Xuyuan Liu

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EDUCATION

Nankai University   Tianjin, China
Bachelor of Engineering in Computer Science   *Aug. 2019 – June 2023 (expected)*

Core class in CS (GPA: 3.7/4):   Data Structure , Principles of Computer Organization , Operating System , Introduction to Artificial Intelligence ,Intelligent Computing System. High Level Language Program Design , Digital Logic , Methods of Computing , Database System , Machine Learning and Application ,Principles of Compilers , Computer Networks, Natural Language Processing, Big Data Analytics and Application

Core class in Math (GPA: 3.7/4):   Linear Algebra , Integration for One-variable Functions , Field Theory and Infinite Series , Multivariable Calculus , Discrete Math, Probability and Statistics, Methods of Computing

RESEARCH EXPERIENCE

Knowledge-Grounded Dialogue System   Sep. 2022 – Now
Research Assistant to Professor Zhenglu Yang   *Nankai University, Tianjin*
- Build a Trustworthy dialogue system by introducing the reasoning process in Knowledge Graph
- Proposed an entity-agnostic paradigm reasoning on knowledge graphs
- Put forward a framework to avoid potential over-smoothing in the multi-hop reasoning
- Preparing to submit our work to EMNLP2023 as first author

Representation Learning for Scientific Papers   Jun. 2022 – Aug 2022
Remote Research Assistant to Professor Bang Liu   *Quebec Artificial Intelligence Institute (MILA),Montreal*
- Proposed a Contrastive Learning method on Sentence-Level Citation Graph
- Integrated Hierarchical Embedding using Mahalanobis Contrastive Learning method
- Leveraged Adversarial Learning Methods to improve robustness

Multi-Label Text Classification   May 2021 – May 2022
Research Assistant to Professor Yanlong Wen   *Nankai University, Tianjin*
- Applied Multimodal methods to label Clinical Text with ICD(International Classification of Diseases) code
- Integrated structured medical data to construct tree-based features to enhance text representations
- Proposed TreeMAN model, a tree-enhanced multimodal attention network to fuse text and tree-based features

SELECTED PROJECTS

Cache Performance Evaluation | *C++*   Jan. 2021
- Created a tool designed to evaluate performances of caches varying in size
- Simulated a multi-level cache system, storing pages in the cache to reduce memory costs
- Improved system by making comparison to various algorithms such as GRU and LRU, among others

SysY Language Compiler | *C++*   Nov. 2021
- Built a compiler written in C++ which is able to translate SysY (a C-like toy language) into ARM-v7a assembly
- Implemented Linear Scan algorithm to allocate register when generating ARM assembly.

Single-cell RNA-seq denoising Program | *PyTorch*   Dec. 2021
- Based the DCA (Deep Count Auto-Encoder) methods meant to help learn complex structures in RNA
- Added modules in the state of pre-processing (like Clustering) to improve the performance of the DCA model

PUBLICATIONS

Zichen Liu, **Xuyuan Liu**, Yanlong Wen, Guoqing Zhao, Hongbin Wang and Xiaojie Yuan   TreeMAN: Tree-enhanced Multimodal Attention Network for ICD Coding.   In Proceedings of the 29th International Conference on Computational Linguistics,   COLING 2022 (Accepted as Oral)

SCHLORSHIP

Academic Excellence Scholarship | *7/130*   Sep. 2022
Scientific Research Innovation Scholarship | *3/130*   Sep. 2022

SKILLS

- Programming Languages: C++, Python, JavaScript, Java