

# Sicheng Wang

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## Education

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### Tsinghua University

Beijing, China

Aug. 2017 — Jul. 2021

- Senior undergraduate, Department of Automation
- GPA: Overall: 3.81/4.00 | Major: 3.86/4.00 | Ranked 24/183
- Standard Test: TOFEL:106 (R:30,L:27,S:24,W:25), GRE: V:155, Q:169, AW:3.5
- Advisor: Prof. [Linxuan Zhang](#)
- Core Course: Probability and Statistics(98) / Computer Principles and Applications(98) / Data Structures(92) / Signals and System Analysis(92) / Digital Electronics(92) / Computer Languages and Programming / C++ Program Design and Training / Digital Image Processing(92) / Numerical Analysis and Algorithms(98) / Computer Networks and Applications / Foundation of Artificial Intelligence / Operations Research(92) / Pattern Recognition and Machine Learning / Smart Sensing and Measuring(92) / Process Control(98)

### University of California San Diego

San Diego, USA

Feb. 2020 — Oct. 2020

- Research Intern, Department of Electrical and Computer Engineering
- Advisor: Prof. [Pengtao Xie](#)

## Publications

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### Identify Risk Factors of COVID-19 from Medical Literature

- **Sicheng Wang**, Pengtao Xie
- Technical report available in: [report](#)

### CERT: Contrastive Self-supervised Learning for Language Understanding

- Hongchao Fang, Meng Zhou, **Sicheng Wang**, Jiayuan Ding, Pengtao Xie
- Submitted to 2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics. NAACL 2021.

### MedDialog: Large-scale Medical Dialogue Datasets

- Guangtao Zeng, Wenmian Yang, Zeqian Ju, Yue Yang, **Sicheng Wang**, Ruisi Zhang, Meng Zhou, Jiaqi Zeng, Xiangyu Dong, Ruoyu Zhang, Hongchao Fang, Penghui Zhu, Shu Chen and Pengtao Xie
- Accepted by the 2020 Conference on Empirical Methods in Natural Language Processing. EMNLP 2020.

## Honors and Awards

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- **Philobiblon Scholarship**(Top 2 students in Dept. of Automation), Tsinghua University. 2019
- **Best Rookie Award in the 37th Challenge Cup**(Top 16 out of 784), Tsinghua University. 2019
- **Guangyao Scholarship**(Top 5 students in Dept. of Automation), Tsinghua University. 2018
- **First Prize** in the 33rd Chinese Physics Olympiad, Chinese Physical Society. 2016

## Research Experiences

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### Identify Risk Factors of COVID-19 from Medical Literature

Advisor: Prof. Pengtao Xie, ECE, UCSD

Feb. 2020 — May. 2020

- Further pretrained the BioBERT model on CORD-19 Dataset and finetuned a sentence classifier which can choose the sentences that contain the risk factors (e.g., leukocytosis) of COVID-19 from unstructured medical literature.
- Designed various negative sentence selection schemes and validated their importance with experiments.
- Proposed using Question Answering model to avoid the overfitting problem of Named Entity Recognition model while extracting the risk factors from positive sentences.
- Achieved significant performance gains in terms of F1 & Exact Match metrics on the mission of risk factor extraction.

### **CERT: Contrastive Self-supervised Learning for Language Understanding**

Advisor: Prof. Pengtao Xie, ECE, UCSD

May. 2020 — Jul. 2020

- Proposed a novel language data augmentation technique by back translation (re-translate a document that was previously translated into another language, back to the original language).
- Designed and conducted a comprehensive set of experiments independently using the BERT model and the structure of SimCLR for Self-supervised Learning to achieve better performance on SST-2 task.
- Conducted the CERT experiments on SQuAD v1.1, SST-2 and MRPC and achieved significant performance gains on MRPC task.
- In preparation for Transactions of the Association for Computational Linguistics. TACL 2020.

### **Prediction of Remaining Useful Life of Trains**

Advisor : Prof. Linxuan Zhang, DA, THU

May. 2019 — Jul. 2019

- Experimented with approaches to sample the data; decided the most effective method by using PCA to reduce the dimensions and comparing the clustering effect of K-means algorithm.
- Introduced the element-wise attention gate to the LSTM model to improve the regression performance.

### **Semi-supervised Sentiment Analysis of Danmu (video comments)**

Advisor : Prof. Linxuan Zhang, DA, THU

Dec. 2018 — Mar. 2019

- Segmented the Chinese video comments into words and obtained emotion labels based on a database of the emotion of common Chinese words.
- Calculated the TF-IDF of each word and selected the keywords of Danmu which tend to be new network terms.
- Applied the LSTM model and implemented pseudo label learning algorithm as a semi-supervised approach to predict the emotion of the extracted keywords.

## **Leadership Activities**

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### **The Publicity Department of the Student Union**

Member

Aug. 2018 — Jul. 2019

- Managed the interview, data arrangement and the countdown poster making of the Student's Day
- Designed the key chain for the freshmen
- Edited and produced the promotion video for the sports meeting held by three departments

### **"Robots In My Heart" Service Robot Survey Team**

Team Leader

Jun. 2018 — Jul. 2018

- Created and organized the team to investigate the service robot technology and business model of CloudMinds Company in Beijing
- Investigated people's understanding and acceptance of service robot through street interviews and questionnaires

## **Skills**

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- Solid expertise in Python, C++, C#, MATLAB
- Experienced in Verilog HDL, Assembly Language
- Languages: Mandarin Chinese, English Proficient in English listening, reading, speaking and writing