Alexander Gill

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Education

University of Utah *Aug 2025 –*
PhD Computing

University of Utah *Aug 2023 – May 2025*
M.Sc. Computing

- GPA: 4.0/4.0

Universidad Carlos III de Madrid *Aug 2022 – June 2023*
Health Information Engineering

- GPA: 8.26/10.0
- **Coursework**: Machine Learning, Deep Learning, Optimization, Computer Vision, Information Theory

University of Utah *Aug 2021 – May 2022*
Computer Science

- GPA: 3.88/4.0

University of Colorado, Boulder *Aug 2016 – May 2020*
B.S. Aerospace Engineering

- Double Minor in Computer Science and Space

Research Experience

Evaluating Web Browsing Agents on Complex Real World Tasks *2025*
University of Utah - Research Assistant

- Lead researcher creating and testing hundreds of unique challenging web browsing tasks
- First benchmark to focus on tasks that require visual understanding & document synthesis

Generating Challenging Reasoning Benchmarks *2024*
University of Utah - Research Assistant

- Lead researcher on a project exploring the capability of LLMs to act as annotators for the creation of complex reasoning datasets
- Showed that LLMs can generate challenging questions which they still struggle to answer
- Conducted a human study with NLP researchers for preference data on generated vs human data

AI Summarization for Graduate Admissions *2024*
University of Utah - Research Assistant

- Created a pipeline for utilizing open-source language models to generate concise PDFs answering questions about graduate applicants using their application information
- Heavily optimized the pipeline using parallelization to process over 500 applications in under 24 hours

Open-Source Influence Functions *2024*
University of Utah *github*

- First open source implementation of influence functions using EKFAC for large language models
- Created benchmarks for influence function use on open source LLMs, including pythia and OLMo

Cortical Thickness Normative Modeling *2023*
Universidad Carlos III de Madrid *github*

- Applied normative modeling to the latent spaces of generative models in order to discriminate between healthy patients and those with cognitive disorders
- Utilized generative models such as autoencoders, variational autoencoders, and adversarial autoencoders to reconstruct the cortical data and create latent spaces

Gait Event Detection via Sequential Models *2023*
Universidad Carlos III de Madrid *github*

- Classified walking and running events of Parkinson's patients using recurrent neural network models such as LSTMs and modified convolutional neural networks
- Applied transfer learning to finetune larger models to the task

Publications

What Has Been Lost with Synthetic Evaluation? Feb 2025
EMNLP Findings 2025
Alexander Gill, Abhilasha Ravichander, Ana Marasović
arXiv.2505.22830

On Evaluating Explanation Utility for Human-AI Decision Making in NLP Nov 2024
EMNLP Findings 2024
Fateme Hashemi Chaleshtori, Atreya Ghosal, ***Alexander Gill***, Purbid Bambroo, Ana Marasović
arXiv.2407.03545

Professional Experience

Technical Student Intern *Albuquerque, NM*
Sandia National Laboratories *May 2022 – Aug 2022*

- Developed a novel UI creation framework for an existing legacy system
- Developed an API for communication with legacy software
- Updated legacy systems to interface with modern UI applications

Associate Systems Engineer *Salt Lake City, UT*
L3 Harris Communications Systems *Jan 2022 – May 2022*

- Technical solution development for DOD autonomous 5G networks
- Wrote proposals for government contracts, including defining requirements and their solutions

Project Engineer *Eugene, OR*
Suulutaaq Inc. *Apr 2021 – Aug 2021*

- Engineer on several large projects, including a $26 million hazard tree removal project, freeway culvert replacement and FEMA emergency relief mobile-home site rebuild

Teaching Experience

Teaching Assistant *Salt Lake City, UT*
University of Utah *Aug 2023 – May 2024*

- **Head TA** CS1420: Accelerated Object-Oriented Programming
- Taught lab sessions and provided office hours

Teaching Assistant *Salt Lake City, UT*
University of Utah *Aug 2024 – Dec 2024*

- CS4640: Image Processing
- Designed projects, provided office hours and led review sessions

Skills

Programming Languages: Python, C#, C/C++, R, Java, Matlab, Javascript, HTML, SQL

Software/Libraries: PyTorch, Tensorflow, Keras, Scikit-Learn, OpenCV, ROS, Gazebo, CAD, Github, WPF

Languages: Fluent in Spanish, Japanese