

Kimia Kazemian

Curriculum Vitae

*Cornell University
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EDUCATION

- **Cornell University**, Ithaca, NY 2019 – present
Ph.D. in Computer Science, Advisor: Sarah Dean
Research focus: Machine Learning, Recommender Systems, Data Driven Control
Minor: Theory, expecting M.S in pure Mathematics
- **Sharif University of Technology**, Tehran, Iran 2015 – 2019
B.S. in Mathematics
- **Farzanegan High School**, Shahr-e-Kord, Iran 2011 – 2015
Affiliated with National Organization for the Development of Exceptional Talents(NODET), Diploma in Mathematics and Physics

PUBLICATIONS AND THESIS

- **Random Features Approximation for Fast Data-Driven Control** September 2022
with Sarah Dean, soon to appear on arxiv
accepted to NeurIPS Workshop on Gaussian Processes
- **on Bounds for Matrix Multiplication Complexity** December 2020
Expository paper with Guanyu Li
- **Some Criteria for a Signed Graph to Have Full Rank** August 2020
with S. Akbari, A. Ghafari, M. Nahvi
Discrete Mathematics, Volume 343, Issue 8
- **Kleene algebra with domain and Kleene Modules** December 2019
Expository paper on generalizations of KAT
- **Undergraduate Thesis Project on Additive Number Theory** 2018
with Omid Hatami
Stemmed from Soundararajan's lecture notes on additive number theory

SEMINARS AND PRESENTATIONS

- **Compact Lie Groups**, Cornell, Ithaca, USA May 2020
Theory of compact semisimple Lie groups
- **Regularity in Generic Initial Ideals**, Cornell, Ithaca, USA December 2019
defined Castelnuovo-Mumford Regularity and Generic initial ideals, presented related results
- **Additive Combinatorics**, IPM, Tehran, Iran August 2018
Lecture 1: proofs of Roth's theorem and Freiman's theorem
Lecture 2: Gowers' proof of Szemerédi's theorem for $n=4$

- **Bifurcation Theory**, Sharif University, Tehran, Iran May 2018
Bifurcation theory and its implications in biology, Hopf bifurcation in neural oscillations and endangered species, numerical simulation
- **Forcing Parameters for Graphs**, Sharif University, Tehran, Iran February 2016
Zero forcing and minimum rank problem, k-forcing and upper bounds for the k-forcing number

SUMMER SCHOOLS AND WORKSHOPS

- **Automorphic forms beyond GL₂**, Arizona Winter School, Tuscon, AZ March 2022
- **Tenth Annual Upstate Number Theory Conference**, Schenectady, NY October 2021
- **Arizona Winter Semester**, Virtual Spring 2021
- **Nonabelian Chabauty**, Arizona Winter School, Tuscon, AZ March 2020
- **Illustrating Number Theory and Algebra**, ICERM, Providence, RI October 2019
- **Frontiers School in Algebraic Number Theory and Dynamics**, IASBS, Zanjan August 2018
- **Summer School in Dynamics**, ICTP, Trieste, Italy July 2018
- **ICTP School on Dynamical Systems and Ergodic Theory**, TMU, Tehran, Iran May 2018
- **Summer School on Applied Mathematics**, IASBS, Zanjan, Iran August 2017

TEACHING EXPERIENCE

- **CS 4820: Introduction to Analysis of Algorithms**, Cornell Summer 2022
Office hours, grading and posting solutions
- **Math 4420/5420: Introduction to Combinatorics**, Cornell Spring 2022
Office hours, grading and posting solutions
- **Math 4200: Differential Equations and Dynamical Systems**, Cornell Fall 2021
Office hours, grading and posting solutions
- **CS 1110: Introduction to Computing Using Python**, Cornell Summer 2021
running labs, office hours and grading
- **Math 4500: Matrix Groups**, Cornell University Spring 2021
Office hours, grading and posting solutions
- **Math 1920: Multivariable Calculus for Engineers**, Cornell University Fall 2020
Recitation TA; holding recitations, office hours and grading for a class of 500+ students
- **Linear Algebra with Applications**, Sharif University Fall 2017
Grader
- **Calculus**, Volunteer Teaching 2016
For students under the care of State Welfare Organization (SWO)
Public classes preparing high school students for College Entrance Exam
Private classes for a student having learning difficulties

DISTINCTIONS, AWARDS AND HONORS

- **Cornell University Fellowship** 2019
- **Chief Editor of Sharif Mathematical Journal** 2017 – 2019
Issues 9 and 10
Available at: <http://hamband.math.sharif.edu/journal>
- **Iranian College Entrance Exam** 2015
Ranked 536 out of more than 220,000 participants
- **Iran's National Olympiad in Mathematics** 2011, 2012, 2013
Progressed to the second round of 22-24th national olympiad
- **Iran's National Olympiad in Informatics** 2012, 2013
Progressed to the second round of 23rd and 24th national olympiad

PROGRAMMING PROJECTS

- **Random Features:** on data-driven Control with preliminary results
- **Name generator:** a small RNN model generating unique names for babies/startups

SKILLS

- **Mathematical Software:** Matlab, Macaulay2, Magma
- **Programming Languages:** Java, Ocaml, Python
- **Python Packages:** Numpy, Pytorch

COURSES

- **Graduate Courses**, Cornell University
Math: Topics in Number Theory(Construction of maximal unramified p -extensions with prescribed Galois groups-7370), Lie Groups and Lie Algebras(6390), Advanced Algebra II(6320), Differential Manifolds(6520), Topics in Number Theory(Elliptic Curves-7370), Commutative Algebra(6340), Advanced Algebra(6310), Differentiable Manifolds(6520)

CS: Machine learning in feedback systems(CS 6784), Introduction to Machine Learning(5780), Analysis of Algorithms(6820), Advanced Programming Languages(6110), Kleene Algebra(6861)
- **Graduate Courses**, Sharif University
Algebraic Topology, Riemann Surfaces, PDE, Complex Analysis, Real Analysis, Differential Geometry, Game Theory, Algebraic Graph Theory
- **Undergraduate Courses**, Sharif University
Galois Theory, Analysis I&II, Set Theory, Probability theory, Numerical Analysis, Programming in Java

MISCELLANEOUS

- **Tests:** GRE subject math 860/900, 88th percentile. TOEFL 116/120.
- GRE general verbal: 159/170, 83rd percentile, quant: 170/170, 96 percentile
- **Languages:** English, Persian