Xuyuan **Liu**

Dartmouth College

(+86) 17300781949 | xuyuan.liu.gr@dartmouth.edu | https://hsuyuanliu.github.io/ | Hsu0204

Education

Dartmouth College — *Hanover, New Hampshire*

Ph.D. student in Computer Science, — *Sep. 2023 - now*

Advisor: Prof. Yujun Yan

Nankai University — *Tianjin, China*

Bachelor of Engineering in Computer Science and Technology, — *Sep. 2019 - Jun. 2023*

Thesis: Few-shot Knowledge Retrieval Framework in multi-turn Dialogue System

Research Interest

Graph-based ML models, Knowledge-grounded NLP

Research Experience

Knowledge-Grounded Dialogue System — *Tianjin, China*

Advisor: Prof. Zhenglu Yang — *Sep. 2022 - May. 2023*

- Constructed reliable dialogue system, integrating reasoning processes from Knowledge Graphs to formulate responses
- Introduced an entity-agnostic representation learning paradigm for few-shot and zero-shot learning scenarios
- Presented the Self-Contextual Representation Learning (SCRL) to enhance entity representations using historical context
- Formulated a framework designed to counteract potential over-smoothing challenges during multi-hop reasoning

Multi-Label Clinical Text Classification — *Tianjin, China*

Advisor: Prof. Yanlong Wen — *Jan. 2022 - May. 2022*

- Utilized multimodal techniques for labeling clinical texts with ICD (International Classification of Diseases) codes
- Incorporated structured medical data to devise tree-structured features, augmenting text representations
- Proposed the TreeMAN model, a tree-augmented multimodal attention network, to fuse textual and tree-based features

Publication

TreeMAN: Tree-enhanced Multimodal Attention Network for ICD Coding. — *COLING 2022*

*Zichen Liu, **Xuyuan Liu**, Yanlong Wen, Guoqing Zhao, Hongbin Wang,Xiaojie Yuan*

Selected Project

SysY Language Compiler — *C++*

Compilers; LLVM; Code Optimization — *Nov. 2021*

- Engineered a compiler translates the SysY language (a subset of C) into ARM-v7a Assembly, only utilizing tools such as YACC and Bison
- Employed the Linear Scan Algorithm for register allocation, ensuring the generation of optimized code

Cache Performance Evaluation — *C++*

Storage System, Computer Architecture, — *Jan. 2021*

- Developed a performance evaluation tool tailored for caches of varying sizes
- Emulated a multi-level cache system to optimize memory storage efficiency
- Enhanced the system's efficacy through benchmark comparisons with established algorithms, e.g., GRU and LRU

Honors & Schloarship

2022 **Academic Excellence Scholarship**, 7/130 — *Nankai U, China*

2022 **Scientific Research Innovation Scholarship**, 3/130 — *Nankai U, China*

Skill

Programming Python, C++, JAVA, Javasrcipt

Framework & Tools Git, PyTorch, TensorFlow, Django, Docker, Markdown, LaTeX

Language Mandarin (native), English (Bussiness)