

James (Soo Ihk) Ro

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EDUCATION

UNIVERSITY OF TEXAS, AUSTIN

Sept 2022 - Dec 2024

Master of Science in Data Science

Coursework: Data Structures & Algorithms, Regression & Probability Modeling, Machine Learning, Deep Learning, Advanced Predictive Models, Data Exploration & Visualization, Natural Language Processing, Reinforcement Learning, Design Principles & Causal Inference

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Sept 2020 - Sept 2021

Certificate in Data Science

Coursework: Introduction to Data Science, Exploratory Data Analysis and Visualization, Big Data Management, Machine Learning (R)

Bachelor of Science in Chemistry (BS)

Sept 2015 - Jun 2017

EL CAMINO COLLEGE, TORRANCE

Sept 2018 - Jun 2021

Certificate of Completion in Computer Science

FEATURED PROJECTS (more details at sooihk.github.io)

Deep Learning: SuperTuxKart Ice Hockey State Based Agent

- Developed a state-based agent for 2v2 ice hockey in SuperTuxKart using a combination of imitation learning and reinforcement learning techniques, optimizing the agent's performance in goal-scoring tasks.
- Engineered features from game environment data (e.g., puck position, distance to goal) to enable efficient decision-making, enhancing the agent's strategic movements in dynamic, competitive environments.
- Implemented and fine-tuned neural network models to improve the agent's ability to navigate and compete against AI opponents, resulting in consistent performance improvements.

Deep Learning: SuperTuxKart Convolutional Neural Network vision-based driving

- Designed and trained a convolutional neural network (CNN) using PyTorch to predict optimal driving points from image data in SuperTuxKart, enabling vision-based autonomous driving.
- Implemented a custom controller to steer and accelerate the kart based on CNN predictions, achieving real-time performance in navigating complex tracks.

Machine Learning: Regression Modeling for Red Wine Quality Prediction

- Developed and evaluated multiple regression models (Multiple Linear Regression, LASSO, Random Forest) to predict red wine quality based on physicochemical properties, achieving 67% accuracy with the RF model.
- Performed feature engineering, data cleaning, and exploratory data analysis on a dataset of 1,599 wine samples, optimizing model performance through outlier removal and cross-validation.

Exploratory Data Analysis : Visualizing when and where most robberies occur in the city of Chicago

- Performed exploratory data analysis on over 7 million crime records from Chicago Police Department to identify patterns in robbery occurrences, focusing on time, location, and community impact.
- Created visualizations using RStudio and Tableau, including heatmaps and time-series plots, to highlight robbery hotspots and peak times, providing actionable insights for public safety.

SELECTED WORK EXPERIENCE

Sr. Service Staff - Atoyubu

Mar 2024 - Present

- Interviewed, supervised and trained new hires on the process of the establishment
- Prepared food products and engaged in customer service to create a welcoming environment

Research Assistant - UCLA

Jun 2016 - Sept 2018

- Synthesized redox-switchable Yttrium/Indium alkoxide complexes to selectively control the ring-opening polymerization of L-lactide and trimethylene carbonate, enhancing polymerization efficiency.
- Investigated the impact of ligand substituents on catalyst activity, focusing on derivatives with para tert-butyl groups to modulate reactivity and improve polymerization control.

SKILLS

Programming: Python (NumPy, Scikit-learn, PyTorch, Pandas), R, SQL, MATLAB, C++, Java

Visualization and Statistical Software: Tableau, Python (Matplotlib, Seaborn)

Machine Learning: Random Forest, Deep Learning, Unsupervised Learning (Clustering, PCA), Regressions, SVM, XGBoost