HUA SHEN (申 华)

Ph.D Candidate in Informatics - The PennState University - PA, USA
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EDUCATION

Ph.D. Candidate, Informatics *2019.08 - Present*
College of IST, Penn State University.
Advisor: Dr. Ting-Hao (Kenneth) Huang

Ph.D. Student, Computer Science *2018.08 - 2019.08*
Department of CSE , Lehigh University. *Graduate Fellowship*
Advisors: Dr. Ting Wang, Brian D. Davison

M.S., Management Science and Engineering *2013.09 - 2016.06*
School of Information, Renmin University of China. *Exempt from Admission Exam*
Advisor: Dr. Xun Liang

B.S., Information Security *2009.09 - 2013.06*
Department of CSE, University of Science and Technology Beijing. *Ranking: 2/35*

RESEARCH INTERESTS

My research interests lie in general area of **AI** and **HCI**, particularly in **making deep learning models explainable by humans**. Currently, my research topics include improving **AI interpretability** and **robustness** on NLP tasks such as dialogue system, question answering, etc.

PUBLICATIONS

Preprint

- **Hua Shen**, Wenbo Guo, Ting-hao (Kenneth) Huang. CausalNet: A Causal Learning Enabled Self-Explaining Neural Networks. Submitted to NeurIPS 2020 Workshop.
- **Hua Shen**, Wenbo Guo, Ting-hao (Kenneth) Huang. Towards Effective and Efficient Evaluation of Interpretation Fidelity. Submitted to AAAI 2021.
- Jiaqi Wang, **Hua Shen**, Chacha Chen. IN-MOOC: Guidelines for Improving MOOC Platform Interactions. Submitted to CHI Case Studies 2021.

Conference Papers

- **Hua Shen**, Ting-hao (Kenneth) Huang. How Useful Are the Machine-Generated Interpretations? A Human Evaluation on Guessing the Wrongly Predicted Labels. The 8th AAAI Conference on Human Computation and Crowdsourcing (HCOMP '20).
- Xinyang Zhang, Ningfei Wang, **Hua Shen**, Shouling Ji, Ting Wang. Interpretable Deep Learning under Fire. Proceedings of the 29th USENIX Security Symposium (USENIX'20).
- Ren Pang, **Hua Shen**, Xinyang Zhang, Shouling Ji, Yevgeniy Vorobeychik, Xiapu Luo, Alex X. Liu, Ting Wang. The Tale of Evil Twins: Adversarial Inputs versus Poisoned Models. The 27th ACM Conference on Computer and Communications Security (CCS'20).
- **Hua Shen**, Xun Liang. A Quantitative Analysis Decision System Based on Deep Learning and NSGA-II for FX Portfolio Prediction". The 31st International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (IEA-AIE'18).
- **Hua Shen**, Xun Liang. A Time Series Forecasting Model Based on Deep Learning Integrated Algorithm with Stacked Autoencoders and SVR for FX Prediction. The 25th International Conference on Artificial Neural Networks (ICANN'16).

- **Hua Shen**, Xun Liang, Mingming Wang. Emergency Decision Support Architectures for Bus Hijacking Based on Massive Image Anomaly Detection in Social Networks. The 2015 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC'15).

Book

- Xun Liang, Xiaoping Yang, **Hua Shen**. Social Commerce Theory and Practice[M], Tsinghua University Press, 2014, ISBN No. 9787302381129.

National Patent

- Xun Liang, **Hua Shen**, Run Cao. An innovative Emergency Discovery Method for Micro-blogging, Archived by State Intellectual Property Office of The P.R.C (SIPO), Patent Publication No. CN103577404A.
- Xiaofei Li, Xun Liang, Xiaoping Zhou, Xiaojing Shi, **Hua Shen**, Haiyan Zhang. A Cross-Platform Microblog Community Account Matching Method, Archived by State Intellectual Property Office of The P.R.C (SIPO), Patent Publication No. CN104765729A.

PARTICIPATED PROJECTS

Explaining Question Answering Models under Adversarial Attack *Sep 2018-May 2019*

- The project aims to interpret Question Answering (QA) model behavior; particularly, we analyzed and implemented a set of QA models;
- We designed an interpretation method for QA model to interpret layer-wise and token-wise importance scores; especially, we target on analyzing tokens' self-attribution, transitive-attribution and attention attribution scores between context and question.

Analysis and Service System of Online Social Media *Jan 2014-Jan 2015*

- Proposed an algorithm of sentiment analysis: I improved SVM (Support Vector Machine) with SMO (Sequential Minimal Optimization), and implemented with libsvm package in Matlab;
- Designed an algorithm named "A Semi-Supervised Sentiment Analysis Algorithm based on Word Vector Similarity Analysis" .

TEACHING ASSISTANT EXPERIENCE

The Pennsylvania State University

- Application Development Studio I — Fall 2020
- Algorithmic Methods — Fall 2020

Renmin University of China

- Calculus I and Calculus II — Spring 2015 and Fall 2015
- Linear Algebra — Fall 2014
- Probability Theory and Mathematical Statistics — Fall 2013 and Spring 2014

SELECTED HONORS

Travel Grant Award, CRA-W Grad Cohort Workshop 2019

Graduate Fellowship, Lehigh University 2018-2019

Outstanding Master Degree Candidate, RenMin University of China 2015

Outstanding Merit Student, Beijing Municipal 2013

Excellent Graduate, Beijing Municipal	2013
Outstanding-Dissertation Award, USTB	2013
National Endeavor Fellowship, Nationwide *(twice)*	2011 and 2012
Vice Chairman, The 22nd Student Union of USTB	2011-2012
Alumni Funding Scholarship, USTB	2012