

# Hua Shen (she/her)

Ph.D Candidate  
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## RESEARCH INTERESTS

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Human-centered AI interaction, human-AI alignment, AI explanation and fairness, AI-assisted learning support systems, conversational AI

## EDUCATION

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- 2019.08 - **Ph.D. in Informatics**  
(GPA: 3.93/4.0)  
Penn State University, PA, USA  
*Advisor:* Dr. Ting-Hao (Kenneth) Huang  
*Committee:* Sherry Tongshuang Wu, Mary Beth Rosson, Lee Giles, S. Shyam Sundar
- 2013.09 - 2016.06 **M.S. in Management Science and Engineering**  
(Admission Exam Exemption)  
Renmin University of China, Beijing, China  
*Advisor:* Dr. Xun Liang
- 2009.09 - 2013.06 **B.S. in Information Security**  
(Top: 2/35)  
University of Science and Technology Beijing, China

## RESEARCH EXPERIENCE

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- 2022.09 - 2023.01 **Google AI Research**  
Research Intern, Speech Intelligence Team, Seattle, USA  
*Mentors:* Vicky Zayats, Johann Rocholl, Dan Walker, Dirk Padfield  
MultiTurnCleanup: A benchmark for multi-turn spoken conversational transcript cleanup
- 2022.05 - 2022.08 **Amazon Science**  
Applied Scientist Intern, Alexa AI, Language Modeling Team, Seattle, USA  
*Mentors:* Jari Kolehmainen, Yi Gu, Qi Luo, Aditya Gourav, Ivan Bulyko  
(*Sr.*) *Principal Scientists:* Ankur Gandhe, Denis Filimonov, Ariya Rastrow, Andreas Stolcke  
Distilling auto-regressive large language models
- 2021.05 - 2021.08 **Amazon Science**  
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  
Improving fairness in speaker verification via group-adapted fusion network
- 2019.08 - **Penn State University**  
Research/Teaching Assistant, College of IST, PA, USA  
*Advisor:* Ting-Hao (Kenneth) Huang  
Improving human-centered AI explanation via Human-AI interaction

2018.08 - 2019.8 **Lehigh University**  
 Graduate Fellowship, Department of CSE, PA, USA  
*Advisors:* Brian D. Davison, Ting Wang  
 Adversarial and robustness of AI interpretability

## SELECTED HONORS AND AWARDS

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2023	<b>Best Paper Honorable Mentioned</b> (Top 5%, 3/65), IUI Conference
2020, 2022	<b>Graduate Student Travel Grant</b> (Virtual Conferences) (\$500), College of IST, PennState
2019	<b>CRA-W Grad Cohort Award</b> (\$2,000), Grad Cohort Workshop for Women
2018 - 2019	<b>Lehigh University Fellowship</b> (\$57,752), Lehigh University
2015	<b>Outstanding Master Degree Candidate</b> (Top 12.5%, 5/40), RenMin University of China
2013	<b>Outstanding Merit Student</b> (Top 0.2%, 1/550), Beijing
2013	<b>Excellent Graduate</b> (Top 0.2%, 1/550), Beijing
2013	<b>Outstanding-Dissertation Award</b> (Top 0.5%, 3/550), USTB
2011, 2022	<b>National Endeavor Fellowship</b> (¥10,000, Top 2%, 5/550),
2012	<b>Alumni Funding Scholarship</b> (¥5,000, Top 0.3%, 8/3,000), USTB

## PUBLICATIONS

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### Manuscripts and Pre-prints

