

HUA SHEN (she/her)

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

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EDUCATION

- Ph.D. in Informatics (GPA: 3.93/4.0)** *2019.08 - Present*
Penn State University, PA, USA
Advisor: Dr. Ting-Hao (Kenneth) Huang
- Ph.D. in Computer Science (Graduate Fellowship)(Transferred)** *2018.08 - 2019.08*
Lehigh University, PA, USA
Co-advisors: Dr. Ting Wang, Dr. Brian D. Davison.
- M.S. in Management Science and Engineering** *2013.09 - 2016.06*
Renmin University of China, Beijing, China
Advisor: Dr. Xun Liang
- B.S. in Information Security (Ranking: 2/35)** *2009.09 - 2013.06*
University of Science and Technology Beijing, Beijing, China

RESEARCH INTERESTS

I am broadly interested in the areas of NLP + HCI, particular in **human interaction** with **AI machine**. My current research interests lie in improving **human-centered AI interpretability** and **fairness** in **speech** and **natural language processing**, **conversational AI** and other deep learning fields.

RESEARCH EXPERIENCE

- Google AI Research** *2022.09 - 2023.01*
Research Intern, Speech Intelligence Team, Seattle, USA
Mentors: Vicky Zayats, Johann Rocholl, Dan Walker, Dirk Padfield
- Amazon Science** *2022.05 - 2022.08*
Applied Scientist Intern, Alexa AI, Language Modeling Team, Seattle, USA
Mentors: Jari Kolehmainen, Yi Gu, Qi Luo, Aditya Gourav, Ivan Bulyko,
(Sr.) Principal Scientist Advisors: Ankur Gandhe, Denis Filimonov, Ariya Rastrow, Andreas Stolcke
- Amazon Science** *2021.05 - 2021.08*
Applied Scientist Intern, Alexa AI, SpeakerID Team, Sunnyvale, USA
Mentors: Yuguang Yang, Guoli Sun, Ryan Langman, Eunjung (Christine) Han.
Sr. Principal Scientist Advisors: Jasha Droppo, Andreas Stolcke

PUBLICATIONS

Preprint

- [P.17] **Hua Shen**, Chieh-Yang Huang, Tongshuang Wu, Ting-Hao (Kenneth) Huang. [ConvXAI: Delivering Heterogeneous AI Explanations via Conversations to Support Human-AI Scientific Writing](#). arXiv preprint arXiv:2305.09770.
- [P.16] **Hua Shen**, Vicky Zayats, Johann Rocholl, Dan Walker, and Dirk Padfield. 2023. [MultiTurnCleanup: A Bench-mark for Multi-Turn Spoken Conversational Transcript Cleanup](#). arXiv preprint arXiv:2305.12029.
- [P.15] Kai-Wei Chang, Yu-Kai Wang, **Hua Shen**, Iu-thing Kang, Wei-Cheng Tseng, Shang-Wen Li, Hung-yi Lee. [SpeechPrompt V2: Prompt Tuning for Speech Classification Tasks](#). arXiv preprint arXiv:2303.00733.
- [P.14] Adaku Uchendu, Jooyoung Lee, **Hua Shen**, Thai Le, Ting-Hao' Kenneth' Huang, and Dongwon Lee. 2023. [Understanding Individual and Team-based Human Factors in Detecting Deepfake Texts](#). arXiv preprint arXiv:2304.01002.

Peer-Reviewed Conference & Workshop Papers

- [P.13] **Hua Shen**, Tongshuang Wu. [Parachute: Evaluating Interactive Human-LM Co-writing Systems](#). The In2Writing Workshop at The 2023 ACM CHI Conference (CHI '23 In2Writing Workshop).
- [P.12] Tongshuang Wu, **Hua Shen**, Daniel S Weld, Jeffrey Heer, Marco Tulio Ribeiro. [ScatterShot: Interactive In-context Example Curation for Text Transformation](#). The ACM Conference on Intelligent User Interfaces (IUI '23).
* **Best Paper Award, Honorable Mention**
- [P.11] **Hua Shen**, Tongshuang (Sherry) Wu, Wenbo Guo, Ting-Hao (Kenneth) Huang. [Are Shortest Rationales the Best Explanations For Human Understanding?](#) 60th Annual Meeting of the Association for Computational Linguistics (ACL '22).
- [P.10] **Hua Shen***, Yuguang Yang*, Guoli Sun, Ryan Langman, Eunjung Han, Jasha Droppo, Andreas Stolcke. [Improving Fairness in Speaker Verification via Group-adapted Fusion Network](#). 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP '22).
- [P.8] Shih-Hong Huang, Chieh-Yang Huang, Yuxin Deng, **Hua Shen**, Szu-Chi Kuan, and Ting-Hao' Kenneth' Huang. 2022. [Too Slow to Be Useful? On Incorporating Humans in the Loop of Smart Speakers](#). The WiP/Demo track of the 10th AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2022 WiP/Demo) (2022)
- [P.8] **Hua Shen**, Ting-hao (Kenneth) Huang. [Explaining the Road Not Taken](#). The 2021 ACM CHI Workshop on Operationalizing Human-Centered Perspectives in Explainable AI (CHI '21 HCXAI Workshop).
- [P.7] Jiaqi Wang, **Hua Shen**, Chacha Chen, Frank E. Ritter. [Are Learners Satisfied with Their MOOC Experiences? Assessing and Improving Online Learners' Interactions](#). Asian CHI Symposium 2021.
- [P.6] **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).
- [P.5] Xinyang Zhang, Ningfei Wang, **Hua Shen**, Shouling Ji, Ting Wang. [Interpretable Deep Learning under Fire](#). Proceedings of the 29th USENIX Security Symposium (USENIX'20).
- [P.4] 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 (ACM CCS'20).
- [P.3] **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).
- [P.2] **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).
- [P.1] **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

