JENNIFER KADOWAKI

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jkadowaki

Skills

Machine Learning Frameworks

- PyTorch
- Keras
- scikit-learn

Prog. Languages & Software

Everyday Workflow:

- Compute Clusters
- Docker & Singularity
- GNU/Linux
- LaTeX
- Python (e.g., bokeh, Jupyter Lab, matplotlib, NumPy, OpenCV, pandas, SciPy, seaborn)
- Shell Scripting

Occasional Usage:

- BERT
- git
- Mathematica
- MATLAB
- SQL

Technical Knowledge

- Bayesian Statistics
- Big Data
- Containers
- Data Visualization
- Deep Learning
- Image Processing & Analysis
- Machine Learning
- Neural Networks
- Scientific & Technical Writing
- Spectral Processing & Analysis
- Statistical Analysis

Natural Languages

- ***English***: Native Language
- ***Japanese***: Fluent in listening & conversing, proficient in reading & writing

Education

Aug 2015 - May 2021 **Ph.D., Astronomy & Astrophysics** — University of Arizona
Aug 2015 - Dec 2018 **M.S., Astronomy & Astrophysics** — University of Arizona
Sep 2010 - Jun 2014 **B.S., Physics** — UCLA

Relevant Graduate Coursework (GPA: 4.0/4.0)
Big Data & Machine Learning (ASTRO 502), Computer Vision (CS 577), Data Mining (INFO 523), Machine Learning (INFO 521), Neural Networks (INFO 557), Statistical Methods (ASTRO 513), Statistical Natural Language Processing (CS 539)

Employment

Data Science Ambassador (DSA) — University of Arizona
Data Science Institute — Aug 2019 - May 2020

- Competitively selected as 1 of 2 DSAs representing the College of Science.
- Hosted & presented monthly seminars & tutorials attended by 30-40 students, postdocs, & faculty to promote data science & machine learning literacy.
- Provided consulting services and resources to help university researchers apply data science techniques in their work.

NOAO Specialist — National Optical Astronomy Observatory
The Data Lab Team — May 2018 - Aug 2018

- Developed machine learning-based science cases on open source data to showcase Data Lab products to users.

Graduate Teaching Assistant — University of Arizona
The Physical Universe (ASTR 170B), Cosmology (ASTR 201) — Jan 2017 - May 2018

- Presented lectures, led in-class discussions, organized physics-based experiments, graded assignments, and held office hours & review sessions for exams.

Research

Astrophysics Graduate Research Assistant — University of Arizona
On the Properties of Massive Ultra-diffuse Galaxies (UDGs) — Aug 2015 - present

- Developing a deep learning model to inexpensively estimate distances to ∼1500 candidate UDGs, which would save >630 nights of observing on the world's largest telescopes with operations cost of $35,000/night.
- Aggregated the largest catalog of confirmed UDGs. Conducted the 2nd largest spectroscopic survey to expand the catalog by 25%, doubling the sample of cosmologically-interesting UDGs. Performed multivariate statistical analysis to study galaxy properties & evolution.
- ***Publications***: [1st Author, *ApJ* 2017] [*ApJS* 2019] [*ApJ* Accepted] [1st, *ApJ* Submitted]
- ***Award***: Honorable Mention, NSF Graduate Research Fellowship (2017)

Information Science Graduate Research Assistant — University of Arizona
Automated Model Assembly from Text, Equations, and Software — Jan 2019 - May 2020

- Developed state-of-the-art, deep learning model for equation reading and detection in research papers on arXiv.
- ***Publications/Report***: [LREC 2020] [Final Report on Model Pipeline Results]

Graduate Course Projects

Statistical Natural Language Processing (CS 539) [Repository]

- Built the best performing model for an in-class competition on offensive language identification based on SemEval-2019 Task 6a by emsembling fine-tuned Bidirectional Encoder Representations from Transformers (BERT) models. Performed within the top 10 state-of-the-art models in 104 task participants.

Neural Networks (INFO 557) [Repository]

- Built an ensemble of bidirectional GRUs, ranked 3/30 for an in-class competition on sentiment analysis of tweets based on SemEval-2018 Task 1.

Statistical Methods (ASTRO 513) [Report]

- Used Bayesian analysis to reproduce the 2011 Physics Nobel Prize results. Expanded the analysis to test for bias against host galaxy masses.