

Kenneth Lee

CONTACT INFORMATION

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RESEARCH INTERESTS

Causal inference, machine learning

EDUCATION

Purdue University

Ph.D. in Electrical and Computer Engineering 2021 - 2026
Advisor: Murat Kocaoglu

University of California, Davis

M.S. in Statistics 2019 - 2021
Advisor: Norm Matloff, James Sharpnack

Brigham Young University—Hawaii

B.S. in Mathematics, Computer Science 2014 - 2018

RESEARCH EXPERIENCE

Purdue University Superpower Group

Research Assistant Aug 2021 - Present

- *Power Analysis*: developing new methods for power analysis, utilizing data simulation and innovations in generalizability theory, guided-walk, and machine learning techniques. [[Link to project](#)].
- Supervisor: Erin Hennes, Sean Lane

University of California, Davis

Researcher Oct 2020 - May 2021

- *Machine Learning*: Researching on an alternative to a probability calibration method named Platt scaling [[Link to project](#)].
- *Data Science*: Researching on an alternative to resampling techniques in dealing with unbalanced class data.
- Supervisor: Norm Matloff

Carnegie Mellon University, Delphi Epi-Forecasting Group

Researcher Sep 2020 - Feb 2021

- *Causal Inference*: Studied the impact of government interventions on mobility under confounders in US using Delphi EpiData API. [[Link to project](#)].
- Presented the work at 2020 NSF Student Conference on COVID19 Modelling.
- Advisor: James Sharpnack, Larry Wasserman, Valerie Ventura

Brigham Young University—Hawaii Institutional Research

Research Analyst Intern Aug 2018 - Jun 2019

- *Consulting*: Leveraged 11-year data from enrollment, degree completion, freshman cohort, and curriculum to conduct retention study for BYU—Hawaii President's council.
- *Data Visualization*: Built pipelines to update Tableau Server workbooks automatically from Quartics surveys.

- *Database Management:* Coordinated with the Enterprise Information System department at BYUH to establish a data warehouse to facilitate institutional research.
- *Data Cleaning:* Trained and supervised students workers on the data cleaning and visualization with R and Tableau.
- Status: Part-Time
- Working hours: 27 hours per week
- Supervisor: Kathy Pulotu

Research Assistant Supervisor

Sept 2017 - Jun 2018

- *Literature reviews:* Conducted literature reviews for designing new graduating student survey.
- *Data Visualization:* Built a data dashboard from cleaning course evaluation survey data of the past 5 years in R to visualizing the data via Tableau for the school administration and faculty.
- *Statistical Analysis:* Evaluated the redundancy of the graduating student survey questions by using factor analysis.
- *Survey Design:* Led a poster publication titled “*How Meaningful Is Our Graduating Student Survey*” to showcase how to better evaluate survey design.
- Status: Part-Time
- Working hours: 19 hours per week
- Supervisor: Kathy Pulotu

Brigham Young University IDeA Labs

Researcher Intern

Jun 2017 - Aug 2017

- *Systems Theory:* Research in Systems and Control Theory with applications in a variety of areas including social networks, natural language processing, and biological systems.
- *Software Engineering:* Tasks involve developing code, modeling networks, analyzing simulations, developing theoretical results and writing research papers.
- Advisor: Sean Warnick
- Status: Full-Time
- Working hours: 40 hours per week

PROJECTS

Understanding the resting behaviors of Trirectangular Tetrahedral and Triangular Prism Dice Rolls

- *Computer Vision:* Applied Faster Regional-Convolutional Neural Networks (RCNN) in Python to count dice rolls more efficiently by object detection.
- *Robotics:* Configured a dice rolling machine from scratch to automate the process of dice rolling and reduce bias that may come from rolling dice by hand.
- *Software Engineering:* Rewrote codes from MATLAB image processing toolbox to Python using OpenCV, scikit-image and dlib libraries.
- The project got turned into a paper in 2020. [[Link to paper](#)]
- Duration: 2017- 2019
- Number of hours per week of effort: 3
- Advisor: Paul Hurst

Predict Patient Inflow at Pali Momi Hospital's Emergency Room

- *Machine Learning*: Applied quantile regression model to predict patient inflow at Pali Momi Hospital's Emergency Room (ER).
- *Consulting*: Provided recommendations for how to optimize scheduling for their ER's doctors and mid-level providers.
- Duration: Apr-Jun 2018
- Number of hours per week of effort: 2
- Advisor: Cody Baldwin

PROFESSIONAL EXPERIENCE

Newday Impact Investing

Investment Analyst

Sep 2020 - May 2021

- *Deep Learning*: Leveraged partner company's sustainable portfolio data by transfer learning to increase F1-score from 0.5 to 0.75 on classifying 1:16 imbalanced sustainable companies based on metrics developed by Newday.
- Status: Part-Time
- Working hours: 20 hours per week

Data Analytics Intern

Jun 2020 - Sep 2020

- *Machine Learning*: Selected companies from S&P 500 that account for the variance of stock price based on principal component analysis to aid decisions making on portfolio construction with back-testing.
- Status: Full-Time
- Working hours: 40 hours per week

Dell EMC

Associate Consultant Intern

Jun 2019 - Sep 2019

- *System Testing*: Designed and implemented test cases using MS SQL Server for the human resources manpower information system of Hong Kong Vocational Training Council.
- Status: Full-Time
- Working hours: 40 hours per week

TEACHING EXPERIENCE

University of California—Davis

Teaching Assistant

Sep 2019 - Mar 2021

- Graduate Level
 - BAX 422 Data Design and Representation (Winter 2021)
 - BAX 441 Statistical Exploration and Reasoning (Fall 2020)
 - BAX 400 Foundation of Business Analytics (Summer 2020)
 - BAX 463 Practicum Analysis & Implementation (Spring 2020)
- Undergraduate Level
 - Statistics Bootcamp on R (Summer 2020)
 - 12Y Data Visualization for Social Sciences (Fall 2019, Winter 2020)

Brigham Young University—Hawaii

Computer Science Substitute Instructor

2017

- CS301: Algorithms and Complexity.

