

Alan Zelun Luo

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Education and Academic Achievements

Stanford University **Jun 2018 - Present**
Ph.D in Computer Science

- Advisor: Fei-Fei Li

Stanford University **Sept 2015 - Jun 2018**
M.S. in Computer Science, specialized in Artificial Intelligence

- Advisor: Fei-Fei Li
- Among top 7% students offered full assistantship

University of Illinois at Urbana-Champaign **Aug 2012 - May 2015**
B.S. in Computer Engineering, minor in Mathematics *GPA: 3.94/4.00*

- Advisors: Gabriel Popescu, Narendra Ahuja, Jia-Bin Huang
- Dean's List and James Scholar Honors Program for academic achievement in every semester
- PURE Best Research Award

National Standardized Tests

- GRE: Verbal 163/170, 92%; Math 170/170, 98%; Writing 5.0/6.0, 93%
- Scored 5/5 on each of the eight individual AP Exams taken

Teaching

- Course Assistant, CS 131 (Computer Vision), Fall 2015 & Fall 2016 (Head CA)
- Course Assistant, CS 109 (Probability), Winter 2016 & Spring 2016
- Course Assistant, CS 224N (Natural Language Processing), Winter 2017
- Course Assistant, CS 231N (Convolutional Neural Networks), Spring 2017

Research and Project Experience

Stanford Vision Lab **Sept 2015 - Present**

- Advisor: Fei-Fei Li.
- Intelligent Senior Home: Led the team for detection and analysis of seniors' daily activities.
- Intelligent Hand Hygiene: Developed a hand hygiene action detector for hospitals.
- Web Annotation: Built a web-based video annotation interface for massive video datasets.
- Image Captioning: Developed a model that generates descriptive and discriminating captions.

Quantitative Light Imaging Laboratory, Beckman Institute **Jan 2013 - May 2015**

- Advisor: Gabriel Popescu.
- Digitized a large number of clinical biopsy slides through highly optimized implementation of image stitching, using computer vision technology.
- Developed software for alignment and assemble of large scale holographic images.
- Improved digital archiving and storage procedure for bioimaging samples.

- Developed a cloud-based biomedical image viewer.
- Contributed to clinical imaging pipeline using Spatial Light Interference Microscopy (SLIM) technology.

Automatic Tissue Segmentation with GPU

Sept 2013 - May 2014

- Developed an algorithm that automatically segments biopsies into different regions based on textural information.
- Improved the throughput of tissue segmentation with CUDA.

Indoor Navigation with Augmented Reality

Jan 2016 - June 2016

- Built an indoor navigation platform with vision and sensor based SLAM technology.
- Enhanced the in-store shopping experience using augmented reality technology for navigation and personalized product recommendation.
- Developed a user interface for shoppers and store owners on Google Tango.

Video-based Identity and Expression Recognition

Jan 2013 - July 2013

- Developed a real-time face recognition system based on Viola-Jones detection framework.
- Did research on hand gesture recognition and facial expression recognition.

Work Experience

Google Inc.

Research Intern

Sunnyvale, CA

June 2017 - Nov 2017

- Proposed a distillation model that extracts information from multiple modalities.

Amazon A9 Inc.

Research Intern, Visual Search Team

Palo Alto, CA

June 2016 - Sept 2016

- Proposed a deep learning model for scene text recognition.
- Developed a text recognition pipeline on Amazon products in Tensorflow.

Yahoo Inc.

Software Engineering Intern, Homepage Team

Sunnyvale, CA

May 2015 - Aug 2015

- Created web applications and modules for Yahoo homepage.
- Developed and Extended Yahoo's next generation MVC framework.

Phi Optics, Inc.

Software Engineering Intern

Champaign, IL

Dec 2013 - Jan 2014

- Built an integrated software for biomedical imaging.
- Developed APIs and drivers for hardware devices.

Shenzhen Grandia Nano-Tech Co., Ltd.

Research Intern

Shenzhen, China

June 2011 - Aug 2011

- Assisted in vacuum coating and ultrasonic wave surface cleaning.
- Did research on the reflectivity of optimal coating for laser mirror.

New Oriental Education & Technology Group Inc.

Instructor

Guangzhou, China

July 2013 - Aug 2013

- Taught reading and writing for SAT and TOEFL.

Technical and Personal skills

Programming Languages: Python, C++, C, Java, x86 Assembly, Matlab, VHDL, Lua, Arduino.

Web Development: JavaScript, React, HTML, CSS (Sass/SCSS, Less, Atomic CSS), Bootstrap, jQuery, Node.js, Jinja2, MySQL, PHP.

Libraries: Tensorflow, Torch, Caffe, OpenCV, CUDA, Qt, Android, OpenGL, Boost.

Tools & Platforms: Visual Studio, Eclipse, Xcode, git, FPGA, Google Tango.

Languages: English, Mandarin, Cantonese, Hakka, Spanish (limited).

