Kianoosh Shokri

Curriculum Vitae

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About Myself

I am a Ph.D. candidate in Mathematics at the University of Ottawa, specializing in combinatorial design theory, with graduation expected for Fall 2025. My research focuses on constructing new covering arrays using finite fields and finite geometry. I also bring nearly eight years of teaching experience and currently teach Calculus 1 as a part-time professor at the University of Ottawa.

Education

2021–Present **Ph.D. in Pure Mathematics**, *University of Ottawa*, Ottawa, Canada
- Ph.D. Thesis: Constructing new families of covering arrays using finite geometry and finite fields
- Supervisor: Prof. Lucia Moura
- Grade A+ in all six courses
- Expected completion: Fall 2025

2013–2015 **M.Sc. in Pure Mathematics**, *Sharif University of Technology*, Tehran, Iran
- Thesis: On the Latin squares of groups and their coloring
- Supervisor: Prof. E. S. Mahmoodian
- GPA: 16.53/20

2009–2013 **B.Sc. in Pure Mathematics**, *Shahid Beheshti University*, Tehran, Iran
- Honours Project: What is the proof? (Classic and modern proofs)
- Supervisor: Dr. Amir Asghari
- GPA: 18.14/20

Honors and Awards

2024 Winner of the Outstanding Student Paper Prize, University of Ottawa

2021 Ph.D. admissions scholarship, University of Ottawa ($36,000)

2021 International Doctoral Scholarship, University of Ottawa ($40,000)

2017 Appointed to academic administrative position at Sharif University of Technology as alternative to Military Service

2013 Admitted for M.Sc. in Pure Mathematics at Sharif University (exempt from entrance exam)

2013 Ranked 1st among 35 students of B.Sc. in Pure Mathematics at Shahid Beheshti University

Publications

2025 K. Shokri, L. Moura, and B. Stevens. "Existence of 3 anti-cocircular truncated Möbius planes and constructions of strength-4 covering arrays". https://arxiv.org/abs/2510.13122.

2025 K. Shokri, L. Moura. "New Families of Strength-3 Covering Arrays Using Linear Feedback Shift Register Sequences". *Journal of Combinatorial Designs*, 33:156-171. doi:10.1002/jcd.21963

2015 K. Shokri. "On the Latin squares of groups and their coloring". Master's thesis, Sharif University of Technology.

Research Experience

2022–Present **Ph.D. Candidate**, *University of Ottawa*, Canada
- Constructing strength-3 and strength-4 covering arrays using LFSR sequences, finite fields, finite geometry, and recursive methods
- Improving upper bounds for the sizes of some best-known covering arrays

2014–2015 **Graduate Student**, *Sharif University of Technology*, Iran
- Latin squares of groups and their coloring
- Developed constructive method to color Latin squares of Dihedral and Quaternion groups

2014 **Graduate Student**, *Sharif University of Technology*, Iran
- Course project: Magic Squares (relation with Linear Algebra)

2012 **Undergraduate Student**, *Shahid Beheshti University*, Iran
- Course project: History of continued fractions (relation with GCD, Pell's equations, π approximations)

2011 **Undergraduate Student**, *Shahid Beheshti University*, Iran
- Honours project: What is the proof? (Classic and modern proofs)

Talks and Seminars

2025 "A recursive construction of strength-4 covering arrays using an ovoid in $PG(3,q)$", **Invited presentation**, CMS winter meeting, Combinatorial Design Theory session, Canada, Toronto.

2025 "On the intersection of circles from three truncated Möbius planes and a construction of strength-4 covering arrays", **Invited presentation**, Canadian Discrete and Algorithmic Mathematics Conference 2025, Minisymposium session: Combinatorial Designs and Graph Decompositions, Canada, Ottawa.

2025 What theorems may come: From clues in finite geometry to a construction of a CA$(3q^4-2; 4, \frac{q^2+1}{2}, q)$", **contributed presentation**, Ontario Combinatorics Workshop, Canada, Ottawa.

2025 "Improving upper bounds on the size of some covering arrays of strength 3", **Invited presentation**, Ottawa mathematics and statistics conference, Canada, Ottawa (Student Prize Talk).