Math Lab Tutor (Calculus)

2015 - 2016

PUBLICATIONS

Journals

[J1] Reinhart et al. *An Open Repository of Real-Time COVID-19 Indicators*. Proceedings of the National Academy of Sciences of the United States of America

Conference Proceedings

[C1] V. Chetty, N. Woodbury, J. Brewer, **K. Lee** and S. Warnick, *Applying a Passive Network Reconstruction Technique to Twitter Data in Order to Identify Trend Setters*, IEEE Conference on Control Technology and Applications, Kohala Coast, HI, 2017.

Posters

[P3] **K. Lee**, S. Fuluvaka, *Meet Don, the Autonomous Dice Rolling Machine*, Brigham Young University-Hawaii Undergraduate Research Conference, 2018.

[P2] **K. Lee**, K. Pulotu, *Graduating Student Survey Revision: A student effort*, California Association for Institutional Research, Garden Grove, CA, 2018.

[P1] K. Pulotu, **K. Lee**, T. Vallabh, Hong Ni M. and R. Ram, *How Meaningful is our Graduating Student Survey?*, Academic Resource Conference, Burlingame, CA, 2018.

SELECTED
HONORS**Brigham Young University—Hawaii**

Computer and Information Science Overall Outstanding Graduate 2018

(Top 1 of the graduating class)

Undergraduate Research Best Oral Presentation Award **(1 out of 30 peer research teams)** 2018

Computer Science Alumni Scholarship **(Nominated by faculty)** 2017 - 2018

Mathematics Departmental Scholarship **(Nominated by faculty)** 2014 - 2018

Academic Merit Scholarship **(Top 5% of the school)** 2014 - 2018

University Dean's List **(Top 5% of the school)** 2014 - 2018

Hong Kong Student Association Leadership Certificate 2015 - 2016

BYUH Student Leadership Award 2015

Association for Computing Machinery

ACM/UPE Scholarship Award **(4 out of all the ACM student members)** 2017

Honorable Mention - International Collegiate Programming Contest (Pacific Northwest Region) 2016

The National Society of Leadership and Success

Academic Excellence Scholarship **(12 out of all the NSLS inducted members)** 2017

The Honor Society of Phi Kappa Phi

Love of Learning Award 2019

PROFESSIONAL
AFFILIATIONS

	Eta Kappa Nu, Member	2021 - Present
	The National Society of Leadership and Success, Member	2017 - Present
	Phi Kappa Phi, Member	2016 - Present
	Association of Computing Machinery, Member	2016 - Present
	Upsilon Pi Epsilon, Member	2016 - Present
CERTIFICATIONS	Deep Learning Specialization, deeplearning.ai	Jun 2019
	Machine Learning by Stanford University, Coursera	Mar 2019
	Tableau Desktop Specialist, Tableau Software	Feb 2019
SKILLS	<i>Language:</i> English (Fluent), Cantonese (Native), Mandarin (Fluent) <i>Programming Language:</i> Python, R, MATLAB, SQL <i>Framework:</i> , Pytorch, Keras, OpenCV, Scikit-learn, TensorFlow, Dlib <i>Other:</i> Tableau, AWS EC2, AWS Dynamodb, AWS S3	
REFERENCES	<ul style="list-style-type: none"> • Academia: <ul style="list-style-type: none"> – Dr. Norm Matloff, Professor, UC Davis <ul style="list-style-type: none"> * Field of study: Probability, Functional Analysis and Statistics * Relationship: Project advisor * Phone: 530-752-1953, Email: matloff@cs.ucdavis.edu – Dr. James Sharpnack, Assistant Professor, UC Davis <ul style="list-style-type: none"> * Field of study: Statistics, Machine Learning * Relationship: Project advisor, a teacher in multiple classes * Phone: 530-341-3981, Email: jsharpna@ucdavis.edu – Dr. Vasu Chetty, Principal Data Scientist, Lucid Software Inc., <ul style="list-style-type: none"> * Field of study: Computer Science * Relationship: Thesis advisor, a teacher in multiple classes * Phone: 808-589-9586, Email: vasuc@lucidchart.com – Dr. Sean Warnick, Professor, Brigham Young University, <ul style="list-style-type: none"> * Field of study: Network Systems and Control * Relationship: Summer research internship supervisor * Phone: 801-422-6463, Email: sean@cs.byu.edu – Dr. Paul Hurst, Associate Professor, Brigham Young University—Hawaii, <ul style="list-style-type: none"> * Field of study: Mathematics * Relationship: Research advisor, a teacher in multiple classes * Phone: 808-675-3802, Email: hurstp@byuh.edu – Dr. Joel Helms, Professor, Brigham Young University—Hawaii, <ul style="list-style-type: none"> * Field of study: Mathematics * Relationship: A teacher in multiple classes * Phone: 808-675-4704, Email: joel.helms@byuh.edu • Employment: <ul style="list-style-type: none"> – Ms. Kathy Pulotu, Institutional Research and Assessment Manager, Brigham Young University—Hawaii, <ul style="list-style-type: none"> * Relationship: Direct supervisor * Email: kathy.pulotu@byuh.edu 	

- **Dr. Rose Ram**, Associate Academic Vice President Curriculum and Assessment, Brigham Young University—Hawaii,
 - * Relationship: Indirect supervisor
 - * Email: `rose.ram@byuh.edu`