Aman Singh

US CITIZEN

Education

Georgia Institute of Technology

Atlanta, GA

MASTER OF SCIENCE IN COMPUTER SCIENCE

January 2022 - August 2023

• Machine Learning, Specialization

Atlanta. GA

Georgia Institute of TechnologyBachelor of Science in Computer Science

August 2019 - December 2021

Intelligence & Modeling/Simulation, Threads
 University of Georgia

Athens, GA

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

August 2018 - May 2019

• Transferred to Georgia Tech after one year

Skills and Coursework

Languages Python, JavaScript, TypeScript, C, C++, SQL, Java, Scala, C#

Frameworks

Pytorch, Anaconda (NumPy, Pandas, Matplotlib, SciPy, scikit-learn), ROS, PostgreSQL, pgvector, spaCy, NLTK, Huggingface, Git,

Node.js, Spark, PostgreSQL, Tableau, Flask, .NET, Docker, React, Redux, D3

 $Machine\ Learning,\ Artificial\ Intelligence,\ Statistical\ Analysis,\ Natutral\ Language\ Processing\ (NLP),\ Linear\ Regression,\ Computer$

Vision, Reinforcement Learning, Convex Optimization, Object Oriented Programming, Data Structures, Algorithms, Complexity,

 $Computer\ Architecture,\ Modern\ Physics,\ Statistics,\ Differential\ Equations,\ Discrete\ Math,\ Quantum\ Mechanics,\ Robotics,$

Linguistics, Human-Computer Interaction

Research Experience _____

CORE Robotics Lab at Georgia Tech

Atlanta, GA

GRADUATE RESEARCHER

August 2022 - August 2023

- Working under Dr. Matthew Gombolay in the CORE Robotics lab
- Submitted a paper to Robotics: State and Society on the efficacy of having non-experts provide demonstrations to to teach robots via LfD. Conducted a user study with over 30 participants and observed how they taught the robot.
- Paper name: Investigating the Impact of Experience on a User's Ability to Perform Hierarchical Abstraction
- Programmed a Kinova MOVO robot to serve dementia patients in a hospice setting. Robot observes and plans in environment via ROS, computer vision, and deterministic planning.

Georgia Tech Research Institute

Atlanta, GA

GRADUATE RESEARCH ASSISTANT

January - May 2022

- Developing an app ClarityNLP that is used by clinical researchers to build and run patient phenotypes using structured and unstructured data.
- Developed NLP and regex algorithms to parse hospital documents and used PostGreSQL and internal APIs to allow comparisons and archival.

Vertically Integrated Projects: Big Data and Quantum Mechanics

January 6, 2020 - May 8, 2021

Undergraduate Researcher

- Utilized machine learning to enable faster and more accurate calculations of the quantum mechanical properties of chemical reactions
- Used Atomic Simulation Environment (ASE) to simulate atoms in certain positions and energy levels and used a variety of machine learning algorithms to train on these simulations.
- Contributed to hyperparameter optimization to maximize the capabilities of our convolution neural net (PyTorch), used HyperOpt to improve performance.

Work Experience _____

Edaptive Computing

Remote

MACHINE LEARNING DEVELOPER

February 2024 - PRESENT

- Developing an NLP Server which features similarity search, content scanning, recommendation, and generation for uploaded documents
- Utilizing vector databases, computer vision, LLMs, NLP libraries such as spaCy and NLTK, and transformer encoders to parse, search through, and summarize documents.
- Implementing a chatbot for NLPSERVER using an LLM equipped with RAG to easily query for and ask questions about uploaded documents.

Defense Research Associates

Beavercreek, OH

AI RESEARCHER

August 2023 - PRESENT

- · Researched how to use LLMs solve math problems, such as finetuning with unique tokenizations
- · Worked with various state of the art transformer and vision models to tackle tracking problems in defense.

Symbotic Wilmington, MA

Data Analyst Intern

May 16, 2022 - August 5, 2022

- · Analyzed and manipulated thousands of bot data logs to improve bot performance using Python, Pandas, and Tableau.
- · Worked with a team of engineers to create tools to preemptively detect, pinpoint, and prevent bot failures.
- Extracted data help fault rates in bot chargers fall more than 99% in problematic chargers

Chatham Financial Kennett Square, PA

FULL STACK SOFTWARE ENGINEERING INTERN

June 3, 2021 - August 6, 2021

- Created an application with backend functionalities using .NET Core MVC Services that pulls in data from internal gRPC services and external REST APIs to process swap option volatilities
- · Developed frontend capabilities using React/Redux to display and visualize market data in a 3D plot using Plotly.js

Fulton County Government

Atlanta, GA

CONTENT MANAGER

June 3, 2019 - August 6, 2019

- Overhauled the official Fulton County website and streamlined access to information about Fulton County services used by hundreds of thousands of people.
- Led my team in procuring all possible information from every department in Fulton County for the website
- · Overhauled forms for all departments to allow for more streamlined electronic communication with citizens

Teaching Experience _____

CS 4510 - Automata and Complexity

Georgia Tech

TEACHING ASSISTANT

September 14, 2021 - December 14, 2021

- Assisted in instruction for CS 4510. Topics covered include finite automata, grammars, regular expressions, Turing machines, and P/NP.
- · Helped students grasp difficult, abstract concepts. Oversaw the design and grading of homeworks and tests.
- 5-10 hours a week, including office hours and grading

Projects _____

Anomaly Detection for Cyber-Physical Systems

GROUP PROJECT MEMBER FOR CS 7643 - DEEP LEARNING

- Deep Learning final class project for detecting cyber attacks in cyber-physical systems using Tensorflow and Pytorch.
- Worked on using a transformer that predicts a sequence and compares to actual sequence to determine whether attack took place.
- 95% accuracy on a dataset of over 100,000 entries.

Awards & Recognition _____

Eagle Scout

BOY SCOUTS OF AMERICA

• Built a 45-foot long Stone Pathway in Autrey Mill Nature Preserve for my Eagle Scout Service Project

Clubs & Hobbies

Martial Arts

PARTICIPANT

- Trained with Georgia Tech boxing for 2 years, competed in amateur fights
- Currently training in Muay Thai, planning to spar soon

Music

CREATOR

- · Adept at guitar, piano, synthesizers, drums, and tuba. Currently learning to sing
- Played Tuba in marching band for five years, section leader for two years
- · Home producer, makes hip-hop, hyperpop, electronic, and hard rock songs with vocals using Logic and Ableton