

Joseph Daws, Jr.

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Knoxville, Tennessee

EXPERIENCE

- **Lirio**

Senior Machine Learning Engineer - Knoxville, TN

Research and development of novel approaches to machine learning for behavioral change AI. Designed and developed in-house experimentation environment. Implemented core components of the training pipeline for a deep learning model.

April 2020 onwards, Senior since March 2021

- **University of Tennessee**

Graduate Research Assistant

Designed, analyzed, and implemented novel algorithms using approximation theory to solve a variety of problems in several application domains including image processing, signal denoising, and classification.

Jan 2017 to March 2020

EDUCATION

- **Ph.D. Mathematics**

University of Tennessee, Knoxville

2020

- **M.S. Mathematics**

University of Tennessee, Knoxville

2016

AWARDS & RECOGNITION

- **Travel Award**

IMI: 9th Annual Graduate student mini-conference

2018

- **Grand Prize: Ugly Data Days**

Oak Ridge National Lab

<https://datadays.pages.ornl.gov/SNS/>

2018

- **Research Intern**

Advanced Short-term Research Opportunity (ASTRO)

Oak Ridge National Lab

2016

SKILLS

- **Technologies**

Python, Tensorflow, PyTorch, C, MPI, MATLAB, \LaTeX

- **Patterns & Practices**

Object Oriented Programming, Functional Programming, CI/CD

- **Development philosophies**

Lean, Agile, Scrum, Kanban

PROJECTS

- **Experimental-framework [Lirio]**

A configurable experimentation platform to predict performance of neural network based reinforcement learning models in production.

Python

- **ASGF**

A black-box optimization method for extremely high dimensional non-convex objective functions.

<https://github.com/joedaws/ASGF>

Python

- **Compressed Sensing**

Reconstruction of wavelet representations of images and signals from only a small number of samples.

<https://arxiv.org/pdf/1909.07270.pdf>

MATLAB

OTHER HIGHLIGHTS

- Gave talk on *Neural Network Architectures inspired by Polynomial Approximation* at SIAM CSE 2019.

- Collaborated with Engineers at the Spallation Neutron Source (SNS) to propose improvements to SNS Target design using spectral clustering.

- Participated in Diversity and Inclusion team at Lirio and helped brainstorm and implement inclusive policies.