Minqian Liu

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EDUCATION

South China University of Technology (SCUT) **Guangzhou, China**
Candidate for B.Eng. in Computer Science and Technology *Sept. 2017-Jul. 2021 (Expected)*

- **Overall GPA: 3.75/4.00** (updated after Fall 2020 semester)
- **Core Courses:** Probability & Mathematical Statistics(4.0/4.0), Data Structures(4.0/4.0), Computer Organization & Architecture(4.0/4.0), Database System(4.0/4.0), Numerical Methods(4.0/4.0), Introduction to Pattern Recognition(4.0/4.0)

University of California, Berkeley **Berkeley, USA**
Visiting Student in the Department of Electrical Engineering and Computer Sciences *Jan. 2019-May 2019*

- **Overall GPA: 3.67/4.00**
- **Courses:** Discrete Mathematics and Probability Theory (A), Introduction to Artificial Intelligence (A-), Efficient Algorithms and Intractable Problems (B+), Introduction to Machine Learning (audited)
- Sponsored by the Outstanding Undergraduate Overseas Study Scholarship at SCUT

PUBLICATIONS & MANUSCRIPTS

Dynamic Extension Nets for Few-shot Semantic Segmentation
- Lizhao Liu*, Junyi Cao*, **Minqian Liu***, Yong Guo*, Qi Chen*(*equal contribution*), Mingkui Tan.
- In *Proceedings of the 28th ACM International Conference on Multimedia*, 2020. [paper][code]

Progressive Dialogue State Tracking for Multi-domain Dialogue Systems
- Jiahao Wang, **Minqian Liu**, Xiaojun Quan.
- In *2021 IEEE International Conference on Acoustics, Speech and Signal Processing*. [paper]

Co-attention Network with Label Embedding for Text Classification
- **Minqian Liu**, Lizhao Liu, Junyi Cao, Qing Du.
- Under review at *Neurocomputing*, 2020. [paper]

RESEARCH EXPERIENCE

Dialogue State Tracking for Medical Consultation Related to COVID-19
Advisor: Prof. Pengtao Xie, University of California, San Diego (Online) *Jul. 2020-Sept. 2020*

- Incorporated dialogue state tracking (DST) into a medical dialogue system that provides consultations related to COVID-19 and aims to alleviate the shortage of medical professionals.
- Constructed a DST dataset and designed its ontology based on relevant medical knowledge, e.g., the symptoms and diagnosis of pneumonia, the prescriptions and suggestions of doctors, etc.
- Annotated dialogue by filling the golden value for each pre-defined slot. The dataset is available here.

Dynamic Extension Nets for Few-shot Semantic Segmentation
Advisor: Prof. Mingkui Tan, SCUT Machine Intelligence Lab, SCUT *Oct. 2019-Jul. 2020*

- Proposed a Dynamic Extension Network that dynamically constructs and maintains a classifier for the novel class by leveraging the knowledge from the base class and the information from novel data.
- Proposed a Guided Attention Module to focus on class-relevant content in the image and a dynamic extension training algorithm to exploit the knowledge of base classes in an end-to-end manner.
- Achieved *state-of-the-art* performance on two few-shot semantic segmentation datasets.
- Wrote the paper as co-first author, which is presented as a full paper at ***ACM Multimedia 2020***. The recently published paper has been downloaded more than 170 times in three months.

Co-attention Network with Label Embedding for Text Classification
Advisor: Prof. Mingkui Tan and Prof. Qing Du, SCUT Machine Intelligence Lab, SCUT *Oct. 2019-May 2020*

- Proposed a co-attention network that jointly encodes the word sequence and label embedding for text classification to attend to the relevant parts of text and labels.
- Conducted a series of experiments to demonstrate the effectiveness of the proposed method.
- Wrote the paper as first author, which is under review at *Neurocomputing*.

Progressive Dialogue State Tracking for Multi-domain Dialogue Systems
Advisor: Prof. Xiaojun Quan, Sun Yat-sen University *Nov. 2019-Apr. 2020*

- Formalized two important observations in dialogue state tracking: accumulating state triples and adjacent state dependencies. Proposed a progressive domain-slot tracker.
- Designed experiments to evaluate the proposed method and wrote the paper as second author, which is accepted by ***ICASSP 2021***.

Deep Reinforcement Learning under Adversarial Environment
Advisor: Prof. Patrick P. K. Chan, SCUT *Apr. 2019-Mar. 2020*

- Reviewed extensive literature on the robustness and security of Deep Q-Learning Networks (DQNs) in adversarial environment. Conducted experiments and wrote technical reports.

PROJECT EXPERIENCE

AI Interviewer: Automatic Evaluation System for Interview
Advisor: Prof. Jianming Lv, SCUT *May 2019-Apr. 2020*

- Designed a hierarchical keyword-question attention to score the personality traits of interviewees.
- Developed a system that evaluates the performance of interviewees based on face-api.js.

Natural Language Processing with Deep Learning
Advisor: Prof. Christopher Manning, Stanford University (Online) *Jun. 2019-Aug.2019*

- Completed several online curriculum projects and assignments including word vectors, dependency parsing, and neural machine translation. The code is available here.

Artificial Intelligence
Advisor: Prof. Stuart Russell and Prof. Sergey Levine, UC Berkeley *Jan. 2019-May 2019*

- Completed curriculum projects of the course Introduction to Artificial Intelligence.
- Implemented algorithms including multi-agent search algorithms, game tree, reinforcement learning, probabilistic graphical models, and perceptron algorithm. The code is available here.

Efficient Algorithms
Advisor: Prof. Luca Trevisan and Prof. Prasad Raghavendra, UC Berkeley *Jan. 2019-May 2019*

- Completed the final project of the course Efficient Algorithms and Intractable Problems.
- Designed algorithms (e.g., variants of minimum spanning tree) to achieve specified goals while adhering to several constraints. The design document and code are available here.

HONORS & AWARDS

- Saliai Technology Innovation Scholarship (Top 10% in Computer Science Department), SCUT. 2020.
- Outstanding Undergraduate Overseas Study Scholarship (RMB ¥30,000), SCUT. 2019.
- Second Prize Scholarship (Top 15% in Computer Science Department), SCUT. 2018.

SKILLS

- **Standardized Tests:** TOEFL 102; GRE 322 (AW 4.0)
- **Programming Skills:** Python, C/C++, PyTorch, TensorFlow, LaTex (Skilled); Java, MATLAB, R (Basic)