Yidan Tang

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EDUCATION

Washington University in St. Louis 4.0/4.0 Saint Louis, MO
Master of Science in Computer Science *Sep. 2021 - May 2023*

Fudan University Shanghai, China
Bachelor of Science in Physics *Sep. 2017 - June. 2021*

Relevant Coursework: Advanced Algorithms, Parallel Systems, Operating Systems, Machine Learning, Data Mining

SKILLS & CERTIFICATIONS

***Technical Skills*:** C/C++, Python (PyTorch, TensorFlow, scikit-learn, NumPy, Pandas), Java, Linux, MATLAB, HTML, JavaScript, CSS, React, Next.js, MongoDB, MySQL, Solidity, Arduino, Fortran, COMSOL, AWS, Git
Certificates: Contemporary Undergraduate Mathematical Contest in Modeling, 2nd prize; Professional scholarship

PROFESSIONAL EXPERIENCE

Washington University in St. Louis *Mar. 2023 – May 2023*

- Conducted NLP (Natural Language Processing) research evaluating ChatGPT on 21 diverse datasets, covering various downstream tasks such as question answering, summarization, ranking, and sentiment analysis
- Implemented prompt design to facilitate in-context learning (zero-shot and few-shot) and enhanced performance
- Introduce an instruction engineering strategy that improves open LLMs (Large Language Models) to be competitive with closed-source large models across a set of challenging NLP tasks without any additional training; combine the strategy with LLaMA to reach competitiveness with OpenAI ChatGPT

Washington University in St. Louis *Aug. 2022 – Apr. 2023*

- Conducted NLP (Natural Language Processing) research on scam detection in DeFi (decentralized finance)
- Developed techniques including CodeBERT (a pre-trained model for both natural language and programming language) and other machine learning (deep learning) models to detect potential scams and to protect users from security vulnerabilities in smart contracts implemented by Solidity, with accuracy in this stage achieving 95.4%
- Proposed zero-shot and few-shot classifiers with BLOOM (a large language model) and GPT-3; designed prompt tuning and Chain-of-Thought prompting strategies to improve performance, with F1 Score achieving 0.74

Dezhao *June. 2022 – Sep. 2022*
Software Engineer Intern

- Worked as a full stack engineer to develop a social media App "TietieUS" using React, Next.js and MongoDB; facilitated DevOps and deployment in the Vercel; managed the infrastructure and load balancing with AWS
- Led a team to develop a website "tietieus.com/careers" that can manage job posts and candidates' info

PROJECTS EXPERIENCE

Simulated Filesystem Development with C++ *June 2022 – Jul. 2022*

- Built a simulated filesystem with C++ that provides interface to create, remove, read and write files and password protected files by implementing object-oriented design and design patterns including abstract factory pattern, visitor pattern and proxy pattern
- Designed user interface with command pattern that allows user to interact with filesystem by issuing commands

Handwriting Recognition on Machine Learning Methods *Mar. 2022 – Apr. 2022*

- Constructed machine learning models including kNN, decision tree, random forest, SVM, Artificial Neural Network, AdaBoost, regression to conduct handwriting recognition with errors less than 0.05
- Designed dimension reduction process and tuned parameters to improve the performance of the models

Multi-agent Financial Market Simulation Based on CB Model and EZ Model *Sep. 2020 – Oct. 2020*

- Conducted interdisciplinary research and applied percolation theory to multi-agent financial market models
- Applied behavioral economics theory to design improved Cont-Bouchaud model and presented stylized facts of financial market; simulated financial market fluctuations with different herd characteristics in Python

Full Stack Web Development for Physical Optics Experiment *Mar. 2020 – May 2020*

- Developed a dynamic website to display double-slit experiment and polarized light with 2D and 3D animation
- Designed a dynamic experiment demo with an interactive user interface with HTML, CSS and JavaScript
- Constructed a relational database to store experiment parameters; built data pipelines to update data to website