

Ali Kaazempur-Mofrad

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Education

- 2022 – Present 📖 **Ph.D., University of California, Los Angeles (UCLA)**
Statistics
Advisor: *Dr. Xiaowu Dai*
- 2016 – 2021 📖 **Honors B.Sc., University of Toronto**
Physics Major, Statistics and Mathematics Minors

Relevant Coursework

Graduate

📖 Fall 2022

- **STATS 200A:** Applied Probability
- **STATS 201A:** Research Design, Sampling, and Analysis
- **STATS 202A:** Statistical Programming
- **STATS 290:** Current Literature in Statistics (Seminar)

📖 Winter 2023

- **STATS 200B:** Theoretical Statistics
- **STATS 201B:** Statistical Modeling and Learning
- **STATS 202B:** Matrix Algebra and Optimization
- **STATS 211:** Topics in Economics and Machine Learning (audit)
- **STATS 290:** Current Literature in Statistics (Seminar)

📖 Spring 2023

- **STATS 201C:** Advanced Modeling and Inference
- **STATS 202C:** Monte Carlo Methods for Optimization
- **STATS 290:** Current Literature in Statistics (Seminar)

Relevant Coursework (continued)

Undergraduate

📌 University of Toronto

- **STA237:** Probability, Statistics, and Data Analysis I
- **STA238:** Probability, Statistics, and Data Analysis II
- **STA302:** Methods of Data Analysis
- **STA304:** Surveys, Sampling and Observational Data
- **STA314:** Statistical Methods for Machine Learning
- **PHY408:** Time Series Analysis
- **ANTC68:** Deconstructing Epidemics
- **ECO101:** Principles of Microeconomics
- **ECO102:** Principles of Macroeconomics

📌 University of California, Los Angeles

- **STATS 101A:** Introduction to Linear Regression
- **STATS 101B:** Introduction to Experimental Design (Audit)

Research Experience

May - Sept. 2018 📌 **Research Volunteer** UC Berkeley Department of Bioengineering.

- Worked with a team of graduate and undergraduate students on a project that involved molecular dynamics modeling of RNA-binding proteins that are involved in the export processes of mRNA out of the cell nucleus
- Our collaborative work led to a paper that was accepted for presentation in the Biophysical Society Meeting in February 2019 and our abstract was published in Biophysical Journal, 2019.

April - May 2018 📌 **Research Exchange Visitor** Kyoto University, Kyoto, Japan.

- Visited Kyoto University and learned physics-based molecular dynamics simulations of proteins

Research Experience (continued)

April - Sept. 2017  **Research Assistant** UCSF VA Medical Center Department of Radiology, Vascular Imaging Lab.

- Designed, fabricated, and tested a flow phantom pump with AutoCAD and 3D printing and conducted tests with flow rates
- Developed and tested a Computational Fluid Dynamics (CFD) model of a stenosed artery using COMSOL and ANSYS
- Used MRI to quantify flow fluctuations through a jugular vein anatomically correct phantom

June 2015 - Aug. 2016  **Research Intern** UCSF VA Medical Center Department of Radiology, Vascular Imaging Lab

- Designed and created a scaffold for the head piece in 3T and 7T MRI machines using a ULS Laser Cutter
- Designed, created with 3D Printer, and experimented with fluid flow phantom pump to determine the function of height versus the velocity of fluid through a flow phantom
- Gained experience with experimental techniques and programs such as GeoMagic Design X, laser cutting, and 3D printing


June - Aug. 2015  **Research Volunteer** UC Berkeley Department of Bioengineering

- Developed computer model of blood flow in coronary arteries
- My work led to a paper that was accepted for presentation in the Biomedical Engineering Society Meeting, which I presented at the BMES annual meeting held in Tampa, Florida, in October 2015.


June - Aug. 2014  **Research Volunteer** UC Berkeley Department of Bioengineering

- Designed a new helmet protective against traumatic brain injury (TBI)
- My work led to an invention disclosure filed by UC Berkeley (UC Case BK-2016-043)

Teaching and Mentoring Experience

Sept. 2022 - Present  **UCLA Statistics Club Mentor**
Mentoring 3 Undergraduate Statistics Students

Graduate Student Instructor/Reader

Sept. - Dec. 2022  **STATS 12:** Introduction to Statistical Methods for Geography and Environmental Studies


Jan. - March 2023  **STATS 100B:** Introduction to Mathematical Statistics

Teaching and Mentoring Experience (continued)


June - Aug. 2018  **Science Educator and Summer Camp Counselor** Lawrence Hall of Science, Berkeley, CA