- [B.1] Xun Liang, Xiaoping Yang, **Hua Shen**. Social Commerce Theory and Practice[M], Tsinghua University Press, 2014, ISBN No. 9787302381129.

PATENTS

- 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.

RESEARCH TALKS

Princeton University Towards Useful AI Interpretability via Interactive AI Explanations	2023.05
CHI'23 In2Writing Workshop Parachute: Evaluating Interactive Human-LM Co-writing Systems	2023.04
IUI'23 ScatterShot: Interactive In-context Example Curation for Text Transformation	2023.03
Google Research MultiTurnCleanup: A Benchmark for Multi-Turn Spoken Conversational Transcript Cleanup	2023.01
University of Notre Dame Useful XAI via Interactive AI Explanations	2022.09
Amazon Science Auto-Regressive Language Model Distillation	2022.08
Amazon Science Improving Fairness in Speaker Verification Models	2021.08
CHI'21 HCXAI Workshop A Review on Human-Centered Explainable NLP	2021.05

TEACHING ASSISTANT EXPERIENCE

The Pennsylvania State University	
◦ Graduate Student Online Teaching Certificate	Fall 2021
◦ Data Integration (DS320) (undergraduate, 50 students)	Spring 2022
◦ Visual Analytics for Data Sciences (DS330) (undergraduate, 70 students)	Fall 2021 and Spring 2023
◦ Algorithmic Methods (DS397) (undergraduate, 25 students)	Fall 2020 and Spring 2021
◦ Application Development Studio I (IST261) (undergraduate, 50 students)	Fall 2020
Renmin University of China	
◦ Calculus I and Calculus II (undergraduate, 50 students)	Spring 2015 and Fall 2015
◦ Linear Algebra (undergraduate, 30 students)	Fall 2014
◦ Probability Theory and Mathematical Statistics (undergrad, 40 students)	Fall 2013 and Spring 2014

SERVICE

PC Member: ACL' 23, 21, EMNLP' 22, ICML '23 AI & HCI Workshop, CHI' 23 In2Writing Workshop.

Conference Reviewer: ACL RollingReview(ARR)' 22,21, CHI 2022 LBW, NeurIPS HEGM workshop, KDD' 20,19, ICDM' 19, ASONAM' 19, CIKM' 18, BigData' 18

Journal Reviewer: Transactions on Intelligent Systems and Technology (TIST)' 19, Transactions on Information Systems (TIS)' 19

AWARDS AND HONORS

Best Paper Honorable Mentioned , IUI Conference.	2023
Graduate Student Travel Grant , IST, PennState.	2022
Graduate Student Travel Grant , IST, PennState.	2020
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
Alumni Funding Scholarship , USTB.	2012
Vice Chairman , The 22nd Student Union of USTB.	2011-2012

MEDIA COVERAGE

- o **PSU News**. Jessica Hallman. October 26, 2020
Users don't understand computer explanations for image labeling errors.
[\[PSU News Link\]](#) [\[TechXplore Link\]](#) [\[ClickTech News Link\]](#)

TECHNICAL SKILLS

DL/ML Programming	PyTorch, TensorFlow, PyTorch-Transformers, S3PRL Speech, Scikit-Learn
Operational Systems	Ubuntu, Linux/Unix, Shell Script, MacOS, Windows
Web and Visualization	Matplotlib, HTML/CSS, JavaScript, D3.js, Bootstrap, React.js
HCI/UX Research	Controlled User Study, Empirical Methods and Statistical Analysis
Database	Microsoft SQL Server, MySQL, PostgreSQL
Miscellaneous	Amazon MTurk Crowdsourcing, Adobe Illustrator, LaTeX