Xiao Huang

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Education

BEng Hons, Electrical Engineering (Specialization in Industry 4.0), National University of Singapore (2021-2025), Awarded a tuition grant by the Singapore government for undergraduate studies

Grades: 4.50/5.00, Major GPA: 4.64/5.00 (First class)

Dean's List (top 5% of cohort) AY22/23 Semester 2
Modules include: Engineering Mathematics (Calculus, Linear algebra, Probability, PDE); Electromagnetics; Signals and Systems; System Dynamics; Data Engineering; Control Theories; Power systems; AI&ML theories; Algorithms and Data structures; Micro-electronics computing and Single Chip Machine programming; Digital Systems; Reinforcement Learning Theories for Engineering
Field courses: Engineers without boarders in Peru; Industrial Attachment of application feed stream recommender systems development at a start-up in Palo Alto (remote); Amazon DeepRacer

Research Experience

IW - Integration of RNN to predict the demand of electricity in EV charging grids (2023-2024)

- Performed data manipulation and cleaning on ACN-Data from Caltech, and applying a sophisticated deep-clustering algorithm to segment users by behavioral patterns
- Constructed user-session matrices to underpin the development of collaborative filtering, leveraging similarity matrices to enhance recommendation accuracy
- Incorporated collaborative filtering and reinforcement learning for comparison studies and recommender system development
- Implemented RNN algorithms, including LSTM and GRU, for forecasting energy consumption, and proposed an innovative CNN-Bi-LSTM architecture that improved prediction accuracy by 20% over conventional Bi-LSTM and LSTM models in terms of Mean Absolute Error (MAE)
- Engineered an intuitive graphic user interface (GUI) that allows end-users to interact seamlessly with the recommendation outputs
- Project supervisor IEEE Fellow Prof. Dr. Dipti Srinivasan, Department of Electrical and Computer Engineering, National University of Singapore

UROP - Clustering Algorithm Improvement for Smart Grids (2022-2023)

- Independently innovated and applied Bayesian clustering algorithms to dissect electric vehicle charging session data, successfully unveiling distinct user behaviors and charging patterns
- Performed improvements on gaussian mixture model (GMM) and improve the performance in clustering. Resulting in improved accuracy and computational efficiency in TOU dynamic pricing in smart grids and EV charging networks
- Demonstrated potential strengths in constructing user-based recommender system matrices, laying the groundwork for personalized recommendation engines
- Project supervisor Prof. Dr. Xiang Cheng, Department of Electrical and Computer Engineering, National University of Singapore

Research on Dynamic Pricing in Upgrade Service Products on Utility Equilibrium (2022-2023)

(publication under review)

- Orchestrated the collection and analysis of large-scale datasets to architect a dynamic pricing model tailored to the airline industry's upgrade services, effectively enhancing revenue and elevating customer satisfaction levels
- Crafted a dynamic pricing model grounded in utility equilibrium principles, employing system dynamics and simulations to anticipate and adapt to market changes proactively
- Project supervisor Prof. Guihong Zhao, Department of Business administration, Civil Aviation University of China, funded by China Southern Airline

Industry and internship experience

LeetCode, Strategic Product Manager Intern, Palo Alto, Shanghai, (Apr 2023- Aug 2023)

- Led and collaborated with Recommender and Ranking Algorithm development based on Hotness score; improved the PV-CTR by 5 times compared with the previous algorithms. The algorithm has been implemented by the website
- Collaborated with a cross-functional team of developers to resolve key issues in LeetCode products and improve user experiences
- Designed the UI/UX for LeetCode 'Study' session and make continuously improvements based on user human factors and feedback
- Designed and engineered the deep-learning framework and environment for recommender systems

Roland Berger, Part-time Assistant (PTA) , Shanghai (2023 H2)

- Conducted in-depth research on new energy vehicles and related OEM industries, resulting in the preparation of monthly reports for client companies (new power car companies).
- Analyzed and identified human factor market conditions and trends for operational consulting, collected and analyzed domestic and foreign market data using Excel, Python and other tools, resulting in data-driven insights and visual representations
- Assisted the project team in conducting expert interviews with executives, and organized and summarized interview minutes to extract key insights and perspectives.
- Utilized ThinkCell and ISlides to design visually compelling presentations, effectively communicating key findings and insights based on industrial data collected.

Ernst & Young Parthenon, Consulting Intern, Shanghai **(**Apr 2022- Aug 2022)

Joined a domestic OEM project team to assist the consultants in strategic analysis of the domestic and foreign OEM industry and the EV industry.

- Collaborated with project team members to conduct in-depth research on OEM and NEV companies, resulting in the creation of comprehensive monthly reports for the client company.
- Collected and analyzed domestic and foreign market data using Excel, Python and other analysis tools so as to facilitate the quantitative analysis of the project.
- Coordinated and facilitated expert interviews, effectively organizing and summarizing key insights and perspectives.
- Created visually compelling presentations, effectively communicating key findings and insights based on data collected and industry insights garnered from conferences.

Additional skills & interests

- **Interests:** HCI, recommender systems, reinforcement learning, operational research, database, data engineering, IoT, smart grids
- **Languages:** Mandarin Chinese – native; English – advanced; Cantonese – conversational; French - novice
- **IT:** Python**,** Machine Learning, C++, SQL, MATLAB (LinkedIn Certificated), QGIS, Stella Architect, CAD, Figma, LaTeX, HTML, Verilog
- **Startup:** Startup Co-founder, Project manager, Hong Kong SAR. Led a team of developers to deliver a project of WEB 3.0 education, specifically in the areas of decentralized finance (Defi) and non-fungible token (NFT) development, resulting in a successful launch and adoption of the projects. Developed a cloud databased for the start-up, and implement product management skills in website and application designing