Animesh Agrawal

404-543-3133 | animesh.a.777@gmail.com | animeshagrawal.tech | linkedin.com/in/Animesh7Agrawal | github.com/awesommesh

EDUCATION

Georgia Institute of Technology — GPA: 4.00/4.00
M.S. in Computer Science — *Jan. 2023 – (Expected) May 2024*

Georgia Institute of Technology — GPA: 3.93/4.00
B.S. in Computer Science, B.S. in Mathematics — *Aug. 2018 – Dec. 2022*

WORK EXPERIENCE

Meta (formerly known as Facebook) — May 2022 – July 2022
Software Engineer Intern — *Menlo Park, CA*
- Explored novel methods to make ads ranking models more robust to stricter privacy constraints as part of the Ads Optimization team responsible for over 50% of company revenue.
- Trained state-of-the-art Multi-Task Multi-Label (MTML) models under Differential Privacy (DP) constraints.
- Implemented data pipelines to process user data (over 10 million rows) for model training using SQL and DataSwarm.
- Performed exhaustive experiments to explore trade-offs of Random Projection modeling across various parameters such as model architecture, DP noise settings, training techniques, and label projection methods.
- Achieved up to 30% performance gain compared with previous baselines on simulated data.

Canopy Pte. Ltd. — June 2020 – Dec. 2020
Software Engineer Intern — *Singapore*
- Designed and published a React Redux Excel Add-In to Microsoft AppSource offering 100% of Canopy analytic APIs.
- Conceptualized and implemented a new module providing real-time clients' portfolio information.
- Reduced delay in reporting by a min. of 3 days using AWS Lambda functions and live market data.

WiZN Systems — May 2019 – Aug. 2019
Software Engineer Intern — *Bangalore, India*
- Created an autonomous Java back-end tool and improved reliability, response time, and product development by transforming the monitoring of eGlu Home Automation Network's health of over 1000 hubs.
- Devised automated analysis of hub health and back-end stack trace reporting.

RESEARCH EXPERIENCE, PROFESSIONAL DEVELOPMENT AND PROJECTS

Center for Spatial Planning and Visualization (CSPAV) — Jan. 2023 – Present
Graduate Research Assistant — *Atlanta, GA*
- Maintained and submitted updates for the Android and iOS version of the ALIGN ATL mobile application that provides a user-friendly navigation tool tailored towards the elderly and people with disabilities.
- Researching and training state-of-the-art computer vision models on the Place Pulse 2.0 image dataset.

Systems for AI Laboratory (SAIL) — Jan. 2021 – Present
Graduate Researcher — *Atlanta, GA*
- Implemented a new framework to co-train DNN models simultaneously in federated learning. The framework was empirically shown to train a family of k DNN architectures at $O(1)$ cost as compared with an $O(k)$ cost required for individual training (co-authored paper and submitted this work to NeurIPS 2023).
- Developed a novel algorithm to train $5 \cdot 10^8$ different DNN architectures simultaneously at an order of magnitude (9.43x) reduced computational and communication cost as compared to training just 9 such architectures individually.
- Adapted FedML GitHub repository and implemented our framework on top with over $450,000$ lines committed.
- Conducting research on and developing weight shared architectures for advanced object detection models such as Facebook's Mask2Former architecture.

Teaching Assistant CS8803 Systems for ML — Aug. 2021 – Dec. 2021

Facebook AI Research: Low Res Confident MT | *Python, PyTorch* — April 2020 – Dec. 2020
- Formulated a state-of-the-art confidence system for machine translation (MT) of low resource languages in PyTorch.
- Leveraged ensembling, noisy channel decoding, and language models to construct a confidence estimation for MT system that performs 10% more accurately than baselines.

AI Image Search Engine | *DynamoDB, Lambda Functions, Fargate, Flask, Git* — May 2018 – May 2020
- Led a team of 4 to build an AI image search engine using AWS, DynamoDB, Lambda Functions, Fargate, CI/CD Pipeline, and Flask backend.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS, Flutter, TypeScript
Frameworks/Libraries: React, Node.js, PyTorch, Pandas, NumPy, Matplotlib, Flask, MongoDB, Django
Developer Tools: Git, AWS, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Android Studio
Coursework: DL, ML, CV, Database, Algorithm Design, Game AI, Robotics, Computer Networking, Systems