Ameya Panse

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TECHNICAL SKILLS

Languages: Python, Java, C++, MATLAB, HTML/CSS, SQL

Technologies/Frameworks: PyTorch, TensorFlow, SpringBoot, Docker, Apache Kafka, GitLab CI/CD, PySpark

EDUCATION

University of California San Diego — **Master of Science**
Machine Learning and Data Science — Sept 2022 – March 2024

Indian Institute of Technology (IIT) Madras — **Bachelor and Master of Technology**
Computer Science and Engineering — July 2012 – May 2017

EXPERIENCE

Goldman Sachs — **Sept 2019 - July 2022**
Cloud Engineer in Transaction Banking Division

- **Team Lead for Messaging Infrastructure for Payments Platform** : ***Java, Terraform, AWS, Apache Kafka***
  - Designed and Deployed Monitoring Solution for Kafka Clusters to raise real time alerts.
  - Designed and Developed Access Control Solution for Message Replay to reduce Payment-Revision Latency by **90%**
- **Interface and Gateway Infrastructure** : ***Terraform, AWS, AngularJS, Kong***
  - Designed and Deployed On-Prem to AWS Cloud Gateway using Kong to facilitate Internal Website Hosting
  - Automated Deployment of Gateway Module to enable developer self starts

Samsung Research Institute Bangalore — **July, 2018 - Aug, 2019**
Senior Software Engineer in Interactive Intelligence Team

* **Mobile Camera Application : Do Not Share** ***Tensorflow Lite, Computer Vision***
- Trained a Deep Learning model to detect sensitive images such as documents, with 95% accuracy
- Converted the model for better performance on mobile devices using TensorFlow Lite to automatically mark captured images and securely store them.

Tata Consultancy Services — **July, 2017 - June, 2018**
Machine Learning Research Engineer in Tata Research Development and Design Centre

- **Car Damage Detection** : ***Python, Tensorflow, Deep Learning, CVAE, Transfer Learning***
  - Used Convolutional AutoEncoder for unsupervised pre-training, modified ResNet Deep Learning Architecture and utilized Transfer Learning.
  - Achieved **89% accuracy** for detecting Damaged Portions in Car Images for Insurance Clients.
- **Imitation Learning for Atari Games** : ***Python, Tensorflow, Reinforcement Learning, OpenGym***
  - Designed and Developed Novel Deep Reinforcement Learning Technique by incorporating Non-Expert Human Demonstration Data to achieve a **20% improvement** on Baseline Techniques on Atari Games
  - Utilized Expectation-Maximisation to alternate between deriving human consensus policy and RL Agent Training
  - RL Agent is trained using modified Distillation Loss against consensus policy to guide early stages of training

PUBLICATIONS AND TALKS

Imitation Learning on Atari Using Non-Expert Human Demonstrations — **May, 2018**
Ameya Panse, Tushar Madhesia, Anand Sriraman, Shirish Karande — AAAI HCOMP, 2018

Monitoring and Resiliency Testing Apache Kafka Cluster at Goldman Sachs — **May, 2021**
Ameya Panse, Araf Sheikh — Confluent Kafka Summit, 2021

GRADUATE STUDENT RESEARCHER

Multi-Modal Zero Shot Learning using Word Embeddings for Temporal Data — **Prof. Jingbo Shang**
Transformers, Time Series Analysis, PyTorch — UCSD, April 2023 - Ongoing

Data Pipelines for Smart Facilities Management — **Prof. Jan Klessil**
PLC4x, Neo4j, InfluxDB — UCSD, April 2023 - Ongoing

ACADEMIC PROJECTS

Image Segmentation using Bayseian Methods **UCSD**
GMMs, Parameter Estimation, Matlab Dec 2022

- Compared various Pixel Classifiers by modelling background and foreground as different generative models and parameter estimation techniques
- Estimated Gaussian Mixture Model parameters by Maximum Likelihood Expectation Maximisation, achieving accuracy of **97%**

Modelling Soccer Player performances conditioned on Teammates **UCSD**
Hypothesis Testing, Data Scraping, Bayesian Model, Regression Dec 2022

- Developed a Web-based Data Scraper to collect player specific match data points in Python. Defined the Player Performance model as a Bayesian Regression parameterized by team statistics.
- Disproved the Hypothesis that the Club Player Performance is a Statistical Prior for International Performance.

Pushing the Boundaries for Combinatorial Graph Isomorphism Algorithms **July, 2017**
Ameya Panse, Prof. Jayalal Sarma IIT Madras

- Characterized Tinhofer graphs algebraically. Proposed and studied in detail, a new graph hierarchy based on Tinhofer's algorithm.
- Provided an efficient graph isomorphism algorithm for the lower classes in the hierarchy

TEACHING ASSISTANT

Languages, Machines and Computation **IIT Madras**
Prof. B. V. Raghvendra Rao July - Dec, 2016

Advanced Data Structures and Algorithms **IIT Madras**
Prof. Anurag Mittal Jan - May, 2017

RELEVANT COURSEWORK

Machine Learning Physical Applications	Linear and Logistic Regression, Graphical Models, Mixture Models, Deep Learning Architectures and Techniques
Acceleration of Deep Learning on Hardware Platforms	Pruning, Quantization, Neural Architecture Search, FPGA
Statistical Natural Language Processing	Probabilistic language models, Text Classification, Transformer and Attention Models, Neural Machine Translation
Search and Optimisation Algorithms	Deep Reinforcement Learning, Bandits, Monte Carlo Methods, Numerical Optimization
Bayesian Statistical Learning	Bayesian Decision Theory, Parameter Estimation, Maximum Likelihood, Mixture Models, Expectation-Maximization
Linear Algebra and Applications	Vector and Hilbert Spaces, Orthogonal Projection, Eigen Analysis, Singular Value Decomposition, PCA.

AWARDS AND EXTRA-CURRICULAR ACTIVITIES

All India Rank of 341 **IIT-JEE**
Secured an AIR of 341 in India's toughest nationwide examination IIT-JEE 2012

Competitive Coding **ACM - ICPC**
Qualifed and Represented IIT Madras for the ACM-ICPC Regionals 2016

Institute Soccer Team **IIT Madras**
Placed among the top-4 of Inter-IIT Sports Meet for the first time in 10 years 2016 - 2017