John Lambert

CONTACT INFORMATION
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`https://johnwlambert.github.io/`

RESEARCH INTERESTS

I work with geometric data. I enjoy drawing upon tools from the fields of machine learning, computer vision, convex optimization, information theory, and state estimation. I enjoy training deep neural networks on large data sets. I am seeking to develop working, artificially intelligent systems that will improve the quality of people's lives.

EDUCATION

Georgia Institute of Technology
Ph.D., Computer Science (Aug. 2018-2023). President's Fellow, 2018.
Advisor: James Hays.

Stanford University
M.S., Computer Science, with specialization in Artificial Intelligence (Jun. 2018).

Stanford University
B.S., Computer Science, with specialization in Artificial Intelligence (Jan. 2018).
B.S. Minor, Mathematics.

PROGRAMMING

Python, C/C++/CUDA, MATLAB, MPI, XHTML, CSS, Java, JavaScript.

FRAMEWORKS

PyTorch, OpenGL, TensorFlow, AngularJS, Node.js, MongoDB, Flex, Bison.

RESEARCH EXPERIENCE

Hays Lab, Research Assistant, Georgia Institute of Technology (Aug. 2018-Present)
Perception for robotics and autonomous driving.

Stanford Vision and Learning Lab, Research Assistant, Stanford, California (May 2017-June 2018)
Developed methods to utilize extra knowledge only available during training (*privileged information*) in neural networks. Showed how our model significantly increases sample efficiency during learning, resulting in higher accuracy with a large margin when the number of training examples is limited. Focused on image classification (ImageNet) and machine translation. Worked under the supervision of Professor Silvio Savarese and Dr. Ozan Sener.

Stanford Vision Lab, Research Associate, Stanford, California (Jan. 2017-June 2017)
I developed self-supervised representation learning methods for human action recognition and for prediction from RGB video input in the laboratory of Dr. Fei-Fei Li, Ph.D.

Quantitative Imaging Lab, Research Assistant, Stanford, California (June 2016-Dec. 2016)
Worked with Dr. Daniel Rubin to develop algorithms for organ lesion segmentation, detection in 3-D microscopy, automatic clinical narrative generation from images, and visualization of word embeddings of massive clinical narrative corpora.

TEACHING EXPERIENCE

Georgia Institute of Technology
Teaching Assistant for CS 6476A: Computer Vision (Graduate Level), taught by Professor James Hays. Enrollment: 202.

CONFERENCE PUBLICATIONS

Lambert, J.*, Sener, O.*, and S. Savarese. *Deep Learning Under Privileged Information Using Heteroscedastic Dropout.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018 (Spotlight).

CONFERENCE WORKSHOP PUBLICATIONS

Lambert, J.*, Sener, O.*, and S. Savarese. *Deep Learning Under Privileged Information.* Workshop on Bayesian Deep Learning, Neural Information Processing Systems (NIPS), 2017 (Spotlight).

Hoogi, A.*, **Lambert, J.***, Zheng, Y., Comaniciu, D., and D. Rubin. *A Fully-Automated Pipeline for Detection and Segmentation of Liver Lesions and Pathological Lymph Nodes.* Workshop on Machine Learning in Healthcare, Neural Information Processing Systems (NIPS), 2016.

WORK EXPERIENCE

Argo AI, Software Engineering Intern, Mountain View, California (June 2018-Aug. 2018)
Mapping, perception and machine learning. Performed research under the supervision of Prof. James Hays (Georgia Tech), Prof. Simon Lucey (CMU), and Dr. Ersin Yumer.

Argo AI, Machine Learning Intern, Pittsburgh, Pennsylvania (June 2017-Sept. 2017)
Implemented, tested, and benchmarked real-time machine perception algorithms in C++11/14 for autonomous vehicles. Implemented a key portion of the tracking pipeline that was immediately deployed on-vehicle. Developed and presented proposals to the company leadership for the next-generation sensor fusion perception system.

