

Yuling Shi

EDUCATION

Shanghai University of Finance and Economics

School of Mathematics

Shanghai, China

Sept 2018 - Present

- Undergraduate in Applied Mathematics (Elite Program), core courses: **Mathematical Analysis (3.3)**, **Advanced Algebra (4.0)**, **Probability Theory (4.0)**, **Natural Language Processing (4.0)**, **Deep Learning (4.0)**.
- Scholarships: People's Scholarship, Outperforming Individual (**2 out of 86**), Distinguished Student (**2 out of 86**).
- Solid expertise in: Python (Deep Learning, Scientific Computing), MATLAB, Bash, L^AT_EX, Git; experienced in: C, Make, Javascript, SQL.

PUBLICATIONS

- [1] Xuehai Huang, **Yuling Shi**, Wenqing Wang: A Morley-Wang-Xu element method for a fourth order elliptic singular perturbation problem. *Journal of Scientific Computing*, (**SCI I**), 2021.

RESEARCH EXPERIENCE

Research Assistant, Repetition Problem in Text Generation

Advisor: Prof. He He

CILVR lab, New York University(Remote)

May 2021 - Present

Research Assistant, Interpreting Predictions of Deep Learning Models

Advisor: Dr. Wanyun Cui

Shanghai, China

Jan 2021 - Apr 2021

- Studied recent conference tutorials and papers on interpretation techniques like LIME and SHAP.
- Analyzed changes in gradients of important words during the training process with Pytorch.
- Researched on interpreting how the BERT model learned relations between words from the aspect of Taylor expansion.

Research Assistant, Robust Finite Element Method for A Singular Perturbation Problem

Shanghai, China

Advisor: Prof. Xuehai Huang

Jul 2020 - Feb 2021

- Self-searched for suitable scientific computing packages. Contributed codes and reported bug for open source repository.
- Implemented a robust multigrid solver with designed preconditioner for decoupled equation and solved large scale linear equations efficiently.
- Discovered and analyzed the super-convergence benefit from a simply modified right hand side.
- Final paper has been published in *Journal of Scientific Computing*.

Principal Investigator, Building Domain Knowledge Graph with Deep Learning Models

Shanghai, China

Advisor: Prof. Xuehai Huang

Mar 2020 - Dec 2020

- Applied NLP models to build a financial knowledge graph, studied models for named entity recognition, relation extraction and event extraction.
- Collected data with Scarpy, stored the data in Neo4j graph database and wrapped them up with Flask framework.
- Generated labels to original sentences and included a BiGRU layer after BERT to improve the performance in named entity recognition task, implemented with Pytorch.
- Awarded as the "Excellent Project" in school and selected for oral presentation (**3 out of 165**).

Project Leader, Kaggle Question Answering Competition

Shanghai, China

Advisor: Prof. Hui Fang

Feb 2020 - Jun 2020

- Ensembled models and improved training process by studying research papers to improve performance of BERT and similar models in question answering task.
- Outperformed the best submission in Kaggle leaderboard with smaller models. Implemented experiments in Pytorch including: pre-training on similar dataset, hard negative mining, adding special token, mixed precision training.
- Reached a final GPA of 4.0 in the second year among juniors from Elite Program in Department of Electrical Engineering.

SELECTED HONORS

1st Prize in Mathematical Contest in Modeling of SUFE (Ranked 2/70)

Apr 2020 – Apr 2020

1st Prize in National Olympiad in Physics (Provincial Area, top 0.02%)

Sept 2016 – Sept 2017

OTHER SKILLS

Language: English (TOFEL 102), Chinese (mother language)

Team working: President of School Table Tennis Club (with 300+ members), Captain of the School's team

Interests that make me optimistic: Table tennis (5th place in Shanghai Doubles Championship, 3rd place in Teams)