Fiona Victoria Stanley Jothiraj

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EDUCATION

Oregon State University Sep 2023 — June 2027
Doctor of Philosophy (PhD) in Artificial Intelligence
Area of Research: AI for Social Good, Applied AI/ML in Ecology (Species Distribution Modeling)
Scholarship: Outstanding Scholars Program
Coursework: Probabilistic Graphical Models, Bayesian Networks, Big Ideas of AI

University of Washington Bothell, Washington Sep 2021 — June 2023
Master of Science in Computer Science and Software Engineering GPA: 3.90/4.00
Coursework: Deep Learning and Artificial Intelligence, Machine Learning,
High Performance Computing, Research Methods, and AI for Social Good
Scholarly Paper: Phoenix: A Federated Generative Diffusion Model

PSG College of Technology, India July 2015 — May 2019
Bachelor of Engineering in Robotics and Automation Engineering GPA: 9.58/10.00
Coursework: Machine Learning for Robotics, Artificial Intelligence for Robotics

RESEARCH EXPERIENCE

Graduate Research Assistant Oct 2023 - Present
Oregon State University
Advisor: Dr. Rebecca Hutchinson
- Intersection of AI/ML and Ecology

Graduate Research Assistant June 2023 - Sep 2023
Oregon State University
- Privacy preserving AI/ML systems
- Conducted a thorough literature review on membership inference attacks, differential privacy and utility improving differential privacy methods

Graduate Research Assistant June 2022 - Jan 2023
UW Bothell: Computation Behavioral Modeling (CBM) Research Lab
Advisor: Dr. Afra Mashhadi
- Inspired by societal communication and behavior in social media, defined the research around the area of studying nostalgia or reminiscent behavior on social media using natural language processing (NLP)
- Built traditional NLP models for classifying nostalgic conversations on the Twitter platform
- Applied NLP feature strategies: Bag of Words (BoW), Parts of Speech (POS), Term Frequency-Inverse Document Frequency (TF-IDF) and Word Embeddings
- Implemented transformer models: RoBERTa, DistilBert, ensemble models and ensemble-feature models to improve detection accuracy to 0.96 (Micro F1-Score)
- Mentored two undergraduate students to prepare exhaustive amounts of Twitter data

PUBLICATIONS

[1] Jothiraj, F. V. S., & Mashhadi, A. (2023). Phoenix: A Federated Generative Diffusion Model. arXiv preprint arXiv:2306.04098. [https://arxiv.org/abs/2306.04098]
[2] Jothiraj, F. V. S., & Mashhadi, A. (2022). Personalized Emotion Detection using IoT and Machine Learning. arXiv preprint arXiv:2209.06464. [https://arxiv.org/abs/2209.06464]
[3] Jothiraj, F. V. S. (2022). Time Series Prediction for Food sustainability. arXiv preprint arXiv:2209.06889. [https://arxiv.org/abs/2209.06889]
[4] Shamsaddini, Vahid, Stanley Jothiraj, Fiona Victoria, Chen, Mandy, & Mashhadi, Afra. (2022, August 16). Empirical Dynamic Modelling of the Multi-Source Park Visitation Data. Data for Policy Conference 2022. [https://doi.org/10.5281/zenodo.6998909]
[5] *Under Review*: Uncovering Nostalgic Conversations in Social Media Posts

INVITED TALKS

Flower Monthly Aug 2023

- Invited talk on 'Phoenix: A Federated Generative Diffusion Model' - world's first federated diffusion model
- Hosted by Dr. Nicholas Lane, Professor of ML Systems at the University of Cambridge, UK

INDUSTRY EXPERIENCE

Data Scientist June 2023 - Present
Harvard in Tech

- Volunteering as a thought leader in the 'Call for Action (CFA)' team
- Provide guidance and vision to build an NLP model that aims to detect unreliable news articles
- Influenced the executive leadership team to develop the roadmap of the CFA-Data Science team
- Delivered presentations on topics spanning fake news detection approaches, feature engineering methods, traditional models, and recent research findings
- Built transformer-based models for classifying news headlines from both open source data and in-house curated data

Machine Learning Engineer June 2019 - Mar 2020
Multicoreware Inc, India

- Designed and developed an EV Quantization logic in TensorFlow GPU for quantization aware training and Tensorflow Lite inference of Deep Neural Networks
- Deployed the open-source product to production. The project is used for Synopsys Design Ware EV Processors
- Development using C++, Python, Intel Intrinsics and Git
- Mentored peers on the quantization concepts and workflow of EV TensorFlow

Machine Learning Intern Dec 2018 - May 2019
Multicoreware Inc, India

- Skin Cancer Detection - Developed a custom Convolutional Neural Network (CNN) model to detect moles for potential skin cancer by training with gigabytes of clinical image data
- Audio Video LipSync - Implemented the Audio Video LipSync™ API in Intels' OpenVINO through a high-level C++ inference engine for 5x speedup
- Deployed the quality control LipSync tool for Over-the-top (OTT) streaming service providers, using deep learning technology
- Setup the LipSync™ technology demo for the National Association of Broadcasters Show (NAB 2019)
- Enhanced the user experience with a GUI to create out-of-sync videos using PHP and Python

AWARDS

2023 **Outstanding Scholars Program** - Oregon State University
2022 **Virtual Scholarship** - Grace Hopper Women in Computing Celebration
2019 **Academic Excellence** (Ranked 1/80) - Robotics and Automation Engineering Association
2019 **Monarch of the Month** - Individual contribution to TensorFlow quantization at Multicoreware Inc

CERTIFICATIONS

2022 Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning - Coursera
2022 Convolutional Neural Networks in TensorFlow - Coursera
2022 Natural Language Processing in TensorFlow - Coursera
2022 Introduction to Big Data - Coursera
2022 Taming Big Data with Apache Spark and Python – Udemy
2021 **Amazon Web Services (AWS) - Machine Learning Specialty** - Certified

SKILLS

- **Languages:** Python, C, C++, CUDA, MATLAB, SQL
- **A.I Tools:** TensorFlow, PyTorch, OpenVINO, Keras, HuggingFace, Flower, Caffe, Scikit-learn, OpenCV, Kats, Pandas, NumPy, Jupyter, PySpark, Matplotlib, SciPy, Weights & Biases
- **Other Tools:** AWS (IoT Core, Sagemaker, Lambda, Kinesis, Glue, S3, SNS), Azure (IoT Hub, Stream Analytics, Function App), LaTeX, Git