Fiona Victoria Stanley Jothiraj

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EDUCATION

Oregon State University, Corvallis 2023 — 2027
Doctor of Philosophy (PhD) in Artificial Intelligence GPA: 3.79/4.00
Area of Research: AI for Social Good, Applied AI/ML in Ecology
Honors: Outstanding Scholars Program

University of Washington Bothell 2021 — 2023
Master of Science in Computer Science and Software Engineering GPA: 3.90/4.00
Thesis: Phoenix - A Federated Generative Diffusion Model

PSG College of Technology, India 2015 — 2019
Bachelor of Engineering in Robotics and Automation Engineering GPA: 9.58/10.00

RESEARCH EXPERIENCE

Graduate Researcher Oct 2023 - present
Oregon State University
Advisor: Dr. Rebecca Hutchinson

- Modeled plant–pollinator interactions across a decade of environmental change using Bayesian-based hierarchical dynamic occupancy models and probabilistic graphical models in R
- Studied imperfect detection effects in species distribution and occupancy models by simulating detection noise and evaluating model performance across statistical frameworks (linear and hierarchical models)
- Conducted interdisciplinary research on species distribution modeling, demonstrating a 23% performance gain with boosted regression trees (BRTs) when habitat sampling is centered on bird locations rather than surveyor locations

Research Intern June 2024/25 - Sep 2024/25
Micron Technology
Advisor: Seth Eichmeyer, Director of Product Yield Analytics & Analysis

- Awarded the **Micron Innovation Award**, marking the first step toward a patent filing
- Designed, developed, and deployed ML models to optimize product yield through wafer defect analysis
- Built a non-parametric clustering system for wafer defect patterns with rotation- and flip-invariant features, reducing manual analysis time by 90% *(Work accepted at AAAI'26 Workshop & AAAI'26 Bridge Program)*
- Developed a novel anomaly scoring metric leveraging conditional VAEs, diffusion models, and vision transformers (ViTs) to detect multi-defects and anomalous patterns in semiconductor manufacturing
- Presented project outcomes and business impact to the Vice President of Engineering

Graduate Researcher June 2022 - Jan 2023
UW Bothell: Computation Behavioral Modeling (CBM) Research Lab
Advisor: Dr. Afra Mashhadi

- Defined research around studying nostalgic and reminiscent behavior on social media using natural language processing (NLP) and large language models (LLMs).
- Built traditional NLP classifiers and transformer models (RoBERTa, DistilBERT, ensemble models) to detect nostalgic conversations on Twitter, achieving 0.96 Micro F1-Score.
- Extended the study by leveraging LLaMA2-70B to refine and validate nostalgic tweet detection at scale, resulting in a curated dataset of ≈250K nostalgic English tweets.

PUBLICATIONS

[1] **Fiona Victoria Stanley Jothiraj**, Arunaggiri Pandian, Seth A. Eichmeyer. (2025) DECOR: Deep Embedding Clustering with Orientation Robustness. *AAAI 2026 Bridge Program on Knowledge-guided Machine Learning.* Also selected at the *AAAI 2026 Workshop on AI to Accelerate Science and Engineering (AI2ASE)*

[2] Shen Fang-Yu, **Stanley Jothiraj, Fiona Victoria**, Hutchinson Rebecca A, Hallman Tyler, Curtis Jenna R, and Robinson, W. Douglas. (2025). Species Distribution Model Performance Improves When Habitat

Characterizations are Centered on Detected Individuals Instead of Observers. *Ecological Indicators*

[3] **Stanley Jothiraj, F. V.**, & Mashhadi, A. (2024). Phoenix: A Federated Generative Diffusion Model. *Companion Proceedings of the ACM on Web Conference 2024 (WWW 2024)*

[4] **Stanley Jothiraj, F. V.**, Hong L., & Mashhadi, A. (2024) Nostalgia on Twitter: Detection and Analysis of a Large-Scale Dataset. *Proceedings of the Association for Information Science and Technology (ASIS&T)*

[5] Fang-Yu Shen, **Fiona Stanley Stanley Jothiraj**, Tyler A. Hallman, Rebecca A. Hutchinson, W. Douglas Robinson. (2024). Does species distribution model performance improve when habitat sampling is centered on bird locations instead of surveyor locations? *American Ornithological Society Annual Meeting*

[6] **Stanley Jothiraj, F. V.**, & Mashhadi, A. (2022). Personalized Emotion Detection using IoT and Machine Learning. *arXiv preprint*

[7] **Stanley Jothiraj, F. V.** (2022). Time Series Prediction for Food Sustainability. *arXiv preprint*

[8] Shamsaddini, Vahid, **Stanley Jothiraj, Fiona Victoria**, Chen, Mandy, & Mashhadi, Afra. (2022). Empirical Dynamic Modelling of the Multi-Source Park Visitation Data. *Data for Policy Conference*

INVITED TALKS

• ICCV CVAM Workshop	Creativity and Privacy in Advertising & Marketing	2025
• Decentralized AI Hackathon @ Stanford	Federated Learning for Generative Models	2025
• University of Washington	Federated Learning for Generative Diffusion Models	2025
• Flower Labs	Phoenix: The First Federated Generative Diffusion Model	2023

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 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 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

AWARDS

- **Professional Development Award** - Oregon State University 2024/2025
- **Micron Innovation Award** - Micron Technology 2024
- **Outstanding Scholars Program** - Oregon State University 2023
- **Virtual Scholarship** - Grace Hopper Women in Computing Celebration 2022
- **Academic Excellence** (Ranked 1/80) - Robotics and Automation Engineering Association 2019
- **Monarch of the Month** - Individual contribution to TensorFlow quantization at Multicoreware 2019

MEDIA

• Oregon State University	AI student leverages OSU's interdisciplinary strengths	2025
• Semiconductor Engineering	Grouping Complex Wafer Defect Patterns Into Meaningful Clusters	2025
• The Hindu	App for Plus Two Students	2015
• Business Standard	School Girl Develops App for TN Engg Aspirants	2015
• India.com	School Girl Develops Application for Tamil Nadu Engg Aspirants	2015

SERVICE

Reviewer - Conference & Workshop

- AAAI Workshop on Artificial Intelligence with Biased or Scarce Data (AIBSD) 2026
- AACL Workshop on DravidianLangTech 2025
- AAAI International Conference on Web and Social Media (ICWSM) 2025
- NeurIPS Workshop on Women in Machine Learning (WiML) 2024–2025

Reviewer - Journal

- ACM Transactions on Knowledge Discovery from Data (TKDD) 2025
- IEEE Transactions on Mobile Computing (TMC) 2024
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2024

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, Diffusers, Transformers, 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, Nimble
- **Other Tools:** AWS (IoT Core, Sagemaker, Lambda, Kinesis, Glue, S3, SNS), Azure (IoT Hub, Stream Analytics, Function App), LaTeX, Git, Google Earth Engine, Docker