Jaewon Cho

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EDUCATION

Purdue University, West Lafayette, IN — Expected May 2025
BS in Computer Engineering / Dean's List and Semester Honors — Overall GPA: 3.44
Coursework: Python in data science, Probabilistic Methods, Data structure and Algorithm, Advanced C language, Microprocessor Systems and interfacing, Linear Algebra, Discrete Math, Ordinary Differential Equations, System programming

HONORS AND AWARDS

2024 SAS Hackathon Global Student Winner — 2024
2024 SAS Curiosity Cup Finalist (Runner-up in Data Analysis) — 2024
Dean's List for the College of Engineering, Purdue University — Fall 2021, Spring 2022
Semester Honors for the College of Engineering, Purdue University — Fall 2021,24 Spring 2023

RESEARCH EXPERIENCE

ORSOL Team — West Lafayette, IN
*Undergraduate Research assistant / **Synthetic Data Team Lead*** — January 2024 - Current

- Led the Synthetic Data Team, coordinating efforts in synthetic data generation for EV demand forecasting, with results accepted for presentation at the 2024 Fall Undergraduate Research Conference.
- Predicted electric vehicle charging demand across specific regions by utilizing AI models to analyze EV charging patterns and estimate charging requirements.
- Organized the data necessary for work through Python and make forecasting model with SAS studio.
- Used models such as TimeGAN to recreate the given time series dataset, generating high-accuracy synthetic data suitable for actual predictions.

STYLE (SusTainable computing sYstems and LEarning) Lab — West Lafayette, IN
Undergraduate Research assistant — December 2024 - Current

- Collaborating on a research project to synthesize facility-level water consumption datasets, focusing on integrating withdrawal and discharge data using advanced LLM-based methodologies.
- Developing scalable Python workflows for data preprocessing and integration, ensuring the efficient handling of large and complex datasets.
- Designing algorithms to analyze spatial and temporal water consumption patterns, leveraging machine learning techniques for predictive modeling and actionable insights.
- Driving sustainable computing research by addressing systemic challenges in water resource analysis and contributing to scalable solutions for computing's environmental impact.

2024 Spring Undergraduate Research Conference - ORSOL Team — West Lafayette, IN
Undergraduate Author / Presenter — April 2024

- Using traffic flow analysis and machine learning, led a study predicting EV charging station demand, achieving predictive accuracy with a weighted mean absolute percentage error (WMAPE) of 10.14%.
- To infer EV demand without relying on inaccessible station-specific data, developed a new predictive model using neural networks with conventional statistical and time series data.
- Presented Study Results at Undergraduate Research Conference 2024 Spring, Proposes Real-Time Pricing Strategies to Optimize Grid Efficiency and Reduce Congestion at EV Charging Stations.

INDUSTRIAL EXPERIENCE

Samsung Electronics — Suwon, South Korea
Software Engineer Intern — June 2024 - August 2024

- Utilized Node.js to develop and refine a project, building the server with Express.js and managing the database with SQLite.
- Developed a crawler to identify PWA support and store relevant data in a database, validating the functionality and PWA compliance of specific URLs.
- Leveraged packages such as Axios, Puppeteer, etc. to assess URL validity and PWA support, categorizing the results and storing them in the database.

Maum AI — Pangyo, South Korea
Software Engineer — May 2023 - June 2023

- Developed and tested Python-based regular expressions to enhance an AI chatbot's accuracy in interpreting diverse user queries, providing tailored recommendations for travel information such as popular natural sites, food, and amusement parks.
- Responsible for creating functions to extract specific information and ensure robust code performance in an AI chatbot designed to offer customized travel guidance.
- AI chatbot was successfully commercialized and deployed by the Gyeongju City Cultural Promotion Agency as a tourism guide, enhancing visitor engagement and accessibility to local attractions.

PROJECTS

SAS Hackathon: Climate and Vulnerable Populations Analysis /SAS Viya, Python, Data Analysis
Secured 1st place as Global Student Winner, competing with 145 teams from 70 countries. September 2024 - October 2024

- Processed and standardized climate and vulnerability data from multiple sources, resulting in a clean, comprehensive dataset ready for accurate analysis.
- Created a custom risk scoring system based on weighted factors like poverty and climate projections, identifying the top 50 high-risk counties for targeted interventions.
- Enhanced scoring precision by applying MinMax scaling, ensuring balanced vulnerability assessments and consistent results across all data ranges.
- Built SAS Viya dashboards visualizing risk scores, empowering policymakers to prioritize high-risk counties for climate resilience measures.

SAS Curiosity Cup /SAS Viya, Python, Time Series Analysis, Neural Networks
Secured 2nd place in Data Analysis, competing against 107 teams from 19 countries. January 2024 - February 2024

- Participated in the SAS Curiosity Cup, a competition organized by the SAS Institute, focusing on data preparation and analysis.
- Tested six forecasting models, including ARIMAX, Exponential Smoothing, and neural network-based approaches, to identify the most accurate methods for demand prediction.
- Utilized SAS Viya for model evaluation and tuning, optimizing data pipelines to deliver robust, data-driven insights for EV infrastructure planning.
- Authored detailed papers documenting methodologies, findings, and predictions for the competition, adhering to the required standards and formats.

NYC Bicycle Traffic Analysis /Python, Linear Regression model, Data Visualization
November 2023 - December 2023

- Selected optimal bridges for sensor installation based on traffic data, enhancing prediction accuracy within budget constraints.
- Applied linear regression models to evaluate the impact of weather on bike traffic, with low R^2 values (0.177 for precipitation, 0.271 for temperature) indicating limited predictability.
- Analyzed daily bicyclist patterns to estimate the day of the week, identifying external factors that affect accuracy.

BOILER TIME /Flutter, Dart, Google Firebase
August 2022 - November 2022

- Designed and developed the calendar-featured UI scheduling system that allows students to effectively manage.
- Developed community features that allow students to be actively involved in the community through posting and commenting anonymously on various categories.
- Integrated and organized informative pages such as library operation times, dining court menus, bus schedules, and academic schedules with Firebase.

LEADERSHIP EXPERIENCE

Fire-detecting Infrared Rescue and Evacuation system (FIRE)
Team Leader March 2024 - May 2024

- Competed in the 2024 Engineering Industry Competition by the Ministry of Trade, Industry, and Energy and the Korea Engineering Association.
- Led a team to propose digital solutions for sustainability, emphasizing creative problem-solving and technical innovation.
- Designed a conceptual diagram for an advanced fire safety system with cloud-based information sharing, heat/fire-resistant PBI sensors, and self-charging thermoelectric elements to enhance safety and sustainability.

SKILLS

- **Languages:** Python, C, C++, Verilog, Javascript, Dart, MATLAB, Assembly, R, Java, HTML, CSS
- **Frameworks & Tools:** Pytorch, TensorFlow, Flutter, Android Studio, Firebase, Node.js, SAS Studio