

Yousef Fekri Dabanloo

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SUMMARY

Motivated computer scientist with a strong foundation in mathematics and machine learning. Passionate about applying problem-solving and programming skills to real-world challenges. A proactive learner who thrives in collaborative, fast-paced environments.

EDUCATION

Ph.D. in Computer Science

University of Georgia, Athens, GA, USA

2021 - current

M.S. in Applied Mathematics

Sharif University of Technology

2011 - 2013

B.S. in Mathematics

Semnan University

2007 - 2011

SKILLS

Programming Languages: Python, Java, Scala, C – Developed and implemented ML/DL models, worked on symbolic regression, and built network security applications

Machine Learning & AI: Linear Regression, Decision Trees, Random Forests, Neural Networks – Applied ML techniques in time series forecasting, NLP, and deepfake detection

Deep Learning Frameworks: PyTorch and Tensorflow – Used for training deep learning models in NLP and computer vision tasks, including deepfake detection

Tools & Platforms: GitHub, Jupyter Notebook – Used for version control, model benchmarking, and experiment tracking

Technical & Analytical Skills: Critical Thinking, Problem Solving, Debugging – Implemented and tested ML models, compared performance metrics, and optimized algorithms

Collaboration & Communication: Research Collaboration, Technical Documentation – Worked with research teams, documented AI projects, and contributed to academic publications

SELECTED COURSEWORK

Machine Learning & AI: Data Science (A), Machine Learning (A), Computer Vision (A)

Algorithms & Systems: Algorithms (A), Computer Networks (A)

Mathematics & Optimization: Discrete Mathematics (A), Optimization (A)

WORK EXPERIENCE

Neural Symbolic Regression for Multivariate Time Series Forecasting

Ongoing

- Implemented a Neural symbolic regression model for multivariate time series forecasting, improving interpretability while maintaining high predictive accuracy.
- Developed and documented a comprehensive testing framework, benchmarking performance against Python's `statsmodels` using metrics such as MAE, SMAPE, and SMAPEIC.
- Enhanced the COVID-19 and Influenza-Like Illness datasets forecasting accuracy compared to existing models. The results are being submitted to a peer-reviewed conference, and the code is being prepared for release on GitHub.

Implementation and Benchmarking of ML and Deep Learning Models in Scala

2024

- Collaborated with the research team to implement and document several ML and deep learning models in Scala, including AR, ARX, ARIMA, NN, CNN, and Transformers, and compared their performance with their Python counterparts.
- Benchmarked these models using various metrics to evaluate accuracy and efficiency, ensuring quality and performance assurance.

Enhancing LLMs for Humor and Sarcasm Detection in Sentence Similarity

2023

- Worked on a project to enhance Large Language Models (LLMs) by integrating sentiment analysis with sentence similarity frameworks, improving AI comprehension of implicit humor and sarcasm.
- Fine-tuned generative AI models, including retrieval-augmented generation (RAG), to adjust similarity scores based on sentiment evaluation, enabling more accurate and context-aware language processing.
- Applied multi-modal techniques, incorporating textual and sentiment-based features, to advance AI applications in content moderation, automated analysis, and interactive systems.

Fake Image Region Detection in Deepfake Images

2023

- Implemented a deep learning-based framework, PSCC-Net, using the PyTorch framework to detect fake regions in deepfake images.
- Trained PSCC-Net on newly generated facial manipulation datasets, leveraging HRNet for feature extraction and utilizing top-down and bottom-up approaches for fake region localization.
- Extended deepfake detection beyond classification by generating text descriptions of manipulated regions and identifying their exact locations in images.

Socket Programming and Network Security Projects

2022

- Developed a multi-threaded file downloader in C, integrating OpenSSL for secure HTTPS communication and optimizing parallel data retrieval.
- Implemented a URL parser, request handling system, and file merging mechanism to enhance download efficiency and reliability.
- Implemented a Python-based DNS forwarder supporting both traditional and DNS-over-HTTPS (DoH) queries, incorporating domain filtering and logging mechanisms.
- Implemented multi-threaded request handling for efficient query resolution, improving security and performance in network communication.