Lambert Leong

Curriculum Vitae

Department of Epidemiology
University of Hawaii Cancer Center
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Education

2019–present   **PhD, Molecular Bioscience and Bioengineering**, *University of Hawaii*, Honolulu, HI, USA.
Dissertation: *Reducing the Burden of Cancer With Artificial Intelligence*
Advisor: *Prof. John Shepherd*

2016–2018 :   **MS, Computer Science**, *University of Hawaii*, Honolulu, HI, USA.
Thesis: *A Heuristic for Optimizing the Physical Layout and Network Topology of Integrated 3D Multi-chip Systems Under Temperature Constraints*
Advisor: *Prof. Henri Casanova*

2010–2014 :   **BS, Biology**, *University of Oregon*, Eugene, OR, USA.
Minor: Chemistry

Experience

University of Hawaii Cancer Center

Novenber,2018 – present   **Graduate Research Assistant**, *University of Hawaii*, Honolulu, Hawaii.
- Utilized compositional imaging features to improve (AUC 0.69 to 0.81) neural network breast cancer detection.
- Performed modeling that resulted in an image based screen detected and interval breast cancer risk model.
- Developed a custom body composition loss function which improves quantitative accuracy of deep learning reconstructed whole body dual energy X-ray (DXA/DEXA) scans.

National Aeronautics and Space Administration (NASA)

June,2020 – August, 2020   **Research Intern**, *Johnson Space Center*, Houston, Texas.
- Wrote a python implementation of a local system transpose to standardize 3D body scan coordinates from any system.
- Developed an algorithm to fuse 3D and DXA scans to study soft tissue and bone distribution for spacesuit fitting.

Eyegenix LLC

August,2015 – October,2018   **Research Scientist**, Honolulu, Hawaii.
- Maintained human cornea cell line and performed biocompatibility testing on bioengineered corneas.
- Collected data and performed statistical analysis to monitor trends for quality assurance and control.

Social Science Research Institute

Summer, 2017   **Database Engineer**, *University of Hawaii*, Honolulu, Hawaii.
- Constructed a relational database from a series of spreadsheets and performed SQL queries to track recidivism rates.

Hawaii Pathology Lab (HPL)

Summer, 2011 & 2012   **Pathology Trainee**, *The Queen's Medical Center*, Honolulu, Hawaii.
- Analyzed thousands of clinical records to evaluate KRAS gene mutations rates for colorectal cancer bio/prognostic marker development.

Technical skills

Programming Languages

Proficient: Python. Experience with: Matlab, C, SQL

Tools, Libraries, Modules

DICOM, Git, OpenCV, TensorFlow, Keras, Linux, Docker, MS SQL Server

Publications

Journal Articles

2022 Yannik Glaser, John Shepherd, **Leong Lambert T**, Thomas Wolfgruber, Li-Ying Lui, Peter Sadowski, and Steven R Cummings. Deep learning predicts all-cause mortality from longitudinal total-body dxa imaging. *Communications Medicine*, page (Accepted). Nature Publishing Group, 2022.

2022 Jonathan P. Bennett, Liu Yong En, Brandon K. Quon, Nisa N. Kelly, **Leong Lambert T**, Michael C. Wong, Samantha F. Kennedy, Dominic C. Chow, Andrea K. Garber, Ethan J. Weiss, Steven B. Heymsfield, and John A. Shepherd. Three-dimensional optical body shape and features improve the prediction of metabolic disease risk in a diverse sample of adults. *Obesity*. Wiley-Blackwell, 2022.

2021 Xun Zhu, Thomas K Wolfgruber, **Leong Lambert**, Matthew Jensen, Christopher Scott, Stacey Winham, Peter Sadowski, Celine Vachon, Karla Kerlikowske, and John A Shepherd. Deep learning predicts interval and screening-detected cancer from screening mammograms: a case-case-control study in 6369 women. *Radiology*, volume 301, pages 550–558. Radiological Society of North America, 2021.

2021 **Leong Lambert T**, Serghei Malkov, Karen Drukker, Bethany L Niell, Peter Sadowski, Thomas Wolfgruber, Heather I Greenwood, Bonnie N Joe, Karla Kerlikowske, Maryellen L Giger, et al. Dual-energy three-compartment breast imaging for compositional biomarkers to improve detection of malignant lesions. *Communications Medicine*, volume 1, pages 1–11. Nature Publishing Group, 2021.

