Niloufar Saeidi Mobarakeh

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Skills

Programming: Python(Numpy, Pandas, SciPy, Matplotlib), R, C/C++(Fluent in OOP), PostgreSQL
ML/DL: PyTorch, PyTorch Lightning, TensorFlow, scikit-learn, Hugging Face; Transformers, Transfer Learning
Data/DevOps: Docker, Git, Linux, Jupyter, Shell scripting (Bash/Zsh), AWS
Tools: VS Code, TensorBoard, SQL Server Management Studio, RStudio, PyCharm

Work Experience

Machine Learning Research Engineer
Huawei Technologies, Noah's Ark Lab, Autonomous Driving Planning team   *May 2024 – December 2024*
Toronto, Canada

- Developed a transformer-based architecture for real-time collision avoidance in autonomous systems, designing specialized safety modules to ensure reliable inference under latency constraints. Fine-tuned hyperparameters and conducted extensive ablation studies to improve robustness and efficiency in varied operational scenarios.
- Conducted research to explore architectural and training/inference enhancements, including the feasibility of migrating the model to a LLaMA-based decoder-only backbone.
- Implemented supporting modules such as custom evaluation metrics, attention visualization tools, and loss balancing mechanisms based on action probability and class imbalance.

Projects and Publications

Learning Soft Driving Constraints from Vectorized Scene Embeddings while Imitating Expert Trajectories
Submitted to ICRA ArXiv pre-print

LLMs Inference Optimization and Queuing Simulation   *Ongoing*
Engineered an automated GPU-cluster benchmark comparing GPT-2 and LLaMA-2-7B on A100s, characterizing queuing delays under varying batch sizes and token lengths Ongoing Project Report | model internals study

The Impact of Twitter Sentiments on Stock Market Trends   *Spring 2022*
Download full-text | More Details and Code

Evolutionary Dynamics of Mixed Rings of Coordinators and Anticoordinators   *Spring 2022*
N Saeedi, D Richard, P Ramazi, 61st IEEE Conference on Decision and Control IEEE link | Download full-text

Education

Computational and Applied Mathematics
M.Sc., Simon Fraser University(SFU)   *Fall 2023 – Present*
Thesis: Developing Bayesian models to infer serial intervals from genomic and epidemiological data, integrating phylogenetic sampling, transmission trees, and SEIR simulations via R6 framework.
Supervisors: Dr. Jessica E Stockdale, Dr. Ben Ashby

Computer Engineering
B.Sc., Isfahan University of Technology(IUT)   *Fall 2019 – Summer 2023*
Thesis: Evaluation of Collective Interactions between Cancer Cells with Different Structures and Interaction Rates Using Evolutionary Games. Co-op with Game Theory and Mechanism Design Lab
Supervisor: Dr. M. H. Manshaei

Related Coursework

NLP Specialization [Credentials], Generative AI with LLMs [Credentials], ML in Production [Credentials], Data Science Specialization [Credentials], Game Theory [Credentials], Deep Learning [Assignments], PostgreSQL DBs, Bioinformatics Algorithms [Assignments], Data Mining [Assignments and Project], Applied Linear Algebra