Nikolas **Lamb**

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Education

Bachelor of Science in Computer Science with Minor in Mathematics — *Clarkson University*

Advisors: Dr. Sean Banerjee (CS) and Dr. Natasha Banerjee (CS) — *Fall 2015 - Spring 2019*

Doctor of Philosophy in Computer Science — *Lehigh University*

Advisor: Dr. Mooi Choo Chuah (CS) — *Fall 2019 - Spring 2024 (anticipated)*

Publications

***Lamb, N.**, & Banerjee, N. K., & Banerjee, S. (2019). Automated Reconstruction of Smoothly Joining 3D Printed Restorations to Fix Broken Objects. In Proceedings of the ACM Symposium on Computational Fabrication (p. 3). ACM.*

***Lamb, N.**, & Chuah, M. C. (2018). A Strawberry Detection System Using Convolutional Neural Networks. In 2018 IEEE International Conference on Big Data (Big Data) (pp. 2515-2520). IEEE.*

***Lamb, N.**, Banerjee, N. K., & Banerjee, S. (2018). Programmatic 3D printing of a revolving camera track to automatically capture dense images for 3D scanning of objects. In International Conference on Multimedia Modeling (pp. 390-394). Springer, Cham.*

*Guo, L., Quant, H., **Lamb, N.**, Lowit, B., Banerjee, N. K., & Banerjee, S. (2018). Multi-camera microenvironment to capture multi-view time-lapse videos for 3D analysis of aging objects. In International Conference on Multimedia Modeling (pp. 381-385). Springer, Cham.*

*Guo, L., Quant, H., **Lamb, N.**, Lowit, B., Banerjee, S., & Banerjee, N. K. (2018). Spatiotemporal 3D models of aging fruit from multi-view time-lapse videos. In International Conference on Multimedia Modeling (pp. 466-478). Springer, Cham.*

Research Experience

Engineering Intern, Qualcomm San Diego — *Summer 2019*

- Quantized and optimized existing neural networks for deployment on state-of-the-art handset devices.
- Developed suite of software tools to convert networks to proprietary formats and execute networks on device.

Undergraduate Researcher, NSF Funded Terascale All-Sensing Research Studio, Clarkson University — *Spring 2017 - Spring 2019*

- Mentored by: Dr. Sean Banerjee (CS) and Dr. Natasha Banerjee (CS)
- Developed and published an algorithm to automatically produce smoothly-joining 3D-printable restoration parts for broken objects.
- Designed structure-from-motion based automatic 3D scanner, which is parametric and can be 3D printed, using Python, OpenSCAD and Matlab.
- Managed research group in synthesizing 957 high point density 3D models using my 3D scanner to verify proposed scanning optimizations.
- Generated reconfigurable platonic solid calibration targets in OpenSCAD, to enable quicker calibration of multi-camera systems.
- Developed a suite of Matlab tools on Github to optimize post-processing of 3D scans, which includes accelerated IO and easy scaling methods.
- Mentored the research of four undergraduate students, including two honors students, in hardware prototyping and computational fabrication.

Undergraduate Researcher, NSF Funded Intelligent and Scalable Systems, Lehigh University — *Summer 2018*

- Mentored by: Dr. Mooi Choo Chuah (CS)
- Designed and trained fruit detection neural network using Tensorflow and Keras that achieved 84.2% accuracy at 1.63 frames per second.
- Optimized existing neural networks for deployment on Raspberry Pi 3B single board computer, making the system distributable for under $50.
- Collaboratively developed a Python algorithm to control a robotic picking arm using my fruit detection neural network.

Leadership Experience

Makerspace Supervisor, Clarkson University — *Fall 2018 - Spring 2019*

- Trained student mentors to operate and maintain 3D printers, scanners, and other equipment in University Makerspace.
- Worked with interns to structure and staff Business Plan Competition, President's Challenge Kickoff, and President's Challenge Workshop Series.
- Guided purchasing of approximately $50,000 worth of equipment for on-campus Makerspace, and assembled and maintained this equipment.
- Assisted with and contributed to staff interviews for open department positions and student interviews for mentor positions.

Awards

2019 **NSF Graduate Research Fellowship,** Recognizes and supports outstanding graduate students. — *NSF*

2019 **President's Challenge Grand Prize,** For open-source *Makerspace Utilization* project. — *Clarkson University*

2019 **Arts and Sciences Award,** Shows significant interdisciplinary scholarship and excellence in communication. — *Clarkson University*

2019 **Hamlin/Darraugh Award,** Senior who has made outstanding contribution to computer science. — *Clarkson University*

2018 **R. Gerald Bradshaw Award,** Junior who has made outstanding contribution to computer science. — *Clarkson University*