Refereed Conference Proceedings

2021 **Leong Lambert**, Michael Wong, Yong En Liu, Nisa N. Kelly, Michaela Piazza, Siobhan Garry, Steve B. Heymsfield, and John A. Shepherd. Creating accurate representations of dxa scans from 3d optical body surface scans for arbitrary regional body composition analysis. In *3DBODY.TECH Conference & Expo*. 3DBODY.TECH, Oct 2021.

2020 **Leong Lambert T** and Sean Wiere. Digit recognition from wrist movements and security concerns with smart wrist wearable iot devices. In *53rd Hawaii International Conference on System Sciences*. HICSS, 2020.

2020 **Leong Lambert**, Maryellen Giger, Karen Drukker, Karla Kerlikowske, Bonnie Joe, Heather Greenwood, Serghei Markov, Bethany Niell, and John Shepherd. Three compartment breast machine learning model for improving computer-aided detection. In *15th International Workshop on Breast Imaging (IWBI2020)*, volume 11513, page 115130M. International Society for Optics and Photonics, 2020.

2019 Michihiro Koibuchi, **Leong Lambert**, Tomohiro Totoki, Naoya Niwa, Hiroki Matsutani, Hideharu Amano, and Henri Casanova. Sparse 3-d nocs with inductive coupling. In *2019 56th ACM/IEEE Design Automation Conference (DAC)*, pages 1–6. IEEE, 2019.

Invited Presentations and Abstracts

2022 Dustin Valdez, Jami Fukui, Thomas Wolfgruber, **Leong, Lambert**, Gertraud Maskarinec, and John Shepherd. Abstract p3-01-13: Comparing portable and clinical ultrasound systems using 3d printed breast phantom inserts. *Cancer Research*, volume 82, pages P3–01. The American Association for Cancer Research, 2022.

2021 Xun Zhu, Thomas K Wolfgruber, **Leong Lambert**, Matthew Jensen, Christopher Scott, Stacey Winham, Peter Sadowski, Celine Vachon, Karla Kerlikowske, and John A Shepherd. Deep learning predicts interval and screening-detected cancer from screening mammograms: a case-case-control study in 6369 women. Radiological Society of North America (RSNA), Dec 2021.

2020 Michael Wong, Yong En Liu, Dylan Lowe, Jonathan Bennett, **Leong Lambert**, Ethan Weiss, Steven Heymsfield, and John Shepherd. Detecting significant body composition change with reposed three-dimensional optical surface scans. In *OBESITY*, volume 28, pages 75–75. Obesity, 2020.

2019 **Leong Lambert**, Thomas Wolfgruber, Shane Spencer, Serge Muller, and John Shepherd. Accurate local estimation of compressed breast thickness in digital breast tomosynthesis using an iterative reconstruction approach. Radiological Society of North America (RSNA), Dec 2019.

2012 Jared David Acoba, Christopher A Lum, and **Leong, Lambert T**. Analysis of kras and braf mutant colorectal cancers in a multiracial population. American Society of Clinical Oncology (ASCO), 2012.

Correspondences

2020 **Leong, Lambert T**. Correspondence: Preoperative assessment of breast cancer: Multireader comparison of contrast-enhanced mri versus the combination of unenhanced mri and digital breast tomosynthesis. *The Breast: official journal of the European Society of Mastology*, volume 51, page 102. Elsevier, 2020.

Misc. Publications and White Papers

2022 **Leong, Lambert T**, Michael C Wong, Yannik Glaser, Thomas Wolfgruber, Steven B Heymsfield, Peter Sadwoski, and John A Shepherd. Quantitative imaging principles improves medical image learning. *arXiv preprint arXiv:2206.06663*, 2022.

2020 **Leong, Lambert T**. Snapshot samplings of the bitcoin transaction network and analysis of cryptocurrency growth. *arXiv preprint arXiv:2003.06068*, 2020.

2018 **Leong, Lambert**. A heuristic for optimizing the physical layout and network topology of integrated 3d multi-chip systems under temperature constraints. Master's thesis, University of Hawai'i at Manoa, 2018.

Honors & Awards

2021 ***Trainee Travel Grant***, University of Hawaii Cancer Center

2020 ***Graduate Student Organization Grant***, University of Hawaii

2020 ***Trainee Travel Grant***, University of Hawaii Cancer Center

2019 ***Trainee Travel Grant***, University of Hawaii Cancer Center