Selected Publications

- [1] **Label Efficient Learning of Transferable Representations across Domains and Tasks**
Z. Luo, Y. Zou, J. Hoffman, and L. Fei-Fei. *Conference on Neural Information Processing Systems (NIPS)*. 2017. <https://arxiv.org/abs/1712.00123>
- [2] **Unsupervised Learning of Long-Term Motion Dynamics for Videos**
Z. Luo, B. Peng, A. Alahi, D.-A. Huang, and L. Fei-Fei. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2017. <https://arxiv.org/abs/1701.01821>
- [3] **Towards Viewpoint Invariant 3D Human Pose Estimation**
A. Haque, Z. Luo*, B. Peng*, A. Alahi, S. Yeung, and L. Fei-Fei. *European Conference on Computer Vision (ECCV)*. 2016. <https://arxiv.org/abs/1603.07076>
- [4] **Graph Distillation for Action Detection with Privileged Information**
Z. Luo, J.-T. Hsieh, L. Jiang, J.C. Niebles, and L. Fei-Fei. *European Conference on Computer Vision (ECCV)*. 2018. <https://arxiv.org/abs/1712.00108>
- [5] **DF-Net: Unsupervised Joint Learning of Depth and Flow using Cross-Network Consistency**
Y. Zou, Z. Luo, and J.B. Huang. *European Conference on Computer Vision (ECCV)*. 2018.
- [6] **Towards Vision-Based Smart Hospitals: A System for Tracking and Monitoring Hand Hygiene Compliance**
A. Haque, M. Guo, A. Alahi, S. Yeung, Z. Luo, A. Rege, A. Singh, J. Jopling, N.L. Downing, W. Beninati, T. Platchek, A. Milstein, and L. Fei-Fei. *Machine Learning for Healthcare (MLHC)*. 2017. <https://arxiv.org/abs/1708.00163>
- [7] **Computer Vision-based Descriptive Analytics of Seniors' Daily Activities for Long-term Health Monitoring**
Z. Luo*, J.-T. Hsieh*, N. Balachandar, S. Yeung, G. Pusiol, J. Luxenberg, G. Li, L.-J. Li, N.L. Downing, A. Milstein, L. Fei-Fei. *Machine Learning for Healthcare (MLHC)*. 2018.
- [8] **Computer Vision-based Approach to Maintain Independent Living for Seniors**
Z. Luo, A. Rege, G. Pusiol, A. Milstein, L. Fei-Fei, N.L. Downing. *American Medical Informatics Association (AMIA)*. 2017. <http://alan.vision/publications/AMIA-Poster.pdf>
- [9] **Vision-Based Hand Hygiene Monitoring in Hospitals**
S. Yeung, A. Alahi, Z. Luo, B. Peng, A. Haque, and L. Fei-Fei. *American Medical Informatics Association (AMIA) / Workshop on Machine Learning in Healthcare, Neural Information Processing Systems (NIPS)*. 2016. http://ai.stanford.edu/~syyeung/resources/vision_hand_hh_nipsmlhc.pdf
- [10] **Label-Free Tissue Scanner for Colorectal Cancer Screening**
M. E. Kandel, S. Sridharan, J. Liang, Z. Luo, K. Han, M. Virgilia, A. Shah, R. Patel, K. Tangella, A. Kajdacsy-Balla, G. Guzman, G. Popescu. *Journal of Biomedical Optics (JBO)*. 2017. <http://dx.doi.org/10.1117/1.JBO.22.6.066016>
- [11] **Towards Quantitative Automated Histopathology of Breast Cancer using Spatial Light Interference Microscopy (SLIM)**
H. Majeed, T. H. Nguyen, M. Kandel, K. Han, Z. Luo, V. Macias, K. Tangella, A. Balla, M. Do, and G. Popescu. *United States and Canadian Academy of Pathology (USCAP)*. 2016.
- [12] **Breast Cancer Diagnosis using Spatial Light Interference Microscopy**
H. Majeed, M. Kandel, K. Han, Z. Luo, V. Macias, K. Tangella, A. Balla, and G. Popescu *Journal of Biomedical Optics (JBO)*. 2015. <http://dx.doi.org/10.1117/1.JBO.20.11.111210>

- [13] **High Throughput Imaging of Blood Smears using White Light Diffraction Phase Microscopy**
H. Majeed, M. Kandel, B. Bhadhuri, K. Han, **Z. Luo**, K. Tangella, and G. Popescu *SPIE Photonics West: BiOS*. 2015. <http://dx.doi.org/10.1117/12.2080200>
- [14] **Diagnosis of Breast Cancer Biopsies using Quantitative Phase Imaging**
H. Majeed, M. Kandel, K. Han, **Z. Luo**, V. Macias, K. Tangella, A. Balla, and G. Popescu *SPIE Photonics West: BiOS*. 2015. <http://dx.doi.org/10.1117/12.2080132>
- [15] **C++ Software Integration for a High-Throughput Phase Imaging Platform**
M. Kandel, **Z. Luo**, K. Han, and G. Popescu *SPIE Photonics West: BiOS*. 2015.
<http://dx.doi.org/10.1117/12.2080212>