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

### Peer-reviewed Conference & Workshop Publications

2023-2020	P.13	Tongshuang Wu, <b>Hua Shen</b> , Daniel S Weld, Jeffrey Heer, Marco Tulio Ribeiro. <a href="#">ScatterShot: Interactive In-context Example Curation for Text Transformation</a> . The ACM Conference on Intelligent User Interfaces. <i>IUI 2023 🏆 Best Paper Honorable Mention</i>
	P.12	<b>Hua Shen</b> , Tongshuang Wu. <a href="#">Parachute: Evaluating Interactive Human-LM Co-writing Systems</a> . The In2Writing Workshop at The 2023 ACM CHI Conference. <i>CHI 2023 In2Writing Workshop</i>
	P.11	<b>Hua Shen</b> , Tongshuang Wu, Wenbo Guo, Ting-Hao (Kenneth) Huang. <a href="#">Are Shortest Rationales the Best Explanations For Human Understanding?</a> 60th Annual Meeting of the Association for Computational Linguistics. <i>ACL 2022</i>

- 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 2022*
- P.9 Shih-Hong Huang, Chieh-Yang Huang, Yuxin Deng, **Hua Shen**, Szu-Chi Kuan, and Ting-Hao' Kenneth' Huang. [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. *AAAI HCOMP 2022 WiP/Demo*
- 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 2021 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 2021 Symposium*
- 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. *AAAI HCOMP 2020*
- 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 2020*
- 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 2020*
- 2018-2015 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 2018*
- 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 2016*
- 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 2015*
- Book**
- 2014 B.1 Xun Liang, Xiaoping Yang, **Hua Shen**. [Social Commerce Theory and Practice](#)[M], Tsinghua University Press, 2014. *ISBN No. 9787302381129*


## Patents

- 2018-2015 PT.2    Xun Liang, **Hua Shen**, Run Cao. [An innovative Emergency Discovery Method for Microblogging](#), Archived by State Intellectual Property Office of The P.R.C (SIPO), Patent Publication.  
*No. CN103577404A*
- PT.1    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*

## TEACHING ASSISTANT EXPERIENCE

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### Penn State University

- 2021                 **Graduate Student Online Teaching Certificate**
- 2023 SP, 2021 FA    **[DS 330] Visual Analytics for Data Sciences**  
*Undergraduate course, 70 students (Instructor: Luke Zhang, Sharon Huang)*
- 2022 SP            **[DS 320] Data Integration**  
*Undergraduate course, 50 students (Instructor: Yasser EL-Manzalawy)*
- 2021 SP, 2020 FA    **[DS 397] Algorithmic Methods**  
*Undergraduate course, 25 students (Instructor: Hadi Hosseini)*
- 2023, 2021        **[IST 261] Application Development Studio I**  
*Undergraduate course, 50 students (Instructor: Kenneth Huang)*

### Renmin University of China

- 2015 FA            **Calculus II**  
*Undergraduate course, 50 students (Instructor: Wenlin Huang)*
- 2015 SP            **Calculus I**  
*Undergraduate course, 50 students (Instructor: Wenlin Huang)*
- 2014 FA            **Linear Algebra**  
*Undergraduate course, 40 students (Instructor: Qijiang Song)*
- 2013 FA, 2014 SP    **Probability Theory and Mathematical Statistics**  
*Undergraduate course, 40 students (Instructor: Qijiang Song)*

## MENTORING EXPERIENCE

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- PhD                **Jooyoung Lee** (Penn State)  
Human collaborative evaluation on LLM-generated deepfake texts
- Master            **Ruchi Panchanadikar** (Penn State; Incoming PhD at Clemson University)  
Developing Interactive AI Explanation System
- Bachelor         **Yuxin Deng** (Penn State; Incoming Master at CMU)  
Human Study of Interactive AI Explanation System
- Reuben Lee** (Penn State; Incoming TDP at Capital One)  
Developing Interactive AI Explanation System

