Alex Yang

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EDUCATION

Georgia Institute of Technology — Atlanta, GA
Master of Science, Computer Science — *Aug 2022 – May 2023*
Specialization: Computational Perception and Robotics
Featured Coursework: Mobile and Ubiquitous Computing, Internet of Things, Graduate Algorithms, Multi-Robot Systems, Blockchain and Cryptocurrency, Human-Robot Interaction

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science, Computer Science — *Aug 2019 – May 2022*
Highest Honor, GPA: 4.0/4.0, Concentration: Computational Devices and Artificial Intelligence, Minor: Japanese
Featured Coursework: Machine Learning, Computer Vision, Data Structures and Algorithms for Applications, Prototyping Intelligent Appliances, Digital Design Lab, Design and Analysis of Algorithms, Robotics and Perception, Capstone Research Project

EXPERIENCE

Goldman Sachs — Dallas, TX
Software Engineer — *June 2023 – Present*

Georgia Institute of Technology — Atlanta, GA
Graduate Researcher and Teaching Assistant — *Aug 2022 – May 2023*

- Advised by Professor Polo Chau and Professor Thad Starner
- Co-led the development of Argo Scholar, an interactive web platform based on React and D3.js that allows researchers to incrementally visualize literature networks within AI2's Semantic Scholar database
- Designed DiffusionDB, a large-scale text-to-image prompt gallery dataset with 14 million images based on Stable Diffusion trending on GitHub and Hugging Face (1K+ Stars, 1.5M+ Downloads)
- Developed AI through Symbiosis, a project that aims to establish a symbiotic learning framework with image classification models to further the use of ambient sensing in the order-picking context
- Assisted course instruction and co-led homework and project revision for CSE 6242 (Data and Visual Analytics) with 2K+ students in the OMSCS section

Goldman Sachs — Dallas, TX
Software Engineering Summer Analyst — *June 2022 – Aug 2022*

- Researched and developed a full-stack live-updating trade blotter component in Goldman.com with multiplexing WebSocket channels using Spring Boot, Gradle, React, and RESTful APIs
- Collaborated with the iOS UI/UX team to develop a trade update push notification functional workflow using Swift and Java for the GS Private Wealth Management mobile app
- Applied JUnit and integration tests to the internal QA environment within the Consumer and Wealth Management division

Georgia Institute of Technology — Atlanta, GA
Undergraduate Researcher — *Sept 2020 – May 2022*

- Advised by Professor Polo Chau
- Spearheaded CardiacAR, a project in cooperation with Children's Healthcare of Atlanta at Emory University aiming at creating an iOS virtual platform utilizing Apple ARKit to assist cardiothoracic surgeons with surgical planning in an augmented reality environment
- Implemented and deployed Argo Lite, an online learning tool for graph visualization used in CSE 6242

CityLift Parking — Oakland, CA
Software Engineering Intern — *Oct 2018 – May 2019*

- Developed a native Android application showcasing the mechanism of the automated vehicle parking system
- Conducted research on an innovative linear lift design based on CAD modeling to improve its performance and efficiency

AWARDS

ACL 2023 Best Paper Award, Honorable Mention — July 2023
For "DiffusionDB: A Large-scale Prompt Gallery Dataset for Text-to-Image Generative Models"

Donald V. Jackson Fellowship Award — April 2023
Representing School of Computational Science and Engineering for outstanding 1st year Master's student

IEEE VIS 2021 Best Poster Award, Honorable Mention — October 2021
For "Argo Scholar: Interactive Visual Exploration of Literature in Browsers"

Publications

Symbiotic Artificial Intelligence: Order Picking and Ambient Sensing Workshop, ICASSP 2023
*Zhe Ming Chng, Calix Tang, Darshan Krishnaswamy, **Alex Yang**, Shivang Chopra, Jon G Womack, Thad Starner*

Diffusion Explainer: Visual Explanation for Text-to-image Stable Diffusion Poster, IEEE VIS 2023
*Seongmin Lee, Ben Hoover, Hendrik Strobelt, Zijie J. Wang, Anthony Peng, Austin Wright, Kevin Li, Haekyu Park, **Alex Yang**, Polo Chau*

Diffusion Explainer: Interactive Visual Learning for Stable Diffusion Demo, CVPR 2023
*Seongmin Lee, Ben Hoover, Hendrik Strobelt, Zijie J. Wang, Anthony Peng, Austin Wright, Kevin Li, Haekyu Park, **Alex Yang**, Polo Chau*

DiffusionDB: A Large-scale Prompt Gallery Dataset for Text-to-Image Generative Models Paper, ACL 2023
Best Paper, Honorable Mention
*Zijie J. Wang, Evan Montoya, David Munechika, **Alex Yang**, Benjamin Hoover, Polo Chau*

Evaluating Cardiovascular Surgical Planning in Mobile Augmented Reality Poster, IEEE VIS 2022
***Alex Yang**, Pratham Darrpan Mehta Jonathan, Leo Zhiyan Zhou, Megan Dass, Anish Upadhayay, Timothy C. Slesnick, Fawwaz Shaw, Amanda Randles, Polo Chau*

Evaluation of Argo Scholar with Observational Study Poster, IEEE VIS 2022
*Kevin Li, **Alex Yang**, Evan Montoya, Anish Upadhayay, Zhiyan Zhou, Jon Saad-Falcon, Polo Chau*

Visual Exploration of Literature with Argo Scholar Demo, ACM CIKM 2022
*Kevin Li, **Alex Yang**, Evan Montoya, Anish Upadhayay, Zhiyan Zhou, Jon Saad-Falcon, Polo Chau*

Interactive Cardiovascular Surgical Planning via Augmented Reality Poster, Asian CHI 2021
*Jonathan Leo, Zhiyan Zhou, **Alex Yang**, Megan Dass, Anish Upadhayay, Timothy C. Slesnick, Fawwaz Shaw, Polo Chau*

Argo Scholar: Interactive Visual Exploration of Literature in Browsers Poster, IEEE VIS 2021
Best Poster, Honorable Mention
*Kevin Li, **Alex Yang**, Anish Upadhayay, Zhiyan Zhou, Jon Saad-Falcon, Polo Chau*

Side Projects

Air Writing - An alternative input to represent text or commands by recognizing motion gestures and finger trajectories:

- Leveraged Google's MediaPipe library to achieve hand detection and fingertip position marking.
- Trained VGG style convolution neural networks on EMNIST dataset to achieve high classification accuracy

Universal Drone Controller - A new input method of controlling and monitoring UAVs based on Leap Motion hand gesture recognition:

- Utilized DJI Mobile SDK to extract flight control data including the aircraft principal axes (pitch, roll, yaw) and x, y, z coordinates in 3-D space.
- Data processed through DJI's computer vision algorithms were synchronized with the Leap Motion hand gesture input in real-time through a web server.

TripUCan - A web-based planner for organizing travel information and saving geo-tagged data:

- Utilized React/React Native to develop and implement UI components and achieve fast cross-platform deployment.
- Imported accurate real-time geological data from Google Map APIs for route planning and destination information.

Skills

Programming Languages:	Swift, Java, JavaScript, TypeScript, Python, C, C++, SQL, HTML/CSS
Web Stack:	React, Spring Boot, Node.js, jQuery, D3.js, Bootstrap
iOS Development:	UIKit, SwiftUI, ARKit, RealityKit, SceneKit
Machine Learning:	TensorFlow, OpenCV, PyTorch, scikit-image, scikit-learn
Hardware:	Device Prototyping (Arduino, Raspberry Pi), FPGA Design, Circuit Design