Amogh Shreedhar Inamdar

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EDUCATION

Columbia University   New York, NY
M.S. in Computer Science - Machine Learning track; **GPA: 4.0/4.0**   May 2022

Ramaiah Institute of Technology   Bengaluru, IND
B.E. in Computer Science and Engineering; **GPA: 9.76/10**   Aug 2020

ACADEMIC RESEARCH

Columbia University   New York, NY
Graduate Researcher; Advisor: **Dr. Richard Zemel**   Feb 2022 - Present
Contrastive Learning of Disentangled Representations
- Extended the SimCLR algorithm to novel supervised and unsupervised contrastive attribute learning paradigms.
- Visualized the effects of data supervision on learned image representation spaces with PCA and t-SNE.
- Developing methods to evaluate the performance of large pretrained models on attribute learning tasks.

Graduate Researcher and Developer; Advisor: **Dr. Nakul Verma**   Oct 2021 - Jun 2022
LogicLearner: a tool for learning propositional logic (logiclearner.ctl.columbia.edu)
- Developed a grammar for predicate logic with the Lark parser-generator in Python.
- Designed a novel frontier-generation algorithm by implementing logic rules as parsed-expression transforms.
- Implemented A* search and optimized heuristics with a genetic algorithm to solve propositional logic proofs.
- Embedded logic statements as vectors using a Siamese GRU network optimizing for a dot-product A* heuristic; achieved strong problem-solving performance.

Graduate Researcher; Advisor: **Dr. Ansaf Salleb-Aouissi**   Jun 2021 - Sep 2021
Categorization of post-operative Proximal Junctional Kyphosis (PJK) in spine deformity patients
- Collaborated with medical staff bi-weekly to design and standardize a proprietary dataset of spinal deformity patients to study the post-operative complications of spinal surgery.
- Leveraged ensemble learning to analyze data, characterize post-operative PJK, and take steps towards predicting revision surgery in a highly imbalanced dataset while emphasizing algorithmic explainability.

Ramaiah Institute of Technology   Bengaluru, IND
Undergraduate Researcher; Advisor: Dr. Seema S   Jan 2020 - Jul 2020

Efficient Handwriting Generation of English Text with Conditional GANs
- Combined image stitching heuristics with lightweight conditional GANs to generate handwritten English text from typed input efficiently (>40 chars/second) in Tensorflow.
- Built a web application to generate handwriting from input text using HTML5/CSS and Flask in Python.

Undergraduate Researcher; Advisor: Dr. Sangeetha J   Jan 2019 - Dec 2019
Time-Dynamic NEAT: a Validation-based Heuristic for Neuroevolution on Large Datasets
- Formulated TIDY NEAT, a heuristic for exponentially scaling data input to NEAT evolutionary algorithm.
- Demonstrated a 3.3x faster convergence to equal accuracy as vanilla NEAT on a cardiovascular disease classification task and supported time complexity results with qualitative analysis.

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The Indian Institute of Science   Bengaluru, IND
Academies' Summer Research Fellow at IISc; Advisor: Dr. Balaji Jayaprakash   Jun 2018 – Aug 2018
Monte Carlo Simulation of Problem-Solving Behavior in Rats
- Modeled learning via memory consolidation in rats by simulating brain grid cells and a Morris Water Maze experiment with Monte Carlo methods and reinforcement learning in C++.
- Developed a GUI to run trials, visualize simulated rat paths, and generate and store results and heatmaps, using the and Java Swing framework.

TEACHING EXPERIENCE

Department of Computer Science, Columbia University   New York, NY
Course Assistant - COMS 4771 Machine Learning   Feb 2022 - Jun 2022
- *Instructor: **Dr. Nakul Verma**; As described below.*

Course Assistant - COMS 4771 Machine Learning   Jun 2021 – Sep 2021
- *Instructor: **Dr. Nakul Verma**; Enrollment: 70+ undergraduate and graduate Columbia students.*
- Held office hours to solve student doubts, graded assignments, and assisted with course logistics.

Course Assistant - Machine Learning, Columbia-edX AI Micromasters (MOOC)   Feb 2021 – May 2021
- *Instructor: **Dr. John Paisley**; Enrollment: 322 online learners taking graduate-level coursework.*
- Answered doubts on course material, exams, and logistics on a student forum for the ML course.

Ramaiah Institute of Technology   Bengaluru, IND
Special Lecture – Data Mining   Dec 2019
- Instructor: Prof. Sowmya BJ; Enrollment: 60+ undergraduate juniors.
- Delivered a lecture on data mining practices and dataset pre-processing for deep learning.

PROFESSIONAL EXPERIENCE

Salesforce   San Francisco, CA
AMTS Software Engineer – Salesforce Genie   Jun 2022 - Present
- Building Salesforce Genie, a hyperscale data platform providing a unified customer data interface for real-time CRM.
- Developing tools to provision and manage millions of dollars of infrastructure on AWS EMR and EKS platforms.
- Engineering resilient infrastructure enabling data warehousing and real-time streaming analytics at massive scale.

Software Engineer Intern – ML Services team, Einstein Platform   Jun 2021 – Sep 2021
- Designed and developed a Python SDK for real-time scoring of customer service requests with machine learning.
- Enabled experimentation and debugging in a production-like environment across cloud tenants and ML models.
- Reduced effort for model experimentation from several steps taking hours to a single step taking a few minutes.

AI Model Share Initiative, Columbia University   New York, NY
Developer (Part-time)   Mar 2021 – Jun 2021
- Created an API to enable the Model Share library to deploy customized pre-trained ML models as AWS Lambda endpoints reachable by AWS API Gateway.
- Prototyped AWS CloudFormation integration to enable modular deployments of AI Model Share infrastructure.

Amogh Inamdar - CV   2

Cadence Design Systems   Bengaluru, IND
Software Engineer Intern – R&D team, Pegasus Verification System   Jul 2020 – Sep 2020
- Devised a C++ engine to improve Pegasus Design Rule Check performance and integrated it into Pegasus flow.
- Enhanced automated test generation for microchip density and fill characteristics in Python
- Created complex test cases with KLayout editor and evaluated and debugged Pegasus in Linux.

Samsung Research Institute Bangalore   Bengaluru, IND
Research Intern - PRISM Program for Undergraduate Research in AI   Apr 2019 – Nov 2019
- Led a student research team in On-Device AI to create an SQLite to Apache Lucene Query Parser with Antlr4 in Java.
- Presented results to an open floor of 300+ Samsung engineers at a showcase for the top 20% of all intern projects.
- Received a Certificate of Excellence for exceeding KPIs for processing time and memory utilization by 5-10x.

HONORS and AWARDS

Ranger Certification - Salesforce Trailhead learning platform	Sep 2022
Best Student Award - Computer Science, Ramaiah Institute of Technology	Aug 2020
Certificate of Excellence - Samsung PRISM Undergraduate Research Program	Nov 2019
Summer Research Fellowship in 2018, Indian Academies of Science	Jun 2018

TECHNICAL SKILLS

Languages	Python, Java, C/C++, R, SQL, JavaScript, HTML5/CSS, UNIX shell scripting
Tools	AWS, K8s, ML tools (PyTorch etc.), Parser-generators, MongoDB, Apache Lucene, Flask

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