

Zhikang Zhang

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RESEARCH AREAS

Information-aware Sensing, Machine Perception, Computer Vision, Machine Learning

EDUCATION

- **Arizona State University** Tempe, AZ
Doctor of Philosophy in Computer Science *Aug. 2017 – Present*
- **University of Science and Technology of China** Hefei, China
Bachelor of Science in Statistics *Aug. 2012 – June. 2016*

RESEARCH EXPERIENCES

- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Aug 2021 - Present*
 - **Data-driven Visualization for Semiconductor Analysis:** Develop data-driven visualization methods to facilitate the inspection of via and wire segmentation results for semiconductor analysis.
- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Aug 2021 - Apr 2022*
 - **Selective Learning:** Extend the proposed selective sensing framework for image compressive learning. A research paper is under review.
- **Amazon.com Services, Inc** Working remotely
Applied Scientist Intern *May 2021 - Aug 2021*
 - **Multi-modal Learning for Online Video Streaming:** Designed machine learning algorithms to perform video understanding and defect detection in online video streaming applications based on multi-modal (video, audio, and text) learning.
- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Jan 2020 - May 2021*
 - **Data-driven Image Compressive Sensing for Bioelectric Signal:** Conducted an experimental study on transferring data-driven image compressive sensing to bioelectric signals. The research paper is published on ICASSP 2022.
- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Jan 2020 - May 2021*
 - **Selective Sensing:** Proposed a computation-free signal compressive sensing scheme called selective sensing. The research paper is under review.
- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Jan 2020 - May 2021*
 - **OpenICS:** Proposed and directed the implementation of OpenICS, an open-source image compressive sensing toolbox and benchmark. An invited paper is accepted for publication in an upcoming issue of Software Impacts.
- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Aug 2018 - Aug 2019*
 - **Compression Ratio Adapter:** Proposed a general compression ratio adapter for end-to-end compressive sensing reconstruction frameworks. A paper is published on ICASSP 2020.
- **Parallel Systems and Computing Laboratory** Tempe, AZ
Graduate Research Associate *Aug 2017 - Aug 2018*
 - **Laplacian Pyramid Reconstructive Adversarial Network:** Participated in a research project of proposing a flexible compressive sensing reconstruction framework. The research paper is published on ECCV 2018

TEACHING EXPERIENCES

• School of Computing and Augmented Intelligence

Graduate Teaching Associate

Tempe, AZ

Aug 2019 - Dec 2019

- **Graduate Teaching Associate:** Assisted with teaching of the undergraduate level course "CSE 100: Principles of Programming with C++".

PUBLICATIONS

1. Zhikang Zhang and Fengbo Ren, "Selective Learning: Data-driven Nonuniform Subsampling for Image Compressive Learning", under review.
2. Zhikang Zhang, Jonathan Zhao, and Fengbo Ren, "An Experimental Study on Transferring Data-driven Image Compressive Sensing to Bioelectric Signals" In International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022.
3. Zifan Yu, Bruno Machado Trindade, Michael Green, Zhikang Zhang, Pullela Sneha, Erfan Bank Tavakoli, Christopher Pawlowicz, and Fengbo Ren, "A Data-Driven Approach for Automated Integrated Circuit Segmentation of Scan Electron Microscopy Images", under review.
4. Zhikang Zhang, Kai Xu, and Fengbo Ren, "Selective Sensing: A Data-driven Nonuniform Subsampling Approach for Image Compressive Sensing", under review.
5. Jonathan Zhao, Márk Lakatos-Tóth, Matthew Westerham, Zhikang Zhang, Avi Moskoff, and Fengbo Ren. "OpenICS: Open image compressive sensing toolbox and benchmark." *Software Impacts* 9 (2021): 100081.
6. Zhikang Zhang, Kai Xu, and Fengbo Ren, "CRA: A Generic Compression Ratio Adapter For End-to-end Data-driven Image Compressive Sensing Reconstruction Frameworks" In International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2020, oral.
7. Kai Xu, Zhikang Zhang, and Fengbo Ren, "LAPRAN: A Scalable Laplacian Pyramid Reconstructive Adversarial Network for Flexible Compressive Sensing Reconstruction" In European Conference on Computer Vision (ECCV), 2018.

PATENTS

1. Selective Sensing: A Data-driven Nonuniform Subsampling Approach For Computation-free Compressive Information Acquisition, submitted, 5/11/2020.
2. CRA: A Generic Compression Ratio Adapter for End-to-End Data-Driven Image Compressive Sensing Reconstruction Frameworks, submitted, 3/31/2020.
3. LAPRAN: A Scalable Laplacian Pyramid Reconstructive Adversarial Network for Flexible Compressive Sensing Reconstruction, submitted, 10/3/2018.

PROGRAMMING SKILLS

Language: Python, Matlab, R, C

Tools: Pytorch, Tensorflow.

RELEVANT COURSES

1. CSE 571 Artificial intelligence
2. CSE 575 Statistical Machine Learning
3. CSE 591 Image Analytics & Informatics
4. CSE 576 Topics on Natural Language Processing
5. CSE 598 Bio-inspired AI and Optimization

6. CSE 691 Topics in Reinforcement Learning
7. CSE 572 Data Mining
8. CSE 551 Foundations of Algorithms
9. CSE 534 Advanced Computer Networks
10. CSE 539 Applied Cryptography
11. CSE 511 Data Processing at Scale
12. CSE 535 Mobile Computing