## RESEARCH TALKS

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2023.05	<b>Princeton University.</b> Onsite. Host: Dr. Ruth Fong. <a href="#">Towards Useful AI Interpretability via Interactive AI Explanations</a>
2023.04	<b>CHI 2023 In2Writing Workshop.</b> Onsite. Host: Dr. Katy Ilonka Gero <a href="#">Parachute: Evaluating Interactive Human-LM Co-writing Systems</a>
2023.03	<b>IUI 2023.</b> Virtual. Host: Dr. Evangelos Niforatos <a href="#">ScatterShot: Interactive In-context Example Curation for Text Transformation</a>
2023.01	<b>Google AI Research.</b> Virtual. Host: Dr. Vicky Zayats <a href="#">A Benchmark for Multi-Turn Spoken Conversational Transcript Cleanup</a>
2022.09	<b>University of Notre Dame.</b> Virtual. Host: Zheng Zhang <a href="#">Useful XAI via Interactive AI Explanations</a>
2022.08	<b>Amazon Alexa AI.</b> Virtual. Host: Dr. Jari Kolehmainen <a href="#">Distilling Auto-Regressive Large Language Models</a>
2021.08	<b>Amazon Alexa AI.</b> Virtual. Host: Dr. Yuguang Yang <a href="#">Improving Fairness in Speaker Verification Models</a>
2021.05	<b>CHI 2021 HCXAI Workshop.</b> Virtual. Host: Upol Ehsan <a href="#">A Survey on Human-Centered Explainable NLP</a>

## COMMUNITY SERVICE AND LEADERSHIP

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### Program Committees

NLP	<b>ACL</b> 2023, 2021. <b>EMNLP</b> 2022.
HCI	<b>CHI 2023 In2Writing Workshop.</b>
AI	<b>ICML 2023 AI &amp; HCI Workshop.</b>

### Paper Reviewing

NLP	<b>EMNLP</b> 2023, <b>ACL RollingReview</b> (ARR) 2023, 2022, 2021.
HCI	<b>CHI Late-Breaking Work</b> , 2023, 2022.
AI	<b>NeurIPS</b> 2022 HEGM Workshop. <b>KDD</b> 2020, 2019. <b>ICDM</b> 2019. <b>ASONAM</b> 2019. <b>CIKM</b> 2018. <b>BigData</b> 2018. <b>TIST</b> Transactions on Intelligent Systems and Technology 2019. <b>TIS</b> Transactions on Information Systems 2019.

### Service and Leadership

2022	<b>Student contributor</b> , <a href="#">JSALT 2022</a> . Contributed in the JSALT Leveraging Pre-training Models for Speech Processing Team.
2021	<b>Invited lecturer</b> , Penn State IST 501, Host: Dr. Mary Beth Rosson. 1 of the 3 representatives of 2019 PhDs to mentor 2020 PhDs in qualification exam.
2021	<b>Course design lecturer</b> , Penn State DS 330, Host: Dr. Sharon Huang. Served in Visual analytics for data sciences course project lecture.
2016-2018	<b>Leader</b> , CMBC Management Trainee Program. Served in head office future bankers program of China Minsheng Bank.
2014	<b>Liaison officer</b> , Singapore deputy prime minister delegation in APEC. Served in APEC (Asia-Pacific Economic Cooperation) finance ministerial meeting.
2012	<b>Vice Chairman</b> , <a href="#">USTB student union presidium</a> . Served in the 6th presidium of the 22nd session of USTB student union.

## MEDIA COVERAGE

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2020                      **Users don't understand computer explanations for image labeling errors.**  
[PSU News](#), 2020.10  
[TechXplore News](#), 2020.10  
[ClickTech News](#), 2020.10

## TECHNICAL SKILLS

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

## REFERENCES

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Dr. <b>Ting-Hao 'Kenneth' Huang</b>	Assistant Professor, College of IST, Penn State University
Dr. <b>Sherry Tongshuang Wu</b>	Assistant Professor, HCII, School of CS, Carnegie Mellon University
Dr. <b>Mary Beth Rosson</b>	Professor, Associate dean of IST and director of graduate programs (Emeritus), Penn State University
Dr. <b>Andreas Stolcke</b>	Senior Principal Scientist in Amazon Alexa Speech, ICSI (UC Berkeley)
Dr. <b>Yuguang Yang</b>	Microsoft, Senior Applied Scientist.
Dr. <b>Vicky Zayats</b>	Google Research, Research Scientist