Camps Taught:

- Stirring Up Science
- Nature Investigation
- Robotics Playground
- Toy Builders
- “Design a City”
- Fizzy Foamy

2014 - 2016  **Private Tutor** in Math and Physics for underprivileged students in Oakland, CA

2014-2015  **Teaching Assistant** in Biology, Acalanes High School, Lafayette, CA





2010-2012  **Tae Kwon Do Instructor Assistant** at Yu’s Martial Arts, Lafayette, CA

Publications

Conference Publications

- 1 A. Kaazempur-Mofrad, “Blood Flow Patterns in Stenosed Coronary Artery Models,” in *Biomedical Engineering Society Meeting (BMES2015)*, Tampa, FL, 2015.

Journal Publications & Preprints

- 1 A. Kaazempur-Mofrad, *A Statistical Analysis on COVID-19 Pandemic in the City of Toronto*, 2022.  DOI: 10.1101/2022.12.28.22284001.
- 2 A. Kaazempur-Mofrad, *A Statistical Inquiry into Gender-Based Income Inequality in Canada*, 2022.  DOI: 10.48550/arXiv.2212.13622.
- 3 A. Kaazempur-Mofrad, *Basketball Players’ Long Wingspan Enhances Defensive Upside but Hinders Shooting Capabilities*, 2022.  DOI: 10.51224/SRXIV.238.
- 4 M. Soheilypour, M. Peyro, H. Shams, S. Rider, **A. Kaazempur-Mofrad**, and M. Mofrad, *Molecular Mechanisms of the Interaction between the RNA-Binding Protein Nab2 and the Nuclear Basket Protein Mlp1 in mRNA Quality Control*, 2019.  DOI: 10.1016/j.bpj.2018.11.1121.

Op-Eds

- 1 A. Kaazempur-Mofrad, “Affordable child care will help women re-enter workforce, stimulating the economy,” *Toronto Star*, Sept. 12, 2021.

Skills and Interests

Programming	📌	Python (NumPy, Pandas, scikit-learn, PyTorch, TensorFlow), R, C/C++, SQL, \LaTeX , RMarkdown, MATLAB
Databases	📌	MySQL, PostgreSQL, SQLite
Machine Learning	📌	Neural Networks, Principal Component Analysis (PCA), Support Vector Machines (SVM), kNN, K-means, Logistic Regression, Linear Regression, Decision Trees
Software Dev.	📌	HTML, CSS, JavaScript, jQuery, AJAX, Flask
Modeling	📌	AutoCAD, COMSOL, GeoMagic Design X
Languages	📌	English (native speaker), Persian (mother tongue), Spanish (high school), Arabic (elementary)
Misc.	📌	Web scraping, Microsoft Excel, Version Control (Git), Bash, 3D Printing, Laser Cutting
Interests	📌	Statistical Analysis and Data Science, Machine Learning and Deep Learning, Natural Language Processing (NLP), Data Visualization, Bayesian Inference, Computer Vision, Financial Engineering, Physics-Based and Data-Driven Computational Simulation, Software Development

Miscellaneous Experience and Activities

Community Service

- 2017-18 📌 **House Council Treasurer**, University of Toronto, New College, Innovation and Technology House
- 2011-18 📌 **Volunteer** at Greater Richmond Interfaith Program (GRIP)
- 2011-14 📌 **Event Coordinator (EC)** for Youth cultural events at ICCNC Cultural Center, Oakland, CA


Music Activities

- 2013-2016 📌 Acalanes High School Orchestra (played the Viola)
 - Won “Unanimous Superior Rating” at the 2013, 2014 CMEA Festivals
 - Won “Superior Rating” at the 2015 CMEA Festivals
- 2012-13 📌 Campolindo High School Orchestra (played the Viola)
- 2009-12 📌 Stanley Middle School Orchestra (played the Violin)
 - Won “Unanimous Superior Rating” at the 2012 CMEA Festivals

Athletic Activities

- 2014-2016 📌 **Varsity Volleyball**, Acalanes High School
- 2013 📌 **Junior Varsity Volleyball Team**, Campolindo High School

Miscellaneous Experience and Activities (continued)

2005-12  **Tae Kwon Do** (Red-Advanced Belt) [had to stop on the verge of Black belt due to knee injury]

- Won 2 Gold Medals, 1 Silver Medal, 1 Bronze Medal at the San Francisco Open (hosted by Yu's Martial Arts)
- Won 1 Gold Medal, 1 Silver Medal, 1 Bronze Medal at the American Open (hosted by Sky Martial Arts)

References

Available on Request