

## Kang Zheng, Ph.D.

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GOOGLE SCHOLAR <https://scholar.google.com/citations?user=bMDB5WEAAAAJ>

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EDUCATION **University of South Carolina**, Columbia, SC, USA Aug. 2012 – Aug. 2019  
Ph.D. in Computer Science and Engineering

**Harbin Institute of Technology**, Harbin, Heilongjiang, China Aug. 2008 – Jul. 2012  
B.E. in Electrical Engineering

EXPERIENCES **PAII Inc.** Bethesda, MD, USA  
Senior Research Scientist Aug. 2019 –

**PAII Inc.** Bethesda, MD, USA  
Research Intern Feb. – Jun. 2019

**HERE North America** Chicago, IL, USA  
Research Intern Jul. – Oct. 2017

RESEARCH INTERESTS Computer Vision, Deep Learning, Medical Image Analysis, Image Understanding

FULL-LENGTH PUBLICATIONS

28. C-I Hsieh\*, **K. Zheng**\*, C. Lin\*, L. Mei, L. Lu, W. Li, F-P Chen, Y. Wang, X. Zhou, F. Wang, G. Xie, J. Xiao, S. Miao, C-F Kuo: “*Automated bone mineral density prediction and fracture risk assessment using plain radiographs via deep learning*”, Nature Communications, 2021. (\* equal contribution)
27. X. Zhou, B. Lai, W. Li, Y. Wang, **K. Zheng**, F. Wang, C. Lin, L. Lu, L. Huang, M. Han, G. Xie, J. Xiao, C-F Kuo, A. Harrison, S. Miao: “*Scalable Semi-supervised Landmark Localization for X-ray Images using Few-shot Deep Adaptive Graph*”, MICCAI Workshop, 2021.
26. F. Wang, **K. Zheng**, Y. Wang, X. Zhou, L. Lu, J. Xiao, M. Wu, C-F Kuo, S. Miao: “*Opportunistic Screening of Osteoporosis Using Plain Film Chest X-ray*”, MICCAI Workshop, 2021.
25. **K. Zheng**, Y. Wang, X. Zhou, F. Wang, L. Lu, C. Lin, L. Huang, G. Xie, J. Xiao, C-F Kuo, S. Miao: “*Semi-Supervised Learning for Bone Mineral Density Estimation in Hip X-ray Images*”, MICCAI, 2021 (early accept).
24. Y. Wang, **K. Zheng**, C-T Chang, X-Y Zhou, Z. Zheng, L. Huang, J. Xiao, L. Lu, C-H Liao, S. Miao: “*Knowledge Distillation with Adaptive Asymmetric Label Sharpening for Semi-supervised Fracture Detection in Chest X-rays*”, IPMI, 2021.
23. F. Wang, **K. Zheng**, L. Lu, J. Xiao, M. Wu, S. Miao: “*Automatic Vertebra Localization and Identification in CT by Spine Rectification and Anatomically-constrained Optimization*”, CVPR, 2021.

