ADITYA RASTOGI
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https://thunderinfy.github.io/portfolio/
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EDUCATION

M.Tech & B.Tech (Hons.), Computer Science and Engineering, IIT Kharagpur, India
Masters GPA: 9.86/10; Graduated: May'21; Thesis: Improvements in Self-Supervised Learning
Bachelors GPA: 9.46/10; Graduated: May'20; Thesis: Deep Learning Visualization

PUBLICATIONS

Pandey, A. et al. (2024) **Darsi: A deep auto-regressive time series Inference architecture for forecasting of aerodynamic parameters**, Journal of Computational Science, 82, p. 102401. doi:10.1016/j.jocs.2024.102401.

del Río, A.F. et al. (2024) **Adaptive user journeys in pharma E-commerce with reinforcement learning: Insights from SwipeRx**, KDD CJ workshop

del Río, A.F. et al. (2024) **Adaptive behavioral AI: Reinforcement learning to enhance pharmacy services**, KDD AIBS workshop

Periáñez, Á. et al. (2024) **Optimizing HIV patient engagement with reinforcement learning in resource-limited settings**, KDD epidamik workshop

Periáñez, Á. et al. (2023) **The Digital Transformation in Health: How AI can Improve the Performance of Health Systems**, Harvard TH Chan School of Public Health, Takemi Program in International Health

Rastogi, A. et al. (2023) **Synthetic Data Generator for adaptive interventions in Global Health**, ICLR MLGH workshop

WORK EXPERIENCE

CausalFoundry (prev. benshi.ai), Barcelona, Spain Sept'22-Present
ML Engineer (Go, PostgreSQL, Python)

- Built a robust data pipeline which computes ~500 features for dashboards and ML models.
- Developed a chat interface using function calling with fine-tuned large language models.
- Implemented reinforcement learning algorithms to drive effective digital health interventions.
- Developed a synthetic data environment using CTMCs to create a test environment for RL.
- Implemented the item2vec recommender algorithm and time-to-event models (e.g. recurrent deep survival machines).

Accenture Japan Ltd., Tokyo, Japan Nov'21-Sept'22
Business and Integration Arch Analyst (Java)

- Automatic test generation in a large codebase by identifying code patterns.
- Meeting with clients and developers, understanding requirements, sprint planning etc.

INTERNSHIPS

Goldman Sachs, Bengaluru, India May'20-Jun'20
Developed an end-to-end system to classify tickets received through emails, using multiple classifiers.

University of British Columbia, Vancouver, Canada May'19-Jul'19
Pattern Matching in Trillion Edge Graphs; *Advisor: Prof. Matei Ripeanu*
Developed a pipeline to maximize lateral work reuse in the problem of approximate pattern matching in graphs in a distributed systems setting.

University of Sydney, Camden, Sydney, Australia Dec'18-Jan'19
Facial Landmarks Detection; *Advisor: Dr. Mehar Khatkar*
Implemented a deep learning model for detecting facial landmarks to monitor aquariums.

IIT Kharagpur – Sponsored by Shell India Pvt. Ltd. May'18-July'18
Topic: Sensor Diagnostics; *Advisor: Prof. Swanand Khare*
Used gaussian-mixture models and dimensionality reduction techniques to detect change points in the stochastic process resulting from multiple sensors in a chemical plant.

Projects

Lexica (Developing a vocabulary management tool using LLMs) (*~2500 loc in Go, SQLite and Vue.js*)

AlphaZero from scratch in PyTorch (*~1200 loc in Python*)

Switch Transformers from scratch in PyTorch (*~800 loc in Python*)

Self-Supervised Learning in Computer Vision (SimCLR, Moco-V2) (*~700 loc in Python*)

Saliency Map Extraction in PyTorch (*~100 loc in Python*)

Automatic differentiation engine (*~1000 loc in Go*)

Evolutionary Algorithm to train a self-driving car on a racetrack (~1000 loc in JavaScript)

File system implementation using File Allocation Table and Index Nodes (~2000 loc in C++)

Implementation of a Simplified File Transfer Protocol (~1000 loc in C)

Implementation of Cryptographic Algorithms (~2000 loc in C)

Map-Reduce from scratch using gRPC in Python (~450 loc in Python)

Off-Policy Monte Carlo Control in Reinforcement Learning (~500 loc in Python)

Policy Iteration in Reinforcement Learning (~200 loc in Python)

Skills And Expertise

Languages: **Go**, **SQL** (postgres, sqlite), **Python**, JavaScript (p5.js, Vue.js), C, C++, Java, R, HTML, CSS
Libraries: **PyTorch**, **Numpy**, **Scipy**, **Matplotlib**, JAX, gRPC, Keras, TensorFlow

Others

- **Teaching Assistant – Machine Learning (Spring 2021), Algorithms-II (Autumn 2020)**
- Fluent in English (TOEFL: 112/120) and Hindi, beginner in Japanese (~ N4) and Spanish (~A1).