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Education

Columbia University, New York, NY — GPA: 3.99/4.00 Sept 2023 - May 2028 (expected)
PhD in Computer Science
Advisor: Steven Feiner

Columbia University, New York, NY — GPA: 3.95/4.00 Jan 2021 - Dec 2022
M.S. in Computer Science: Vision, Graphics, Interaction, and Robotics Track

Rutgers University, New Brunswick, NJ — GPA: 3.89/4.00 Sept 2016 - May 2020
B.S. in Computer Science, Math, Cognitive Science; Minor in Philosophy
Summa Cum Laude — Highest Honors in Computer Science

Research Experience

Computer Graphics & UI Lab, *PhD Student, Research Assistant* Sept 2023 - Present

Working with Professor Steven Feiner, funded by the Future Manufacturing in Robotics grant:

- Built a novel 3D user interface in XR, as well as a robot planner, for specifying poses and commands for human-robot assembly line interaction
- Conducted 3 user studies (a total of 60 participants) comparing the benefits and drawbacks of using proxies of objects in VR and AR
- Built a XR sand table for a DARPA funded project, allowing many military officers to collaborate on war planning in XR
- Used gaze and hand tracking for menuing and interaction with the sand table, allowing for a more immersive experience in Quest 3 and Varjo XR-3

Computer Graphics & UI Lab, *Research Assistant* (20 hrs/wk) Sept 2021 - Aug 2023

Worked with Professor Steven Feiner for the AntARctica & MercuryMessaging projects:

- Manipulated and cleaned terabytes of radar data from Antarctica ecological projects to construct a Unity VR application for easy data viewing and visualization
- Included networking in AntARctica allowing multiple users to interact with the scene together
- Built a Matlab radar to OBJ converter that compresses the OBJ to avoid Unity loading errors
- Released MercuryMessaging 2.0, a network routing / event handling library in Unity that speeds up VR app and user study development up to two-fold, including networking APIs

Software Systems Lab, Columbia U., *Research Assistant* (15 hrs/week) Jan 2022 - May 2023

Worked with Professor Junfeng Yang for the Cerberus project:

- Modified Google Electra to take source code instead of natural language data and trained models for bug detection since natural language does not capture data / control flow of programs
- Pretrained various BERT, Grace, SPT-Code, etc. models from scratch and then finetuned on Java Defects4J dataset to compare against Cerberus for an ablation study
- Achieved a 70% accuracy on detecting security vulnerabilities in C code (the Devign dataset) using NLP based off Google Electra

AWS CodeGuru, Amazon, *Applied Scientist Intern* (40 hrs/week) May 2022 - Sept 2022

- Created AST parser for Java, Javascript, Python to be used in ML CodeGuru models, and used parser to generated gigabytes of data from private Amazon and public Github codebases
- Wrote commit history dataset builder for any Github / Amazon repository, reduced dataset creation time by 100x
- Used dataset to build graph-based bug fixing models for CodeGuru, allowing CodeGuru users to automate code reviews and detect more security vulnerabilities

Alexa AI, Amazon, *Applied Scientist Intern* (40 hrs/week) May 2021 - Sept 2021

- Leveraged multilingual language models such as mBART and XLM-r for semantic parsing tasks
- Annotated and parsed 2.5 million data utterances, and used machine translation on French, Hindi, and Italian data for training
- Achieved an 80% accuracy on English and 60% accuracy on French, Hindi, and Italian data

Combra Lab, Rutgers University, *Research Assistant* (10 hrs/week) Spring 2019

Worked with Professor Konstantinos Michmizos for the Astrocytes project:

- Recreated SNN with CNN-inspired architecture following Diehl et al. 2015 STDP Paper, built neural layers that resemble Astrocyte brain cells for improved MNIST digit recognition accuracy

Honors, & Awards

Winner, Columbia-Dream Sports AI Fellow Sep 2025

Winner, EGSC Professional Development Scholarship Oct 2024

Grand Prize, AGU Michael H. Freilich Student Visualization Competition Nov 2022

Dean's List, Columbia University Jan 2021 - Present

Honors College Scholar, Rutgers University Sept 2016 - May 2020

Cap & Skull Senior Honors Society, Rutgers University Sept 2019 - May 2020

hackNY Fellow, New York, NY May 2018 - Sept 2018

Dean's List, Rutgers University Sept 2016 - May 2020

Publications

B. Yang, X. He, C. Zou, J. Liu, B. Tversky, and S. K. Feiner, "Virtual Reality Task Guidance Through Relative 6DoF Pose Specification," 2025 IEEE International Symposium on Mixed and Augmented Reality, Daejeon, South Korea, 2025.

