Saya R. Dennis

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EDUCATION

- Ph.D. in Biomedical Informatics, Northwestern University *Sep 2019–June 2024 (Expected)*
- B.S. in Environmental Sciences and Ecology, University of Tokyo *Apr 2012–Mar 2017*

RELEVANT SKILLS

- Programming & Software Development: Python, R, bash, SQL, Git, Docker, Singularity, GCP, AWS
- ML/DL implementation: data pre-processing, model design, selection, training, optimization, evaluation, and interpretation (Tools: Scikit-learn, PyTorch, Tensorflow)
- Bioinformatics & Biostatistics: WGS, WXS, single-cell RNA-seq, and spatial transcriptomics data
- Clinical informatics: Electronic Health Records querying, processing, mining, deduplication
- High-performance computing: software management tools, job schedulers, Linux/Unix OS systems

PROFESSIONAL EXPERIENCE

Doctorate Researcher, Feinberg School of Medicine, Northwestern University *Sep 2019–present*

- Implemented ML/DL models and parallelized data processing pipelines on large-scale (30+TB) WGS data to develop a disease onset prediction model with 96 % accuracy
- Processed and analyzed 30+ publicly available spatial transcriptomics datasets
- Developed a text-mining pipeline to retrieve information from 3000+ oncology and pathology notes
- Explored novel dimensionality reduction approaches informed by biological domain knowledge
- Collaborated closely with 3+ physicians to identify and pursue opportunities for ML applications
- Documented workflows on public repositories for transparency and reproducibility

HPC Research Computing Consultant, Northwestern University IT *Jan 2022–present*

- Consulted researchers from 10+ departments to address their hardware and software needs and facilitate computational workflows on a high-performance compute cluster (HPC)
- Taught 4 tutorials and workshops to help users get started with their workflows on the HPC
- Developed scripts to map dependencies between software modules to assist with deprecation

Machine Learning Summer Associate, Tempus Labs, Inc. *June 2022–Sep 2022*

- Developed ML models to predict the onset of 4 different types of cancer using structured EHRs and demonstrated the value of the dataset through statistical evaluations
- Refined the data processing pipeline by experimentation of 30+ combinations of parameters
- Eliminated data leakage by initiating an improved method for diagnosis identification
- Proposed a novel data sampling approach to alleviate issues of class imbalance and data availability
- Presented research findings in team meetings

Teaching Assistant, Statistics and Data Analysis for Life Science, Northwestern University *Sep–Dec 2021*

- Guided 40+ students with varying levels of experience through statistical and coding problems
- Reported the students' needs to the course instructor to improve course material

Research Technologist, Northwestern University *Apr 2017–Jun 2019*

- Conducted biochemical and high-throughput sequencing experiments to study embryo development
- Troubleshooted assays by identifying underlying issues and proposing alternative approaches
- Trained 2 new team members on management of reagents and supplies used by 10+ colleagues

LEADERSHIP & OUTREACH EXPERIENCE

President, Japanese Graduate Student Society across the United States *Apr 2020–present*

- Educated aspiring Japanese students looking to pursue a graduate degree abroad by coordinating semi-annual information sessions each with ~40 presenters and 200+ participants
- Communicated closely with sponsors to ensure and negotiate continued financial support for 3 years
- Adapted a previously in-person information session to a fully virtual format during the pandemic

Founder & President, Japanese Graduate Student Association at Northwestern *Sep 2021–present*

- Founded the first official Japanese community-centered organization funded by The Graduate School
- Organized quarterly gatherings with 30+ participants, which served as a safe space and support system of mutual help for Japanese-identifying individuals new to the United States