Varian Medical Systems, Software Engineering Intern, Palo Alto, California (June-Aug. 2015)
Developed probabilistic graphical models (PGMs) in order to predict advantageous treatment plans for lung cancer patients. Incorporated ontologies and implemented back-end Java and front-end AngularJS services to deliver the machine learning models in a point-of-care Cloud application to oncologists. The models and work were showcased in early 2016 as part of the 360 Oncology^{TM} product launch.

EAS Advisors LLC, Summer Analyst, New York, New York (June-Aug. 2012)
Created models and investor presentations for non-deal and deal roadshows at an investment advisory firm. Performed market research in natural resource industries, compiled the results, and presented findings to potential investors. Capital requirements of projects ranged from $2M-40M USD.

TECHNICAL REPORTS

Lambert, J.*, Dery, L.* (2017, December). *Annotation Acceleration as Active Metric Learning.* Final Course Project, CS 332.

Hildick-Smith, S.*, **Lambert, J.***, Weems, B.* (2016, December). *Training Regime Modifications for Deep Q-Network Learning Acceleration.* Final Course Project, CS 238.

SELECTED HONORS

Outstanding Reviewer Award, CVPR 2018
Travel Award, Bayesian Deep Learning Workshop, NIPS 2017 (8 awarded out of 68 accepted abstracts)
President, Latter-day Saint Student Association (LDSSA) at Stanford University (2016-2017)
13th Place, USA Intercollegiate Rowing Association National Championship Regatta, Stanford University Varsity Crew Team (2012)
National Merit Finalist and National AP Scholar (2011)
Shell Oil Company Technical Scholarship Winner (2011)
Eagle Scout, Silver Palm (2007)

LANGUAGES

Russian (ACTFL "Advanced High" Oral and Writing Proficiency); French (elementary proficiency)

SERVICE ACTIVITIES

Reviewer for the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) (2018).
Review for the European Conference on Computer Vision (ECCV) (2018).

Volunteer Mission, Rostov-na-Donu, Russia (Aug. 2012-Sept. 2014)
Full-time missionary and volunteer representative of church. Taught lessons in Russian to people daily while leading and training a group of 20 missionaries in the cities of Volgograd, Astrakhan, and Volzhsky. Attended monthly leadership councils, developed goals for the missionaries in the region, and created and executed plans to reach these goals. Organized and taught free English language classes and carried out community service projects.

PRESENTATIONS

Buhler, K.*, **Lambert, J.***, Vilim, M. (2016, December). *YoloFlow: Real-time Object Tracking in Video.* Poster presented at CS 229 Final Project Poster Session, Stanford, CA.

Lambert, J. (2016, December). *Precision Medicine in Practice: Radiation Oncology Decision Support via EM Learning.* Poster presented at CS 221 Final Project Poster Session, Stanford, CA.

Hoogi A.*, **Lambert J.***, Zheng Y., Comanciu D., and D. Rubin. (2016, September). *Quantifying Treatment Response: A Joint CNN-Level-Set Method for Generalizable Organ Lesion Segmentation in CT*. Poster presented at 2016 Stanford Biomedical Informatics Annual Retreat, Asilomar, CA.

Lambert, J. (2016, June). *Encoder-Decoder Networks: Machine Understanding of Images*. Poster presented at CS 224D Final Project Poster Session, Stanford, CA.

Lambert, J. (2016, June). *Fully-Convolutional Networks for Semantic Segmentation of Fluorescence Microscopies*. Presentation delivered at CS 231A Final Presentation Session, Stanford, CA.

Bahtchevanov, I.*, Hildick-Smith, S.*, and **Lambert, J.***. (2016, April). *Quantifying Mammalian Learning: Large-Scale Detection of Dendritic Spines*. Poster presented at the 16th Annual Biomedical Computation at Stanford Symposium (BCATS) Poster Session, Stanford, CA.