John Lambert

CONTACT INFORMATION

Email: johnlambert@gatech.edu
https://johnwlambert.github.io/

RESEARCH INTERESTS

My research focuses on geometric and semantic understanding of 3D environments. I'm interested in finding methods for producing 3D structured outputs in an unconstrained, open-world setting. I enjoy training deep neural networks on large data sets. I am seeking to develop 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.
PhD Advisors: James Hays, Frank Dellaert.

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)
Computer vision for robotics and autonomous driving. Developing machine learning algorithms for multi-modal sensor data, with applications in multi-object tracking, trajectory forecasting, high-definition 3D mapping, and mobile robot localization. Collaborated with many to create the Argoverse datasets and was a major code contributor for the `argoverse-api` repository.

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 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, and automatic clinical narrative generation from images.

TEACHING EXPERIENCE

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

CONFERENCE PUBLICATIONS

M. Chang*, **J. Lambert***, P. Sangkloy*, J. Singh*, A. Hartnett, D. Wang, P. Carr, S. Lucey, D. Ramanan, J. Hays. *Argoverse: 3D Tracking and Forecasting with Rich Maps.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019 (Oral).

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).

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

Intel Labs, Intern, Santa Clara, California (May 2019-Present)
Supervisor: Vladlen Koltun.

Argo AI, Machine Learning Research Intern, Mountain View, California (June 2018-Aug. 2018)
Research at the intersection of mapping, perception and machine learning. Collaboration with 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 algorithm that was immediately deployed on-vehicle. Developed and presented research 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.

ACADEMIC TALKS

Argoverse: 3D Tracking and Forecasting with Rich Maps
Oral Presentation. Session 3-1B: Learning, Physics, Theory, & Datasets, CVPR, June 2019. Long Beach, CA.
Presentation at Intel Labs, June 2019, Santa Clara CA.

Deep Learning Under Privileged Information
Spotlight Presentation. Session on Machine Learning for Computer Vision, CVPR, June 2018. SLC, UT.
Spotlight Presentation. Bayesian Deep Learning Workshop, NIPS, Dec. 2017. Long Beach, CA.

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 International Conference on Computer Vision (ICCV), 2019.
Reviewer for the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018-2019.
Reviewer for the European Conference on Computer Vision (ECCV), 2018.

SERVICE ACTIVITIES

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. Organized and taught free English language classes and carried out community service projects.