

Fiona Victoria Stanley Jothiraj

Corvallis, OR

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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

Scholarship: Outstanding Scholars Program

Coursework: Probabilistic Graphical Models, Big Ideas of AI, Optimization for 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

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
- Understanding the effects of imperfect detection in species-distribution models
- Interdisciplinary research on species distribution model, demonstrating boosted regression tree's (BRT) performance when habitat sampling is centered on bird locations rather than surveyor locations.

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

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

PUBLICATIONS

- [1] **Fiona Victoria Stanley Jothiraj** and Afra Mashhadi. 2024. Phoenix: A Federated Generative Diffusion Model. In Companion Proceedings of the ACM on Web Conference 2024 (WWW '24). Association for

Computing Machinery, New York, NY, USA, 1568–1577. [<https://dl.acm.org/doi/10.1145/3589335.3651935>]

- [2] **Fiona Stanley Stanley Jothiraj**, Lingzi Hong, Afra Mashhadi (2024) Nostalgia on Twitter: Detection and Analysis of a Large-Scale Dataset. Proceedings of the Association for Information Science and Technology [To appear in ASIS&T 2024]
- [3] Fang-Yu Shen, **Fiona Stanley Stanley Jothiraj**, Tyler A. Hallman, Rebecca A. Hutchinson, W. Douglas Robinson. (2024) American Ornithological Society Annual Meeting, Oct 1-5, 2024, Colorado.
- [4] **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>]
- [5] **Jothiraj, F. V. S.** (2022). Time Series Prediction for Food sustainability. arXiv preprint arXiv:2209.06889. [<https://arxiv.org/abs/2209.06889>]
- [6] 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>]

AWARDS

2024 **Professional Development Award** - Oregon State University

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

INDUSTRY EXPERIENCE

Data Scientist

June 2023 - Oct 2023

Harvard in Tech

- Volunteered as a thought leader in the ‘Call for Action (CFA)’ team
- Provided 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 which is used for Synopsys Design Ware EV Processors
- Development using C++, Python, Intel Intrinsic 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 streaming service providers, using deep learning
- 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

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, R, 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
- **R Libraries:** Dismo, Glmnet, Unmarked, DynamicSDM, Maxnet, Raster, Terra, Tidyverse
- **Other Tools:** AWS (IoT Core, Sagemaker, Lambda, Kinesis, Glue, S3, SNS), Azure (IoT Hub, Stream Analytics, Function App), LaTeX, Git, Google Earth Engine