

# Shudong Liu

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## RESEARCH INTERESTS

Natural Language Processing, Spoken Dialogue System, Machine Learning, Data Mining

## EDUCATION

South China Agricultural University (SCAU), Guangzhou, China

2018.09- Present

- BSc. in Software Engineering, expected in July 2022
- Overall GPA: **4.09/5.00 (90.9/100)**
- Language (in English): CET-4, CET-6

## PUBLICATIONS

- [1] **Shudong Liu**, Peijie Huang\*, Zhanbiao Zhu, Hualin Zhang and Jianying Tan. **Cross-domain Slot Filling with Distinct Slot Entity and Type Prediction**. In: Proceedings of the 10th CCF International Conference on Natural Language Processing and Chinese Computing (**NLPCC 2021**), October 13-17, 2021. (to appear; CCF-C)
- [2] Zhanbiao Zhu, Peijie Huang\*, Yexing Zhang, **Shudong Liu**, Hualin Zhang and Junyao Huang. Slot Filling Model with Boundary Prediction and Dynamic Template. In: Proceedings of the Twentieth China National Conference on Computational Linguistics (**CCL 2021**), August 13-15, 2021. (Recommended to **Journal of Chinese Information Processing**; CCF-B)
- [3] Zhanbiao Zhu, Peijie Huang\*, Yexing Zhang, **Shudong Liu**, Hualin Zhang and Junyao Huang. A Dependency-Guided Character-Based Slot Filling Model for Chinese Spoken Language Understanding. In: Proceedings of the Twentieth China National Conference on Computational Linguistics (**CCL 2021**), August 13-15, 2021. (Recommended to **Journal of Chinese Information Processing**; CCF-B)

\* : Advised by Prof. Huang

## PROFESSIONAL PRACTICE

**Research Project: Slot Filling in Natural Language Understanding**

2019.10- Present

Two Innovation Training Projects for College Students of Guangdong Province in spoken language understanding (SLU). Work includes following cutting-edge research, model construction, conducting experiments, writing thesis and so on. Between Feb.2021 to Apr.2021, I completed my work as the **first author** and it has been **accepted** by the NLPCC-2021.

- Applied joint learning and improved dependency tree to solve the problem of syntax missing in Chinese spoken language understanding model.
- Proposed a dynamic template mechanism to alleviate the boundary error in slot filling.
- Proposed a instance weighting scheme combined with slot description for cross-domain slot filling.

**Shared Task in SMP-ECDT 2020: Evaluation of few-shot spoken language understanding** 2020.08

**Ranked 8th out of 90 teams (8.8%)** in the 4th Evaluation of Chinese Human-Computer Dialogue Technology sponsored by technical committee of Social Media Processing (**SMP**), Chinese Information Processing Society of China (**CIPSC**).

- **Sub-task1 (slot filling)**: Applied the LDT model (ACL 2019) for meta-learning and implemented BERT model for fine-tune on the support set.

- **Sub-task2 (intent detection):** Combined Decision Tree, Random Forest, LDT model and BERT Fine-tune, selecting the model through cross-validation on the support set.

**Shared Task in CCF-BDCI 2020: Recognition of private information in unstructured commercial text information.** (Leader) 2020.11-2020.12

**Ranked 43th out of 1483 teams (2.8%)** in the Big Data and Computational Intelligence Competition (CCF-BDCI) sponsored by China Computer Federation (CCF).

- Applied the BERT-CRF model(roBerta-www) for named entity recognition and cleaned the data.
- Data augmentation: Synonym Replacement, Randomly Delete, similar text generation, etc.

**Shared Task in CCL 2021: Medical report generation.** 2021.06-2021.07

**Ranked 5th out of 155 teams (3.2%)** in the Intelligent Medical Dialogue Evaluation sponsored by Chinese Information Processing Society of China (CIPSC).

- Applied Seq2Seq, BERT(NZSHA), pointer network and Sparse Softmax for abstractive summarization, conducted experiments including data augmentation, hyperparameter optimization, code adjustment, etc.

## SKILLS

- **NLP Skills/Tools:** Spoken Language Understanding, Slot Filling, Named Entity Recognition, Dependency Syntactic Parsing (StanfordNLP, Hanlp), Data Augmentation, Zero/ Few-shot/ Cross-domain learning
- **Deep Learning/Machine Learning:** RNN, Attention, CNN, Transformer, Bert, KNN, LR, DT, NB
- **Languages and Tools:** Python, C/C++, Shell, Linux, Java, Pytorch, Keras, Sklearn, Numpy, Tensorflow, LaTeX, Anaconda, Markdown

## AWARDS & HONORS

- Intelligent Medical Dialogue Evaluation (CCL2021), **Third-class** Prize in Track 2, 2021.
- Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM-2020), **Second-class** Prize in Guangdong, 2020.
- National Data Statistics and Analysis Competition for College Students, **Second-class** Prize, 2021.
- National May Day Mathematical Contest in Modeling, **Second-class** Prize, 2021.
- Mathematical Contest in Modeling (MCM-2021 held by the U.S.), **Third-class** Prize, 2021.
- 2018-2019, 2019-2020, **Third-class** Prize in The South China Agricultural University Scholarship
- 2019-2020, **Science Innovation Pioneer** in South China Agricultural University
- 2019-2020, **Publicity Model of Academic Competition** in SCAU
- The 7th "Funding Education" Essay Competition in SCAU, **First-class** Prize, 2021.
- The 10th Calligraphy and Painting Competition in SCAU, **First-class** Prize, 2019.

## ACTIVITIES

- **Vice Minister** in Computer Association of South China Agricultural University 2018-2020
- **Executive Member** in SCAU Branch of China Computer Federation (CCF) 2021 - Present
- **Executive Member** in SCAU Technology Innovation & Entrepreneurship Federation 2018-2019
- **Commissary in Charge of Studies** 2019 - Present