Nikolas **Lamb**

113 Research Dr, Bethlehem, PA 18015

nikolas.lamb@gmail.com | www.nikolaslamb.com | nikwl | nikolaslamb

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 (CSE) — *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

Graduate Researcher, Lehigh University — *Fall 2019 - Summer 2020*

- Wrote a grant for and led development of a 6DoF robotic arm with custom hardware, 3D-printed parts, API, simulator, and ROS integration.
- Developed ROS navigation stack with high level task manager for Ohmni telepresence robot, augmented with my robotic arm.
- Released GitHub packages related to the above work for: Arduino communication, Kinect sensor, Dynamixel Motors, (RAFT) consensus.

Engineering Intern, Qualcomm San Diego — *Summer 2019*

- Quantized and optimized existing neural networks for deployment on state-of-the-art Qualcomm handset devices.
- Developed a software API in Python to convert neural networks to a proprietary format and execute them on Qualcomm handset devices.

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

- 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.
- Developed a suite of Matlab tools on GithHub 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*

- Trained neural network to detect strawberries in Python that achieves 84.2% accuracy at 1.63FPS and can be deployed for under $50.
- Collaboratively developed a Python API for a robot arm to automatically pick strawberries using my neural network.

Leadership Experience

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

- 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*