Janelle Domantay

https://www.linkedin.com/in/janelle-domantay/| https://jae-domain.github.io/portfolio/ | janelle_domantay@mines.edu

EDUCATION

Colorado School of Mines — Golden, CO
Ph.D. in Operations Research with Engineering — Exp. Dec 2029

University of Illinois Urbana-Champaign — Urbana, IL
M.S. in Computer Science, GPA 3.85/4.0 — Dec 2024
Thesis: Adaptive Computing For Optimizing High-Fidelity Simulation Runtimes.

University of Nevada, Las Vegas | *Summa Cum Laude* — Las Vegas, NV
B.S. in Computer Science, Math Minor (Honors), GPA 3.74/4.0 — Dec 2021
Thesis: How Facial Features Convey Attention In Stationary Environments

RESEARCH EXPERIENCE

National Institute of Informatics — Tokyo, Japan
Research Intern — May 2024 - Aug 2024

- Collaborated with an international team of researchers on a project to predict optimal solar panel PV site placements.
- Generated benefit and risk maps for PV placement using publicly available GIS data, providing valuable insights for strategic decision-making in solar energy deployment.
- Utilized Hex2VEC to estimate PV placements in various regions of Japan, leveraging deep learning techniques to enhance prediction accuracy.

National Renewable Energy Lab — Golden, CO
External Collaborator — Feb 2024 - Dec 2024

- Specialized in Python embedding, enabling a C++ script to read, execute, and compile Python scripts, thereby improving integration and performance of the modeling system.
- Conducted experiments to test "adaptive variance" thresholds for multi-fidelity sampling, to test resource allocation strategies for computational budget consumption rates
- Assisted in refining algorithms to control computational resource allocation, ensuring efficient and effective model execution.

National Renewable Energy Lab — Golden, CO
SULI Intern — Jun 2023 - Aug 2023

- Developed sampling strategies for multi-fidelity modeling to balance accuracy and computational efficiency.
- Evaluated the effectiveness of various optimization algorithms in improving system performance and achieving optimal solutions.
- Contributed to and collaborated on an existing code base using Python and SMT (Surrogate Modeling Toolbox), enhancing functionality and ensuring code quality.

Department of Energy — Las Vegas, NV
MSIPP-NNSA Intern — Sep 2021 - Dec 2021

- Conducted a comprehensive survey on IIoT and SCADA attack incidents and vulnerabilities.
- Explored the relevance of machine learning solutions in cybersecurity.
- Developed procedures and identified datasets for implementing deep learning in attack detection for SCADA and IIoT systems.

North Carolina State University — Raleigh, NC
Research Experience for Undergraduates (REU) Intern — May 2021 - Jul 2021

- Investigated the impact of color and saturation on human attention and memory in comic panels.
- Utilized gaze tracking software to automate data analysis and visualization processes.
- Designed and developed web pages using HTML, JavaScript, and CSS for remote experimental data collection.
- Drafted research proposal for grant funding

University of Nevada, Las Vegas Las Vegas, NV
Principal Investigator Jan 2021 - Dec 2021

- Employed Keras for data analysis and utilized open-source facial analysis toolkits for feature extraction.
- Developed scripts to extract frames from video data and preprocess relevant numerical features.
- Achieved a 96% classification accuracy for drowsiness detection models with a processing time of approximately 2 ms.

Center for Accelerating Operational Efficiency Las Vegas, NV
Student Researcher Jun 2019

- Collected data at airport checkpoints via time studies and passenger interviews
- Identified process efficiency improvements at Harry Reid International Airport using time studies and Arena models.
- Presented findings, Arena simulations, and recommendations for novel security protocols to McCarran associates, optimizing wait-time.

PUBLICATIONS

Domantay, J & Morris, B. (2022). How Facial Features Convey Attention In Stationary Environments. *Spectra Undergraduate Research Journal,* 2(2), 66-88.

Carbonero, A., Domantay, J., & Guthrie, K. (2022). The Optimization of Signed Trees. *The Australasian Journal of Combinatorics,* 84(1), 111-123.

RELEVANT SKILLS

Programming Languages: C, C++, C#, Python, Java, JavaScript, SQL, R, HTML, LaTeX, MATLAB
Data Science & Analytics: Data Visualization, Data Analysis, Machine Learning, Statistical Modeling
Energy Systems: Energy System Design, Optimization, and Analysis
Frameworks & Tools: Docker, Git, TensorFlow, GDAL, QGIS

WORK EXPERIENCE

JCM Global Las Vegas, NV
Software Engineer Jan 2022 - Aug 2022

- Leveraged .NET MVC application to visualize and manipulate business metrics for electronic gaming machine management
- Designed SQL schema and queries to facilitate data access for client applications and customization
- Debugged and designed features for Android application UI/API
- Administered stress tests to server environments to simulate casino data to identify and address issues with application functionality and memory consumption

AWARDS AND HONORS

Research and Creative Honors Thesis (2nd Place), 2021, UNLV
Undergraduate Research Stimulus Program, 2021, UNLV ($1,500)
Best Poster Award in Health & Natural Science & Engineering, 2021, UNLV
Devil's Invent: Hardening of Soft Targets Design Competition (2nd Place), 2021

RESEARCH PRESENTATIONS

National Renewable Energy Lab Intern Symposium. *Adaptive Computing: Optimizing energy without breaking the bank*, Poster presentation. Golden, CO. August 2023.
Honors College Thesis Defense. *How facial features convey attention in stationary environments,* PowerPoint presentation. Las Vegas, Nevada. November, 2021.
Fall Undergraduate Research Symposium of UNLV. *How facial features convey attention in stationary environments,* Podium presentation. Las Vegas, Nevada. November, 2021

Summer 2021 Undergraduate Research & Creativity Symposium. *Impact of Color Saturation on Gaze in Comic Panels*, Poster presentation. Raleigh, North Carolina. July, 2021. Copresented with: Koelsch J.
Spring Undergraduate Research Symposium of UNLV. *Modeling COVID-19 Infection Rates Using SIR and ARIMA Models*, Poster presentation. May, 2021. Las Vegas, Nevada. Copresented with: Taksheyev V. & Pivavaruk I. Best Poster Award
Honors College Thesis Proposal Defense. *How Facial Features and Head Gesture Convey Employee Attention in Stationary Work Environments,* PowerPoint presentation. Las Vegas, Nevada. April, 2021.
Devil's Invent: Hardening of Soft Targets. *Securivision,* PowerPoint presentation. Remote. March, 2021. Copresented with: Obata D. & Mann. Y.
Math For All Conference. *The Optimization of a Signed Tree,* Poster presentation. New Orleans, Louisiana. March, 2021. Copresented with: Guthrie K.
Fall Undergraduate Research Symposium of UNLV. *The Optimization of a Signed Tree,* Poster presentation. Las Vegas, Nevada. November, 2021. Copresented with: Guthrie K.