

# Alan Zelun Luo

📞 217-281-2188 • ✉ alanzluo@stanford.edu • 🌐 alan.vision

## Education and Academic Achievements

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**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

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**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**

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### **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

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**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

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- [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/~yyeung/resources/vision\\_hand\\_hh\\_nipsmlhc.pdf](http://ai.stanford.edu/~yyeung/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>