

# Ziyi Kou

Mobile: (585)-210-5501

Google Scholar: [Ziyi Kou](#)

Email: [ziyikou2@illinois.edu](mailto:ziyikou2@illinois.edu)

Website: [ziyikou.me](http://ziyikou.me)

## EDUCATION

<b>University of Illinois Urbana-Champaign</b> Ph.D Student in Information Sciences, Advisor: Dong Wang, GPA: N/A	<b>Champaign, IL</b>	<b>2021.6 - Present</b>
<b>University of Notre Dame</b> Ph.D Student in Computer Science and Engineering, Advisor: Dong Wang, GPA: 3.78/4.0	<b>Notre Dame, IN</b>	<b>2020.9 – 2021.6</b>
<b>University of Rochester</b> M.S. in Computer Science, Advisor: Chenliang Xu, GPA: 3.89/4.0	<b>Rochester, NY</b>	<b>2018.9 – 2020.6</b>
<b>Chongqing University</b> B.Eng. in Software Engineering, GPA: 3.51/4.0	<b>Chongqing, China</b>	<b>2014.9 – 2018.6</b>

## EXPERIENCE

<b>Research Assistant</b>	<b>University of Notre Dame &amp; UIUC</b>	<b>Jul. 2020 – Present</b>
<ul style="list-style-type: none"><li>• <i>Knowledge Graph based Fake News Detection: A Hierarchical Knowledge Graph for Unseen COVID-19 Fake News Detection</i><ul style="list-style-type: none"><li>○ Built a knowledge graph based relation graph neural network (RGCN) to detect and explain COVID-19 fake news</li><li>○ The algorithm can accurately detect the newly emerged COVID-19 fake news (87.6%) in social media</li></ul></li><li>• <i>Data Augmentation on Fairness: A Data Sampling Framework to Improve Fairness of Face Recognition Algorithms</i><ul style="list-style-type: none"><li>○ Built an entropy-based data sampling framework to improve fairness of current human face datasets</li><li>○ The augmented human face datasets significantly improve fairness performance (0.107 eq. odds) of ML algorithms</li></ul></li><li>• <i>Distributed Abnormal Health Prediction: A Federated Learning based Human Abnormal Health Detection</i><ul style="list-style-type: none"><li>○ Built a federated reinforcement learning framework to detect abnormal health condition using human edge devices</li><li>○ The designed framework can effectively detect human abnormal health condition in a real distributed scenario</li></ul></li><li>• <i>Explainable Misinformation Detection: A Multi-Modal Graph-based Algorithm towards Explainable Fauxtography Detection</i><ul style="list-style-type: none"><li>○ Built a multi-modal graph neural network (GCN) to detect and explain online fauxtography social media posts</li><li>○ The algorithm effectively identifies and explains recent multi-modal fauxtography posts (98.1% acc.) in social media</li></ul></li></ul>		
<b>Research Assistant</b>	<b>University of Rochester</b>	<b>Sep. 2019 – Apr. 2020</b>
<ul style="list-style-type: none"><li>• <i>Image Object Localization for Free: A Gradient based Algorithm towards Weakly Supervised Object Localization</i><ul style="list-style-type: none"><li>○ Built an adversarial object localization algorithm to estimate object locations in given images without position annotations</li><li>○ The proposed algorithm achieved state-of-the-art performance (71.2% IoU) on the object localization task</li></ul></li><li>• <i>Abnormal Paper Detection: A Few-shot Video-Level Machine Learning Algorithm for Fold Paper Detection</i><ul style="list-style-type: none"><li>○ Built a few-shot fold paper detection algorithm for Corning Inc. using videos from surveillance cameras in glass factories</li><li>○ The proposed algorithm achieved good performance (91% accuracy) to detect folded papers during glass production.</li></ul></li></ul>		
<b>Machine Learning Engineer Intern</b>	<b>Shanghai Jiaotong University, China</b>	<b>Jun. 2019 – Sep. 2019</b>
<ul style="list-style-type: none"><li>• <i>Celebrity Face Recognition: A TV embedded Light-Weight Face Recognition Algorithm for Asian Celebrity</i><ul style="list-style-type: none"><li>○ Developed an angular based face recognition algorithm based on LightCNN algorithm and ArcLoss function</li><li>○ The algorithm can accurately detect Asian celebrity faces (97.5% accuracy) in real time for celebrities in TV shows</li></ul></li></ul>		

## SKILLS

**Programming:** Python, R, SQL, Java, Javascript; Hadoop, Spark; PyTorch, Keras, Sklearn; Tableau, d3.js; REST, Django, Scrapy

**Machine Learning:** Object Detection, Face Recognition/Generation, Text mining, Recommendation System, Anomaly Detection

**Mathematics & Statistics:** Linear Algebra, Computer Algorithm, A/B testing, Probabilistic Modeling, Time-Series Modeling

**Technical Application:** Git, SAS, AWS ML/S3/EC2, Docker, Amazon MTurk, NVIDIA GPU, Unity3D, Shell

**Writing & Communication:** Latex, Sphinx, Markdown, Jekyll, Wordpress

## SELECTED PUBLICATIONS

- [1] **Z. Kou**, L. Shang, Y. Zhang, D. Wang. "HC-COVID: A Hierarchical Crowdsourced Knowledge Graph to Explainable COVID-19 Misinformation Detection." Proceedings of the ACM on Human-Computer Interaction (GROUP' 22)
- [2] **Z. Kou**, Y. Zhang, L. Shang, and D. Wang. "FairCrowd: Fair Human Face Dataset Sampling via Batch-Level Crowdsourcing Bias Inference." In IEEE/ACM International Symposium on Quality of Service (IWQoS' 21)
- [3] Chen, L., Cui, G., Liu, C., Li, Z., **Z. Kou.**, Xu, Y. and Xu, C., 2020, August. Talking-head generation with rhythmic head motion. In European Conference on Computer Vision (ECCV'20)
- [4] Zhang, D.Y. \*, **Kou, Z. \*** and Wang, D., 2021, May. FedSens: A Federated Learning Approach for Smart Health Sensing with Class Imbalance in Resource Constrained Edge Computing. In IEEE INFOCOM Conference on Computer Communications (INFOCOM' 21)
- [5] **Z. Kou**, G. Cui, S. Wang, W. Zhao, and C. Xu. "Improve CAM with Auto-adapted Segmentation and Co-supervised Augmentation." In IEEE/CVF Winter Conference on Applications of Computer Vision (WACV' 21)

## Award

- INFOCOM 2021 Student Grant
- Academic Tuition Scholarship, University of Rochester