Yuling (Daniel) Shi

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EDUCATION

Shanghai University of Finance and Economics   Shanghai, China
Department of Mathematics   Sept 2018 - Present

- Undergraduate in Applied Mathematics, GPA in the past year: **3.72/4(88.9/100)**, Courses on AI taken with current seniors: Natural Language Processing (4.0), Deeping Learning (4.0), Machine Learning (3.7).
- Scholarships: People's Scholarship, Outperforming Individual Scholarship **(2/86)**, Featured Student **(2/86)**.
- Solid expertise in: Python (Deep Learning, Scientific Computing), MATLAB, Bash, LaTeX, Git; experienced in: C, C++, CMake, CUDA, Javascript, SQL, SPSS.

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*, accepted)

RESEARCH EXPERIENCE

Research Assistant, Robust Finite Element Method for a Singular Perturbation Problem   Shanghai, China
Advisor: Prof. Xuehai Huang   Jul 2020 - Present

- Studied scientific computing packages scikit-fem in Python and iFEM in MATLAB for finite element method. Contributed codes and reported bug for scikit-fem.
- Implemented a robust AMG-CG solver with preconditioner. Achieved optimal convergence rate with Nitche's technique in the case of the boundary layers.
- Discovered and analyzed the super-convergence benefit from a simply modified right hand side.
- Final paper has been accepted by *Journal of Scientific Computing*.

Research Assistant, Interpreting Predictions of NLP Models   Shanghai, China
Advisor: Dr. Wanyun Cui   Jan 2021 - Present

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

Project Leader, Building Knowledge Graph with Deep Learning Models   Shanghai, China
Advisor: Prof. Xuehai Huang   Jul 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.
- Added 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 "Excellent Project" in school and selected for oral presentation **(3/165)**.

Project Leader, Kaggle Question Answering Competition   Shanghai, China
Advisor: Ass.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 technics 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 second year among juniors from experimental class in Department of Electrical Engineering.

ACITIVTIES AND HONORS

1st **Prize in Mathematical Contest in Modeling of SUFE (Ranked 2/70)**   Apr 2020 $-$ Apr 2020
President of School Table Tennis Club (with 300+ members)   Sept 2019 $-$ Aug 2020
1st **Prize in National Olympiad in Physics (Provincial Area, top 0.01%)**   Sept 2016 $-$ Sept 2017

OTHER SKILLS

Language: English (TOFEL 102), Chinese (mother language)
Interests that make me optimistic: Table tennis (5th place in Shanghai Doubles Championship, 3rd place in Teams)