

# Fiona Victoria Stanley Jothiraj

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## EDUCATION

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**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

Honors: Outstanding Scholars Program

**University of Washington Bothell** Sep 2021 — June 2023

*Master of Science in Computer Science and Software Engineering*

GPA: 3.90/4.00

**PSG College of Technology, India** July 2015 — May 2019

*Bachelor of Engineering in Robotics and Automation Engineering*

GPA: 9.58/10.00

## RESEARCH EXPERIENCE

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**Graduate Research Assistant** Oct 2023 - present

Oregon State University

*Advisor: Dr. Rebecca Hutchinson*

- Researched the effects of imperfect detection in species-distribution models (SDMs) and occupancy 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

**Research Intern** June 2024 - Sep 2024

Micron Technology

*Team: Product Yield Analysis*

- Led the design, development, and deployment of ML models to enhance wafer defect identification.
- Researched novel methods using deep learning and generative AI to detect multi-defects and anomalous patterns that occur during the semiconductor manufacturing and probe process
- Utilized SoTA conditional variational autoencoders (VAEs), diffusion models and vision transformers (ViT) for faster processing and high detection accuracy
- Presented the project impact and outcomes to the VP of Engineering.
- Filed two Invention Disclosure Forms, which acts as the first step toward patent filing

**Graduate Research Assistant** June 2023 - Sep 2023

Oregon State University

- 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 and implemented transformer models such as 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

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**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

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- [1] **Stanley Jothiraj, F. V.**, & Mashhadi, A. (2024, May). Phoenix: A Federated Generative Diffusion Model. *Companion Proceedings of the ACM on Web Conference 2024 (WWW 2024)*
- [2] **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 2024)*
- [3] 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*
- [4] **Stanley Jothiraj, F. V.**, & Mashhadi, A. (2022). Personalized Emotion Detection using IoT and Machine Learning. *arXiv preprint*
- [5] **Stanley Jothiraj, F. V.** (2022). Time Series Prediction for Food sustainability. *arXiv preprint*
- [6] 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*

## SERVICE

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### Reviewer

- International Conference on Learning Representations (ICLR) 2025
- International Conference on Web and Social Media (ICWSM) 2025
- Women in Machine Learning Workshop (WiML @ NeurIPS) 2024
- IEEE Transactions on Mobile Computing 2024
- IEEE Transactions on Pattern Analysis and Machine Intelligence 2024

## AWARDS

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

## INDUSTRY EXPERIENCE

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### 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

## CERTIFICATIONS

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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

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- **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, Docker