Zunbo Yang

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EDUCATION

***Master of Science in Computer Information Systems, concentration in* data analytics,** Boston University Sep 2021 - Jan 2023
Courses: Data Analysis and Visualization, Database Design and Implementation for Business, Information Structures with Python, Web Mining and Graph Analytics, Foundations of Machine Learning, Data Mining, etc.
Bachelor of Science (B.S.) in Business Administration, Concentration in Finance and International Business, Additional Major in Computer Science, Minor in Mathematics, University of Massachusetts Lowell Sep 2017 - May 2021
Commonwealth Honors Student, Multiple Dean's List

RELEVANT WORK EXPERIENCES

Software Development Intern, *GTSP – Santa Clara, CA* *Apr 2023 – Present*

- **Enhanced Trading Algorithms**: Refined and advanced an incomplete **neural network machine learning** model, successfully developing a **trading bot** that consistently outperformed market benchmarks.
- **Application Development**: Engineered a customized stock screener application using **Python** to work with the trading bot, featuring a **user interface** designed with **PyQt6.5**. This tool facilitated the generation of targeted stock ticker lists, enabling automated trading activities that substantially grew capital gains for high net worth clients of the company.
- **Analytical Tools Design**: Created and implemented a sophisticated **stock analytics framework** for momentum traders, incorporating a proprietary scoring system that utilized **Talib** functions. This system assessed stock trends and power through metrics such as moving average convergence/divergence and the ADX indicator, optimizing stock selection to align with clients' strategic trading objectives. Implemented paper trading capability with **InteractiveBrokers API** for the trading bot.
- **API Integration and Database Management**: Spearheaded the integration of **Interactive Brokers TWS API** to streamline data retrieval and order execution processes, and led the development of a **SQLite** database to reduce API usage and enhance the app's operational efficiency, thereby optimizing the automatic trading system.

Equity Research Intern, *Tigress Financial Partners LLC – New York, NY* *Jan 2021 – Feb 2021*

- **Market Research Execution**: Managed daily operations for the creation and dissemination of detailed market research reports, leveraging data analytics and real-time news monitoring across indices, currency, and commodity markets to enhance process efficiency Monitored and dissected earnings calls of key interest firms to produce comprehensive summarization reports, employing advanced text mining techniques to bolster decision-making processes.
- **Industry Analysis**: Conducted extensive comparative research on electric car manufacturers in the U.S. and China, leading to the development of a detailed public comparables table aimed at optimizing research methodologies.
- **Valuation Modeling**: Synthesized and evaluated relative valuation models for leading electric vehicle companies using robust data collection methods and analytical tools such as **Excel** and **R**, ensuring accurate market assessments and supporting strategic investment decisions.

PROJECTS

Top-Down Auto Shooter Game Development (Unreal Engine 5, C++) *Dec 2023 – Present*

- **Gameplay Mechanics Implementation**: Spearheaded the development of a dynamic top-down auto shooter game, leveraging **Unreal Engine 5** and **C++** to create intuitive and engaging gameplay mechanics and a complex player **GameplayAbilitySystem**.
- **AI and Enemy Design**: Designed sophisticated enemy AI using **behavior trees** in **Unreal Engine 5**, allowing enemies to exhibit complex behaviors such as pursuing, attacking, and evading the player, which dynamically altered based on player actions.
- **Performance Optimization**: Addressed and resolved significant performance challenges associated with rendering large numbers of AI characters simultaneously. Implemented optimized algorithms and rendering techniques to enhance frame rates and overall game fluidity, ensuring a seamless gaming experience even during high-intensity scenes.
- **Level and UI Development**: Developed comprehensive game levels with strategic enemy placements and environmental obstacles that enhance gameplay depth. Created an intuitive **user interface**, including an equipment management system.

Crime in New York City Data Analytics (classification with Bayes, J48, Hoeffding Tree and IBK) *Jan 2022 – May 2022*

- **Data Preparation:** Preprocessed NYPD complaint data using **Python** and **R Studio** to develop accurate training and testing datasets for predictive analysis.
- **Algorithm Implementation:** Utilized multiple classification algorithms including **Bayes, J48, Hoeffding Tree,** and **IBK** within **R Studio** and **Weka** to analyze prepared datasets, enhancing predictive accuracy and insight generation.
- **Model Evaluation:** Interpreted classification outcomes and engaged in comprehensive model refinement using attribute selection techniques to improve model reliability and insights.
- **Performance Analysis:** Conducted detailed performance assessments of machine learning models using **confusion matrices** and visualization tools in **Weka** to identify optimal algorithms for crime pattern analysis.

Gomoku Game with Adjustable AI difficulties (AI development with Python) *Sep 2020 – DEC 2020*

- **Game Development:** Engineered a multiplayer Gomoku game with an adaptable AI environment using Python and the Pygame library, facilitating both local multiplayer and AI-enhanced gameplay.
- **AI Implementation:** Created a competitive Gomoku AI using the Mini-Max algorithm, enabling robust solo gameplay options and strategic decision-making capabilities.
- **Customization Features:** Integrated an AI difficulty adjustment feature, allowing players of varying skill levels to tailor game challenges, enhancing engagement and accessibility.
- **Performance Optimization:** Enhanced game performance and user experience by optimizing the game loop and setting depth caps to maintain fluid gameplay even with increased AI search depths.

RELEVANT SKILLS

Data Analytics: Machine Learning, Artificial Intelligence, Data Mining, Predictive Modeling, Classification, and Natural Language Processing.
Programming Languages: SQL, Python (Pandas, PyTorch, TensorFlow, BERT, PyQt, KeyBERT), R, C/C++, HTML, PHP, Javascript etc.
Development Tools and Platforms: MySQL, R Studio, Git, AWS, UnrealEngine 5, Weka, Linux, Visual Studio etc.