22. S. Song, Z. Miao, H. Yu, J. Fang, **K. Zheng**, C. Ma, S. Wang: “*Deep Domain Adaptation Based Multi-spectral Salient Object Detection*”, IEEE Transactions on Multimedia, 2020.
21. Y. Lu, **K. Zheng**, W. Li, Y. Wang, A. Harrison, C. Lin, S. Wang, J. Xiao, L. Lu, C-F Kuo, S. Miao: “*Contour Transformer Network for One-shot Segmentation of Anatomical Structures*”, IEEE Transactions on Medical Imaging, 2020.
20. W. Li, Y. Lu, **K. Zheng**, H. Liao, C. Lin, J. Luo, CT Cheng, J. Xiao, L. Lu, C-F Kuo, S. Miao: “*Structured Landmark Detection via Topology-Adapting Deep Graph Learning*”, ECCV, 2020.
19. H. Chen, Y. Wang, **K. Zheng**, W. Li, CT Cheng, A. Harrison, J. Xiao, G. Hager, L. Lu, C. Liao, S. Miao: “*Anatomy-Aware Siamese Network: Exploiting Semantic Asymmetry for Accurate Pelvic Fracture Detection*”, ECCV, 2020.
18. Y. Lu, W. Li, **K. Zheng**, Y. Wang, A. Harrison, C. Lin, J. Xiao, L. Lu, S. Wang, C-F Kuo, S. Miao: “*Learning to Segment Anatomical Structures Accurately from One Exemplar*”, MICCAI, 2020.
17. H. Yu, **K. Zheng**, J. Fang, H. Guo, S. Wang. “*A New Method and Benchmark for Detecting Co-Saliency within a Single Image*”, IEEE Transactions on Multimedia, 2020.
16. Y. Mi, **K. Zheng**, S. Wang. “*Homography Estimation along Short Videos by Recurrent Convolutional Regression Network*”, Mathematical Foundations of Computing, 2020.
15. S. Song, H. Yu, Z. Miao, J. Fang, **K. Zheng**, C. Ma, S. Wang. “*Multi-spectral Salient Object Detection by Adversarial Domain Adaptation*”, AAAI, 2020.
14. D. Guo, Y. Pei, **K. Zheng**, H. Yu, Y. Lu, S. Wang: “*Degraded Image Semantic Segmentation with Dense-Gram Networks*”, IEEE Transactions on Image Processing, 2019.
13. H. Guo, **K. Zheng**, X. Fan, H. Yu, S. Wang: “*Visual Attention Consistency under Image Transforms for Multi-Label Image Classification*”, CVPR, 2019.
12. G. Liang, X. Lan, X. Chen, **K. Zheng**, S. Wang, N. Zheng. “*Cross-View Person Identification based on Confidence-Weighted Human Pose Matching*, IEEE Transactions on Image Processing, 2019.
11. Y. Mi, **K. Zheng**, S. Wang: “*Recognizing Actions in Wearable-Camera Videos by Training Classifiers on Fixed-Camera Videos*”, ICMR, 2018.
10. G. Liang, X. Lan, **K. Zheng**, S. Wang, N. Zheng: “*Cross-View Person Identification by Matching Human Poses Estimated with Confidence on Each Body Joint*”, AAAI, 2018.

9. H. Yu, **K. Zheng**, J. Fang, H. Guo, W. Feng, S. Wang: “*Co-Saliency Detection within a Single Image*”, AAAI, 2018.
  8. **K. Zheng**, X. Fan, Y. Lin, H. Guo, H. Yu, D. Guo, S. Wang: “*Learning View-Invariant Features for Person Identification in Temporally Synchronized Videos Taken by Wearable Cameras*”, ICCV, 2017.
  7. D. Guo, **K. Zheng**, S. Wang: “*Lesion Detection Using T1-Weighted MRI: A New Approach Based on Functional Cortical ROIs*”, ICIP, 2017.
  6. **K. Zheng**, H. Guo, X. Fan, H. Yu, S. Wang: “*Identifying Same Persons from Temporally Synchronized Videos Taken by Multiple Wearable Cameras*”, CVPR Workshop, 2016.
  5. D. Guo, J. Fridriksson, P. Fillmore, C. Rorden, H. Yu, **K. Zheng**, S. Wang: “*Automated lesion detection on MRI scans using combined unsupervised and supervised methods*”, BMC Medical Imaging, 2015.
  4. X. Fan, **K. Zheng**, Y. Lin, S. Wang: “*Combining Local Appearance and Holistic View: Dual-Source Deep Neural Networks for Human Pose Estimation*”, CVPR, 2015.
  3. D. Salvi, **K. Zheng**, Y. Zhou, S. Wang: “*Distance Transform Based Active Contour Approach for Document Image Rectification*”, WACV, 2015.
  2. **K. Zheng**<sup>\*</sup>, Y. Lin<sup>\*</sup>, Y. Zhou, D. Salvi, X. Fan, D. Guo, Z. Meng, S. Wang: “*Video-based Action Detection using Multiple Wearable Cameras*”, ECCV Workshop, 2014. (\* equal contribution)
  1. X. Fan, **K. Zheng**, Y. Zhou, S. Wang: “*Pose Locality Constrained Representation for 3D Human Pose Reconstruction*”, ECCV, 2014.
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6. Y-J Huang, C-F Kuo, F. Wang, S. Miao, **K. Zheng**, L. Lu: “*Automatic Joint Space Assessment in Hand Radiographs with Deep Learning Among Patients with Rheumatoid Arthritis*”, ACR 2020.
  5. C-I Hsieh, C-F Kuo, S. Miao, **K. Zheng**, L. Lu: “*Predicting Bone Mineral Density of Lumbar Vertebrae by Assessing Plain Film with Deep Learning*”, ACR 2020.
  4. **K. Zheng**, Y. Wang, L. Lu, C. Hsieh, C. Kuo, S. Miao: “*Consistent and Coherent Computer-Aided Knee Osteoarthritis Assessment from Plain Radiographs*”, RSNA 2020.
  3. C. Kuo, S. Miao, **K. Zheng**, L. Lu, C. Hsieh, C. Lin, T Fan: “*Prediction of low bone mineral density and FRAX score by assessing hip bone texture with deep learning*”, EULAR 2020.
  2. C. Kuo, **K. Zheng**, S. Miao, L. Lu, C. Hsieh, C. Lin, T. Fan: “*Predictive value of bone texture features extracted by deep learning models for the detection of osteoarthritis*”

