Xuanlei Wang

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TECHNICAL SKILLS

Programming & Scripting: Python, Java, JavaScript, MATLAB, SQL
Machine Learning & Data Science: TensorFlow, PyTorch, Scikit-learn, XGBoost, LightGBM, Statistical Modeling, Data Visualization (Matplotlib, Seaborn), Pandas, NumPy
Big Data & Cloud Computing: AWS, GCP
Software Development & Tools: Git, Object-Oriented Programming, Agile Development, Microsoft Excel
Languages: English (Native), Mandarin (Native), German (Fluent)

RELATED PROJECTS

Machine Learning Performance Optimization

- Developed a novel machine learning algorithm by optimizing the F-1 score, improving classification performance
- Achieved a **3%+ performance improvement** over traditional methods across Boosting, Neural Networks, and Regression models using Python and machine learning libraries: **PyTorch, NumPy, Pandas, and TensorFlow**

Improve Netflix personalization algorithms

- Implemented **statistical machine learning techniques** on a large data sets (35 features with 100k+ users)
- Optimized model performance for **time and space efficiency** using advanced **statistical analysis**, **cloud computing (AWS, GCP)** and **big data processing techniques**, **achieving 90%+ prediction accuracy** measured with RMSD

RELATED EXPERIENCE

Machine Learning Research Assistant Dec '24 - Present

Brandeis University | Waltham, MA

Developing machine learning models to predict chemical shifts from 3D molecular structures

- Developing and applying **machine learning frameworks** for **feature extraction** and **structural representation learning** to **enhance predictive accuracy**, integrating data visualization tools for analysis and model interpretability.
- Optimized **advanced data mining techniques** by decluttering and processing **large-scale databases (2M+ records)** using specialized **hardware and software tools (SQL, GPUs)** to enhance data processing efficiency.

Founder & Lead Researcher – Quantitative Modeling Sep '23 - Jul '24

Brandeis University | Brandeis University

Led a collaborative agricultural research project focused on developing predictive models for parameter estimation and optimization

- Developed an ODE/PDE-based predictive model in MATLAB and Python using **Object-Oriented Programming**, enhancing existing research with additional features to improve constraint estimation and optimization.
- **Translated mathematical models into code**, leveraging **quantitative modeling techniques** to develop robust simulations and integrate diverse insights into data-driven solutions.
- Conducted rigorous **back-testing** to validate the model's effectiveness and reliability, ensuring high predictive accuracy.
- Collaborated in a **team-oriented environment**, applying strong problem-solving skills to develop solutions.

LISC Social Impact, Student Consultant Jul '22 - Apr '24

LISC | Boston, Massachusetts

Participate in LISC digital accelerator to empower small minority businesses using financial and machine learning tools

- Designed and implemented digital tools to streamline data management and **optimize market risk analysis** processes.
- Built and refined financial models to identify market opportunities and **portfolio optimization strategies**, **enhancing operational efficiency by 50%** in a financial services environment.

EDUCATION

B.S. Applied Mathematics, Philosophy, Minor: Business Sep '21 - Dec '24

Brandeis University | Waltham

Statistical Machine Learning, Numerical Methods and Big Data, Mathematical Modeling, Computational Neuroscience