

# Mengnan Du

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## Education

- 2017.8 - Now **Ph.D Computer Science**, *Texas A&M University*.  
Advisor: Dr. Xia Ben Hu
- 2014.9 - 2017.3 **M.S. Electrical Engineering**, *Beihang University*, Beijing, *GPA: 3.80/4.00*.  
Advisor: Prof. Xingming Wu, Prof. Weihai Chen and Prof. Zhengguo Li
- 2010.9 - 2014.6 **B.E. Electrical Engineering**, *North China Electric Power University*, Beijing, *GPA: 3.91/4.00*.  
Advisor: Associate Prof. Guangsheng Liang

## Industry Experience

- 2020.5 - 2020.8 **Machine Learning Research Intern**, *Adobe*, San Jose (Remotely in College Station, Texas).
  - Bias detection and mitigation for few shot learning applications.
  - Mentors: Varun Manjunatha, Tong Sun, Rajiv Jain, Jiuxiang Gu, Ruchi Deshpande, Franck Dernoncourt
- 2017.3 - 2017.8 **Software Engineer Intern**, *Intel Asia-Pacific Research & Development Ltd*, Shanghai.
  - Worked on an AR (Augmented reality) project for Smart glasses.
  - Developed image classification and speech recognition algorithms which can be deployed on Android system.

## Research Interests

- 2017 -Till now Interpretable machine learning, with a particular interest in the areas of DNN interpretability. Applications of DNN interpretability, including fake news detection, fairness in deep learning, and medical diagnosis.

## Publications [\(Google Scholar\)](#)

- CACM **Mengnan Du**, Ninghao Liu, and Xia Hu, "Techniques for Interpretable Machine Learning", *Communications of the ACM*, 2020. [Highlighted Article on the cover page of the January 2020 issue](#)
- IEEE IS **Mengnan Du**, Fan Yang, Na Zou, and Xia Hu, "Fairness in Deep Learning: A Computational Perspective", accepted by *IEEE Intelligent Systems*, 2020.
- CIKM **Mengnan Du\***, Shiva Pentylala\*, Yuening Li, Xia Hu, "Towards Generalizable Deepfake Detection with Locality-aware AutoEncoder", *The 29th ACM International Conference on Information and Knowledge Management*, 2020. (\*Equal contribution)
- KAIS **Mengnan Du**, Ninghao Liu, Fan Yang, and Xia Hu, "Learning Credible DNNs via Incorporating Prior Knowledge and Model Local Explanation", accepted by *Knowledge and Information Systems*, 2020.
- KDD Ruixiang Tang, **Mengnan Du**, Ninghao Liu, Fan Yang, and Xia Hu, "An Embarrassingly Simple Approach for Trojan Attack in Deep Neural Networks", *The 26rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 2020.
- SDM Fan Yang, Ninghao Liu, **Mengnan Du**, Kaixiong Zhou, Shuiwang Ji and Xia Hu, "Deep Neural Networks with Knowledge Instillation", *SIAM International Conference on Data Mining*, 2020.
- BMC Nur Hafieza Ismail, Ninghao Liu, **Mengnan Du**, Zhe He and Xia Hu, "A Deep Learning Approach for Identifying Cancer Survivors Living with Post-Traumatic Stress Disorder on Twitter", *BMC Medical Informatics and Decision Making*, 2020.
- ICDM **Mengnan Du**, Ninghao Liu, Fan Yang, and Xia Hu, "Learning Credible Deep Neural Networks with Rationale Regularization", *IEEE International Conference on Data Mining*, 2019. [Best Paper Candidate](#)
- WWW **Mengnan Du**, Ninghao Liu, Fan Yang, Shuiwang Ji, and Xia Hu, "On Attribution of Recurrent Neural Network Predictions via Additive Decomposition", *The Web Conference*, 2019. [Best Paper Candidate](#)
- WWW Fan Yang\*, Shiva Pentylala\*, Sina Mohseni\*, **Mengnan Du\***, Hao Yuan\*, Rhema Linder, Eric Ragan, Shuiwang Ji and Xia Hu, "XFake: Explainable Fake News Detector with Visualizations", *The Web Conference, demo track*, 2019. (\*Equal contribution)

- WSDM Ninghao Liu, **Mengnan Du** and Xia Hu, "Representation Interpretation with Spatial Encoding and Multimodal Analytics", ACM International Conference on Web Search and Data Mining, 2019.
- BCB Nur Hafieza Ismail, **Mengnan Du**, Diego Martinez and Zhe He, "Multivariate Multi-step Deep Learning Time Series Approach in Forecasting Parkinson's Disease Future Severity Progression", ACM BCB 2019.
- MEDINFO Nur Hafieza Ismail, Ninghao Liu, **Mengnan Du**, Zhe He, and Xia Hu, "Identification of Cancer Survivors Living with Post-Traumatic Stress Disorder (PTSD) on Social Media", The World Congress on Medical and Health Informatics, poster, 2019.
- CIKM Yuening Li, Xiao Huang, Jundong Li, **Mengnan Du**, and Na Zou, "SpecAE: Spectral Autoencoder for Anomaly Detection in Attributed Networks", ACM International Conference on Information and Knowledge Management, 2019. [INFORMS 2019 Best Refereed Paper Finalists](#)
- IJCNN Yuening Li, Ninghao Liu, Jundong Li, **Mengnan Du**, and Xia Hu, "Deep Structured Cross-Modal Anomaly Detection", International Joint Conference on Neural Networks, 2019.
- KDD **Mengnan Du**, Ninghao Liu, Qingquan Song, and Xia Hu, "Towards Explanation of DNN-based Prediction with Guided Feature Inversion", The 24rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2018.
- DSP **Mengnan Du**, Xingming Wu, Weihai Chen, Zhengguo Li, "Supervised Training and Contextually Guided Salient Object Detection", Digital signal processing, 2017.
- JEI **Mengnan Du**, Xingming Wu, Weihai Chen, Jianhua Wang, "Exploiting multiple contexts for saliency detection", Journal of Electronic Imaging, 2016.
- SCIENCE CHINA Xingming Wu, **Mengnan Du**, Weihai Chen, Jianhua Wang, "Salient object detection via region contrast and graph regularization", SCIENCE CHINA Information Sciences, 2016.
- ICIEA Xingming Wu, **Mengnan Du**, Weihai Chen, Zhengguo Li, "Exploiting Deep Convolutional Neural Network and Patch-level CRFs for Indoor Semantic Segmentation", in IEEE Conference on Industrial Electronics and Applications, 2016.
- CCDC **Mengnan Du**, Xingming Wu, Weihai Chen, Jianhua Wang, "Fusing region contrast and graph regularization for saliency detection", Chinese Control and Decision Conference, 2015.
- Measurement Control Technology Guangsheng Liang, **Mengnan Du**, Zihao Zhou, et al. "Attitude control based on complementary filter for two-wheel self-balance car", Measurement Control Technology, 2015. (**in chinese**)

