KE YAN

yankethu@foxmail.com ⋄ http://yanke23.com
10 Center Dr, Bethesda, MD 20814 ⋄ +1-240-805-3708

EDUCATION

National Institutes of Health, US
Postdoc in Imaging Biomarkers and Computer-Aided Diagnosis Laboratory — Jan 2017 till now
Tsinghua University, Beijing, P.R. China
Ph.D. Electronic Engineering, advisor: Prof. David Zhang, *IEEE fellow* — – Jul 2016
B.Eng. Electronic Engineering — – Jul 2010

HIGHLIGHTS

- Strong research ability with 7 high-level journal and 8 conference papers (including CVPR, MICCAI) published as the first author. 186 citations in total (Google Scholar).
- Winner of the 2016 Tsinghua University Excellent Doctoral Dissertation Award.
- A good understanding and rich implementation experience of various machine learning and computer vision algorithms (http://yanke23.com/programs/).
- Familiar with deep learning.
- Proficient in Matlab, Python (Caffe, MXNet, TensorFlow, Theano), C/C++ (including OpenCV); Familiar with Java (including Android) and C#. Proficient in English (oral and written).

RESEARCH INTERESTS

Deep learning, medical image processing, computer vision, machine learning.

EXPERIENCES

Postdoc Project — January 2017 - Present

- I mined CT images and lesion annotations from PACS to build a large-scale and diverse database - DeepLesion. I have been developing lesion detection, retrieval, classification, and body-part recognition algorithms on the dataset using deep learning approaches.

Researcher in DeePhi Tech, China — August 2016 - November 2016

- I developed pedestrian detection algorithms with caffe using faster RCNN and region-based fully convolutional networks.

Ph.D. Project — September 2011 - June 2016

- An interdisciplinary topic: I developed a sensor system (an electronic nose) to measure breath biomarkers of human, then proposed several machine learning (transfer learning, classification, and regression) algorithms to analyze the signals for non-invasive disease diagnosis and monitoring.
- I developed a pattern recognition toolbox and a domain adaptation toolbox in Matlab, and an autoencoder toolbox in Python.

Intern in IBM China Research Lab — July 2015 - August 2015

- I took part in developing a robot-based intelligent shopping assistant and wrote modules for speech recognition, text-to-speech, and movement by invoking public softwares and the APIs of the robot.
- Our project won the Best Intern Demonstration in IBM China Research Lab.

Intern in Xingke Intelligent Tech, China July 2013 - August 2013

- I developed a real-time gesture recognition system on Unity3D, which reads skeleton data from Microsoft Kinect, then recognizes gestures using template matching and finite-state machine algorithms.

Undergraduate Research Project March 2010 - August 2011

- I developed a face recognition system including geometry and illumination normalization, feature extraction, and subspace learning. The OpenCV-based program received over 10k downloads until 2014.

SELECTED PUBLICATIONS

Peer-Reviewed Journals

- Ke Yan, Lu Kou, and David Zhang, "Learning Domain-Invariant Subspace Using Domain Features and Independence Maximization," *IEEE Trans. on Cybernetics* (IF=4.943), Jan. 2017.
- Ke Yan, David Zhang, and Yong Xu, "Correcting Instrumental Variation and Time-Varying Drift Using Parallel and Serial Multitask Learning," *IEEE Trans. on Instrumentation and Measurement (TIM)* (IF=2.456), Jun., 2017.
- Ke Yan and David Zhang, "Correcting instrumental variation and time-varying drift: A transfer learning approach with autoencoders," *TIM* (IF=1.808), Sep., 2016.
- Ke Yan and David Zhang, "Calibration transfer and drift compensation of e-noses via coupled task learning," *Sensors and Actuators B: Chemical* (IF=4.758), Mar., 2016.
- Ke Yan and David Zhang, "Improving the transfer ability of prediction models for electronic noses," *Sensors and Actuators B: Chemical* (IF=4.758), Dec., 2015.
- Ke Yan and David Zhang, "Feature selection and analysis on correlated gas sensor data with recursive feature elimination," *Sensors and Actuators B: Chemical* (IF=4.758), Jun., 2015.
- Ke Yan, David Zhang, Darong Wu, Hua Wei, and Guangming Lu, "Design of a breath analysis system for diabetes screening and blood glucose level prediction," *IEEE Trans. on Biomedical Engineering* (IF=2.347), Nov., 2014.

Conference Proceedings

- Ke Yan, X Wang, L Lu, L Zhang, A Harrison, M Bagheri, and R M Summers, "Deep Lesion Graphs in the Wild: Relationship Learning and Organization of Significant Radiology Image Findings in a Diverse Large-scale Lesion Database," *IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2018.
- Ke Yan, Mohammadhadi Bagheri, Ronald M. Summers, "3D Context Enhanced Region-based Convolutional Neural Network for End-to-End Lesion Detection," *Intl. Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2018.
- Jinzheng Cai*, Youbao Tang*, Le Lu, Adam P. Harrison, Ke Yan, Jing Xiao, Lin Yang, Ronald M. Summers, "Accurate Weakly-Supervised Deep Lesion Segmentation using Large-Scale Clinical Annotations: Slice-Propagated 3D Mask Generation from 2D RECIST", *MICCAI*, 2018
- Ke Yan, Le Lu, and Ronald M. Summers, "Unsupervised Body Part Regression via Spatially Self-ordering Convolutional Neural Networks," *IEEE Intl. Symposium on Biomedical Imaging (ISBI)*, oral presentation, 2018.
- Xiaosong Wang*, Ke Yan*, Le Lu, and Ronald M. Summers, "DeepLesion: Automated Deep Mining, Categorization and Detection of Significant Radiology Image Findings using Large-Scale Clinical Lesion Annotations," scientific poster, *Annual Meeting of Radiology Society of North America (RSNA)* , Chicago, 2017.
- Ke Yan and David Zhang, "Blood glucose prediction by breath analysis system with feature selection and model fusion," in *36th Annual Intl. Conf. of the IEEE Engineering in Medicine and Biology Society (EMBC)*, oral presentation, Chicago, 2014.
- Ke Yan, Youbin Chen, and David Zhang, "Gabor surface feature for face recognition," in *First Asian Conf. on Pattern Recognition (ACPR)*, oral presentation, Beijing, 2011.

For more details of the papers, please visit http://yanke23.com/research/.

OTHER AWARDS

- First prize of Tsinghua Outstanding Scholarship, 2 times (school-level, 2014, 2015);
- First prize of Foxconn Scholarship, 2 times (college-level, 2012, 2013);
- Most Creative Award in the First Photo Contest of University Town of Shenzhen.

MAJOR COURSES

Computer vision (95, rank 3 in about 30 students), image analysis (94, 1 in about 20).

Pattern recognition (96, 2 in about 100), statistical signal processing (91, 5 in about 30).

Machine learning, neural networks for machine learning, convolutional neural networks for visual recognition, Stanford NLP open course (online courses).

OTHER ACTIVITIES

- Reviewer of *Journal of Medical Imaging*, *Expert Systems with Applications*, *MICCAI*, *ISBI*, and so on.
- Serving as teaching assistant of the pattern recognition course in Tsinghua University, private teacher for high school math and English, judge for poster competition in NIH, etc.
- Giving talks to peer students on deep learning and how to do research.
- Participation in proposal writing in 5 projects, including a key project of National Natural Science Foundation of China (NSFC).