B. Yang, J. Liu, X. He, B. Tversky and S. Feiner, "Permanent Proxies for Bimanual Selection and Manipulation in VR," 2025 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Saint Malo, France, 2025, pp. 1330-1331, doi: 10.1109/VRW66409.2025.00311. [Presentation video]

B. Yang, X. He, J. Li, C. Elvezio and S. K. Feiner, "An XR GUI for Visualizing Messages in ECS Architectures," 2024 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), Bellevue, WA, USA, 2024, pp. 640-641, doi: 10.1109/ISMAR-Adjunct64951.2024.00189. [Presentation video]

J. Salzman, J. Li, **B. Yang** and S. K. Feiner, "VHard: An XR UI for Kinesthetic Rehearsal of Rock Climbing Moves," 2024 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), Bellevue, WA, USA, 2024, pp. 638-639, doi: 10.1109/ISMAR-Adjunct64951.2024.00188. [Presentation video]

A. Boghosian, Isabel Cordero, Carmine Elvezio, **Ben Yang** et al., "Augmented Reality and Virtual Reality for Ice-Sheet Data Analysis," IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, CA, USA, 2023, pp. 52-55, doi: 10.1109/IGARSS52108.2023.10283077. [Presentation video]

Working Experience

Datadog, NYC, *Software Engineering Intern* (40 hrs/week) May 2019 - Sept 2019

- Developed a Python service to aggregate millions of Slack and HipChat notifications for enterprise customers, allowing users to see developer statistics for downed microservices
- Worked with Kubernetes, Cassandra, Kafka, and containerization / data wrangling tools

MakeSpace, NYC, *Software Engineering Intern* (40 hrs/week) May 2018 - Sept 2018

- Developed Item Tagging Widget, an in-house ML model used to tag 1 million photographs of stored items, using Tensorflow and other Computer Vision APIs
- Wrote a data analysis report on the volume of stored items using D3.js and React

XLP Capital, NYC, *Software Engineer* (40 hrs/week) March 2018 - April 2019

- Built data source integrations (loading and analysis) for Interactive Brokers, Bloomberg, CCXT, Quandl finance APIs
- Developed trading platform GUI in J, allowing for resizing, tabbing, Excel functionality and handling of 2GB sized data using JQT Framework

MetLife, Software Engineering Intern May 2018 - Sept 2018

- Developed Go Multithreading Tester App that stress tests MetLife databases for correct multithreading and functionality
- Worked with MongoDB and Java to develop automated derivative transaction builder and library for millions of transactions
- Used Python to download & sort 100GB+ US agricultural and climate data

TEACHING EXPERIENCE

COMS 6173: VR & AR Seminar, Columbia University, *Head TA* Fall 2025

- Managed 8 research projects for class student groups
- Held weekly office hours, graded exams and homework

COMS 4172: 3DUI and AR, Columbia University, *Head TA* Spring 2024

- Created 3 mobile AR and headset VR assignments for MS and undergraduate students
- Held weekly office hours, graded exams and homework

COMS 4771: Machine Learning, Columbia University, *Teaching Assistant* Summer 2021, Fall 2021

- Held weekly office hours, graded exams and homework

Computer Science Dept., Rutgers University, *iLab Assistant* Spring 2019, Fall 2019, Spring 2020

- Tutor at CS Lab for Data Structures, Algorithms, Computer Architecture, Operating Systems

First-Year Interest Group Seminar, Rutgers University, *Instructor* Fall 2018

- Taught an accredited college course "Exploring Computer Science" with 10 activity-based lesson plans to a diverse group of 25 first-years, including topics such as Arduinos & ML/AI
- Covered the history of CS and current diversity issues in both industry & academic job markets

Math 477: Probability Theory, Rutgers University, *Grader* Fall 2017

LEADERSHIP & SERVICE

Student Alliance of Computer Scientists, Rutgers University, *Vice President* Sept 2016 - May 2020

- Built a strong Rutgers tech community by establishing monthly speaker series with 10+ speakers reaching a 300+ student audience, partnered with other tech orgs such as STEAM and WiCS
- Acquired thousands of dollars of sponsorship for HackRU bianually
- Headed RUnite CS Ambassadors with 15 student developers, visiting 20+ middle and high schools, reaching 1500 students, mentored 5 students for career and academic advice

Quantitative Finance Club, Rutgers University, *President* Sept 2017 - May 2020

- Orchestrated and taught 14 advanced technical presentations involving trading models, finance, Black-Scholes, and computer science theory
- Reached and helped 100+ members regarding technical and practical knowledge for interviews and career search in addition to weekly mock interviews

Rutgers Enactus, Rutgers University, *Veterans 4 Warriors PM* Sept 2017 - May 2019

- Worked with a team of student entrepreneurs to coordinate intensive ambassador program for marketing and awareness of Veterans' health
- Built relationships with 20+ student and administrative organizations, planned Veterans events, tabling activities, and social events with clients

Petey Greene, Edna Mahan Correctional Facility, *Tutor* Sept 2018 - May 2019