Joshua Palicka

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Education

- M.S. in Computer Science | Seattle University | 2023 (GPA: 3.8)
- B.S. in Computer Science | Seattle University | 2022 (GPA: 3.6)
- A.S. in Computer Science | Highline College | 2019 (GPA: 3.3)

Skills

- Python, SQL, C#, Java, C++, HTML5, Flutter
- Data Science, AI, ML, Big Data Analytics, Ethics in Computing, Visual Analytics, Software Design, Data Structures, Databases, Cloud Services, Object-Oriented Development, Algorithms, Computer Organization, Memory Management, Multithreading, Unit Testing, Software as a Service, Computer Graphics, Mobile Software Development
- Tableau, Hadoop, PySpark, Snowflake, MySQL, Firebase, MongoDB, Jupyter, Git
- Critical Thinking, Problem Solving, Team Oriented, Efficient, Desire to learn and adapt

Experiences

Published Research on Advanced Network Anomaly Detection Techniques, Winter 2023

- Graduate Capstone project – featured in IEEE CCWC 2024. Link to paper
- Created and tested a two-phase anomaly detection pipeline for network traffic using machine learning in Python
- Enhanced an existing approach by applying new data augmentations and testing various combinations of models
- Achieved 20% increase in f1-score compared to the first phase model and 53% reduction in prediction time compared to the second phase model, confirming the effectiveness of the two-phase pipeline

Teaching Assistant, Computer Science, 2022-2023

- Served as a TA for 5 quarters in 4 courses: Fundamentals of Databases, Introduction to Data Science, Machine Learning, and Artificial Intelligence
- Guided students during office hours, offered valuable feedback on student projects, and graded assignments
- Supported students in grasping complex concepts, overcoming challenges, and improving academic performance
- Developed communication and teaching skills while adapting to diverse learning styles

Sugarscape & Sugarscape-Utilicalc Research Projects, 2022-2023

- Improved an incomplete Python implementation of Sugarscape, an agent-based simulation model for social interactions and economic activities
- Reproduced numerous results from the original book, demonstrating the effectiveness of the Sugarscape implementation
- Implemented Utilitarian ethics using Jeremy Bentham's Felicific Calculus formula within the Sugarscape model, enabling exploration of the impact of ethical decision-making on agent behaviors and interactions
- Currently writing a research paper on this work

Senior Capstone Project – Kenworth - Predict BoM Health & Sales Code Driven REIs, 2021 - 2022

- Designed and built a machine learning model with Kenworth Truck Company to predict the added workload, measured in number of Requests for Engineering Information (REIs), for custom-fitted truck parts based on sales codes (part numbers)
- Achieved a 6% error rate in REI predictions, demonstrating the model's potential for practical use in reducing engineering delays and improving efficiency
- Utilized tools such as Snowflake, Python, Pandas, Scikit-learn, Tableau, and AWS Workspaces for data gathering, data cleaning, analysis, visualization, and machine learning model development and evaluation
- Collaborated with a team of 3 other students using Agile methodology with Kanban to manage project progress and maintain close communication with sponsor liaisons through weekly virtual meetings