

# Xuyuan Liu

DARTMOUTH COLLEGE

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## Education

### Dartmouth College

PH.D. STUDENT IN COMPUTER SCIENCE,  
Advisor: Prof. Yujun Yan

Hanover, New Hampshire

Sep. 2023 - now

### Nankai University

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE AND TECHNOLOGY,  
Thesis: Few-shot Knowledge Retrieval Framework in multi-turn Dialogue System

Tianjin, China

Sep. 2019 - Jun. 2023

## Research Interest

Graph Neural Network, Knowledge-grounded NLP System

## Research Experience

### Knowledge-Grounded Dialogue System

ADVISOR: PROF. ZHENGLU YANG

- 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

Tianjin, China

Sep. 2022 - May. 2023

### Multi-Label Clinical Text Classification

ADVISOR: PROF. YANLONG WEN

- 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

Tianjin, China

Jan. 2022 - May. 2022

## Publication

### TreeMAN: Tree-enhanced Multimodal Attention Network for ICD Coding.

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

COLING 2022

## Selected Project

### SysY Language Compiler

COMPILERS; LLVM; CODE OPTIMIZATION

- 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

C++

Nov. 2021

### Cache Performance Evaluation

STORAGE SYSTEM, COMPUTER ARCHITECTURE,

- 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

C++

Jan. 2021

## Honors & Scholarships

2022 **Academic Excellence Scholarship**, 7/130

2022 **Scientific Research Innovation Scholarship**, 3/130

Nankai U, China

Nankai U, China

## Teaching

Teaching Assistant Introduction to Programming and Computation

Fall, 2023

## Skill

**Programming** Python, C++, JAVA, Javascript  
**Framework & Tools** Git, PyTorch, TensorFlow, Django, Docker, Markdown, LaTeX  
**Language** Mandarin (native), English (Business)