CLINICAL  
ABSTRACTS

*data from the Osteoarthritis Initiative*”, EULAR 2020.

PATENT  
APPLICATIONS

1. C. Kuo, S. Miao, **K. Zheng**, C. Hsieh, L. Lu, C. Lin: “*Bone texture analysis with deep learning in hand radiographs for assessing the risk of rheumatoid arthritis*”, EULAR 2020.
8. X. Zhou, Y. Wang, **K. Zheng**, L. Lu, A. P. Harrison, S. Miao: “*Scalable Semi-supervised Landmark Localization for X-ray Images using Few-shot Deep Adaptive Graph*”, USPTO provisional patent (63/180,717), filed on Apr. 28, 2021.
7. F. Wang, **K. Zheng**, S. Miao, Y. Wang, L. Lu: “*Opportunistic Screening of Osteoporosis using Plain Film Chest X-ray*”, USPTO provisional patent (63/165,231), filed on Mar. 24, 2021.
6. **K. Zheng**, S. Miao, Y. Wang, X. Zhou, L. Lu: “*Semi-supervised Learning for Bone Mineral Density Estimation in Hip X-ray Images*”, USPTO provisional patent (63/165,223), filed on Mar. 24, 2021.
5. **K. Zheng**, Y. Wang, S. Miao, C. Kuo, C. Hsieh: “*Estimating Bone Mineral Density from Plain Radiograph by Assessing Bone Texture with Deep Learning*”, USPTO non-provisional patent (17/142,187), filed on Jan. 5, 2021.
4. **K. Zheng**, Y. Lu, W. Li, Y. Wang, A. Harrison, L. Lu, S. Miao: “*Method and System for Image Segmentation*”, USPTO non-provisional patent (17/128,993), filed on Dec. 21, 2020.
3. S. Miao, W. Li, Y. Lu, **K. Zheng**, L. Lu: “*Structured Landmark Detection via Topology-Adapting Deep Graph Learning*”, USPTO non-provisional patent (17/116,310), filed on Dec. 09, 2020.
2. S. Miao, F. Wang, **K. Zheng**, L. Lu: “*Automatic Vertebra Localization and Identification in CT by Spine Rectification and Anatomically-Constrained Optimization*”, USPTO provisional patent (63/120,693), filed on Dec. 2, 2020.
1. Y. Wang, H. Chen, **K. Zheng**, A. Harrison, L. Lu, S. Miao: “*Device and Method for Computer-Aided Diagnosis Based on Image*”, USPTO non-provisional patent (16/850,622), filed on Apr. 16, 2020.

PROFESSIONAL  
SERVICES

**Journal Reviewer**

IEEE Journal of Biomedical and Health Informatics  
IEEE Transactions on Pattern Analysis and Machine Intelligence  
IEEE Transactions on Circuits and Systems for Video Technology  
IEEE Transactions on Image Processing  
IEEE Transactions on Medical Imaging  
IEEE Signal Processing Letters  
Pattern Recognition Letters  
Computerized Medical Imaging and Graphics  
Computers in Biology and Medicine  
The Visual Computer

**Conference Reviewer**

ICLR 2022

ICCV 2019, 2021

MICCAI 2020, 2021

CVPR 2019, 2020, 2021

AAAI 2018, 2019, 2020, 2021, 2020, 2022

ECCV 2020

IJCAI 2018, 2019

ICPR 2016, 2020

**Program Committee**

AAAI 2020, 2019, 2018

IJCAI 2018

SKILLS

**Programming:** Python, Matlab, Java, C/C++

**Open-source libraries:** PyTorch, Caffe, Keras, OpenCV

**Languages:** Chinese, English