## Workshop Papers

- CHI workshop Sina Mohseni, Fan Yang, Shiva Pentylala, **Mengnan Du**, Yi Liu, Nic Lupfer, Xia Hu, Shuiwang Ji, Eric Ragan, "Trust Evolution Over Time in Explainable AI for Fake News Detection", Workshop for ACM SIGCHI, 2020.
- CVPR workshop Haofan Wang, Zifan Wang, **Mengnan Du**, Fan Yang, Zijian Zhang, Sirui Ding, Piotr Mardziel, Xia Hu, "Score-CAM: Score-Weighted Visual Explanations for Convolutional Neural Networks", IEEE CVPR Workshop on Fair, Data-Efficient and Trusted Computer Vision, 2020.
- SEPDA Nur Hafieza Ismail, Ninghao Liu, **Mengnan Du**, Zhe He, and Xia Hu, "Using Deep Neural Network to Identify Cancer Survivors Living with Post-Traumatic Stress Disorder on Social Media ", The 4th Interpretable Workshop on Semantics-Powered Data Mining and Analytics, 2019.

## Book Chapter

- Springer Nur Hafieza Ismail, **Mengnan Du**, Xia Hu, "Social Media and Psychological Disorder", Social Web and Health Research, Springer, 2019. 171-192.

## Preprints

- Fairness Ruixiang Tang, **Mengnan Du**, Yuening Li, Zirui Liu and Xia Hu, "Mitigating Gender Bias in Captioning Systems", arXiv:2006.08315, 2020.
- XAI Huiqi Deng, Na Zou, **Mengnan Du**, Weifu Chen, Guocan Feng, Xia Hu, "A Unified Taylor Framework for Revisiting Attribution Methods", arXiv:2008.09695, 2020.
- XAI Sina Mohseni, Fan Yang, Shiva Pentylala, **Mengnan Du**, Yi Liu, Nic Lupfer, Xia Hu, Shuiwang Ji, and Eric Ragan, "Machine Learning Explanations to Prevent Overtrust in Fake News Detection", arXiv:2007.12358, 2020.

- XAI Fan Yang, **Mengnan Du**, and Xia Hu, "Evaluating Explanation Without Ground Truth in Interpretable Machine Learning", arXiv:1907.06831, 2019.
- XAI Ninghao Liu, **Mengnan Du**, and Xia Hu, "Adversarial Machine Learning: An Interpretation Perspective", arXiv:2004.11488, 2020.
- XAI Weijie Fu, Meng Wang, **Mengnan Du**, Ninghao Liu, Shijie Hao and Xia Hu, "Distribution-Guided Local Explanation for Black-Box Classifiers", 2019.
- NAS Yijun Bian, Qingquan Song, **Mengnan Du**, Jun Yao, Huanhuan Chen and Xia Hu, "Sub-Architecture Ensemble Pruning in Neural Architecture Search", arXiv:1910.00370, 2019.

## Professional Talks

- 2020 "Towards Effective Interpretation of Deep Neural Networks: Algorithms and Applications", Invited talk at Bio-Seminar, ECE Department of Texas A&M University
- 2019 "Learning Credible Deep Neural Networks with Rationale Regularization", ICDM-19
- 2019 "On Attribution of Recurrent Neural Network Predictions via Additive Decomposition", WWW-19
- 2018 "Towards Explanation of DNN-based Prediction with Guided Feature Inversion", KDD-18

## Services

- Conference Program Committee member of AAAI-2021, AAAI-21 Workshop on Content Authoring and Design, NeurIPS-2020, ACL-2020, EMNLP-2020, AAAI-2020, KDD-2020, and AMIA-2020. Reviewer of ICML UDL Workshop 2020, and ICRA-2019
- Journal Reviewer of ACM Computing Surveys, IEEE Transactions on Neural Networks and Learning Systems, IEEE Signal Processing Letters, Journal of Electronic Imaging, IEEE Access

## Major Honors & Awards

- 2020 Graduate Research Excellence Award, Texas A&M University
- 2020 NortonLifeLock Graduate Fellowship 2020 finalist
- 2019 ICDM 2019 Best Paper Candidate
- 2019 ICDM Student Travel Award
- 2019 INFORMS 2019 Best Refereed Paper Finalists
- 2019 WWW 2019 Best Paper Shortlist
- 2019 TAMU CSE Student Travel Award covering the attendance of the WWW 2019
- 2018 KDD Student Travel Award