations.

• Classified states as suboptimal using Transformers at 98% accuracy and learnt a policy 1.5x better than baselines using GAIL.

Confident Machine Translation | *Facebook AI Research* April 2020-August 2020

• Spearheaded the development of a Confident Machine Translator using Pytorch in collaboration with Facebook AI Research.

• Integrated translation likelihood from ensemble of language models with regression to beat baselines by 10% on accuracy.

Georgia Tech Aerial Robotics | *Autonomous Drone Competition* July 2019-February 2020

• Implemented pathfinding and obstacle recognition for drones in Python using TensorFlow, OpenCV, and ROS.

RoboRacing | *RoboJackets* January 2019-May 2019

• Implemented an autonomous PD controller based upon path planning in Python and ROS.

SKILLS

Python, PyTorch, TensorFlow, Java, C++, Git, AWS, OpenCV, JavaScript, Node.js, Bash, Flask, MongoDB, Docker, ROS, C#, Unity

AWARDS

CHI Student Research Competition Winner (2021), GT Outstanding Undergraduate Research Award (2021), President's Undergraduate Research Award (2021), MobiSys Best Poster (2019), HackGT 5 - Best Accessibility Hack (2019)