2024 "A construction of strength-4 covering arrays using three k-caps in $PG(3,q)$", **Invited presentation**, CMS winter meeting, Combinatorial Design Theory session, Canada, Vancouver.

2023 "Improving upper bounds on the size of some covering arrays of strength 3", **Invited presentation** at CMS winter meeting, Combinatorial Design Theory session, Canada, Montreal.

2023 "Improving upper bounds on the size of some covering arrays of strength 3", **Invited presentation**, Carleton Finite Fields Seminar, Canada, Ottawa.

2023 "Improving upper bounds on the size of some covering arrays of strength 3", **contributed presentation**, Ontario Combinatorics Workshop, Canada, Ottawa.

Workshops and Conferences Attended

2025 Canadian Mathematical Society (CMS) winter meeting, Combinatorial Design Theory session, Canada, Toronto.

2025 Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM), Canada, Ottawa.

2025 Ontario Combinatorics Workshop (OCW), Canada, Ottawa.

2024 Ottawa mathematics and statistics conference, Canada, Ottawa.

2024 Canadian Mathematical Society (CMS) winter meeting, Combinatorial Design Theory session, Canada, Vancouver.

2024 International Workshop on the Arithmetic of Finite Fields (WAIFI), Canada, Ottawa.

2023 Canadian Mathematical Society (CMS) winter meeting, Combinatorial Design Theory session, Canada, Montreal.

2023 Ontario Combinatorics Workshop (OCW), Canada, Ottawa.

2023 Ottawa mathematics and statistics conference, Canada, Ottawa.

2023 Canadian Mathematical Society (CMS) summer meeting, Canada, Ottawa.

2022 Stinson66 - New Advances in Designs, Codes and Cryptography, Canada, Toronto.

Work and Teaching Experience

2024–Present **University Teaching Certificate**, *University of Ottawa*, Canada

Professional development program in university-level pedagogy.
- Completed Foundations (Stage 1) (fundamentals of university teaching)
- Currently enrolled in Pillars (Stage 2) (advanced practices)

2025–Present **Part-time Professor**, *University of Ottawa*, Canada

Courses taught:

- Calculus 1 (Fall 2025)
- Calculus 2 (Winter 2025)

2021–Present **Teaching Assistant**, *University of Ottawa*, Canada

- Calculus I (Fall 2021, Summer 2022, Fall 2022, Fall 2024)
- Calculus II (Winter 2022)
- Linear Algebra (Fall 2021, Winter 2022, Winter 2023)
- Discrete Math for Computing (Summer 2022, Winter 2023, Winter 2024)
- Calculus for Life Science I (Fall 2022, Fall 2023)
- Mathematical Reasoning and Proof (Summer 2023, Summer 2024)

2011–2013 **Teaching Assistant**, *Shahid Beheshti University*, Iran

- Calculus 1, Calculus 2, Number Theory

2009–2021 **Mathematics & Geometry Teacher**, *High Schools, Tehran (NODET & others)*, Iran

- Topics taught: Calculus, Algebra, Number Theory, Probability, Statistics, Euclidean Geometry
- (2015-2021) Math and Geometry, 7, 8, and 9^{th} grades, Allame Helli 1 of Tehran (National Organization for Development of Exceptional Talents)
- (2019-2021) Math and Geometry, 7 and 8^{th} grades, Negaresh High School
- (2017, 2019-2021) Math and Geometry, 7 and 8^{th} grades, Allame Helli 2 of Tehran (National Organization for Development of Exceptional Talents)
- (2018) Set theory, 7^{th} grade, Extracurricular classes at Allame Helli 1 of Tehran
- (2015) Proof without words, 8 and 9^{th} grades, Extracurricular classes at Allame Helli 1 of Tehran
- (2015) Number Theory, 8 and 9^{th} grades, Extracurricular classes at Allame Helli 1 of Tehran
- (2015) Graph Theory, 8^{th} grade, Extracurricular classes at Allame Helli 1 of Tehran
- (2014) Math, 10^{th} grade, Allame Helli 1 of Tehran
- (2013) Math and Geometry, 10^{th} grade, Ghalamchi Institute of Pardis
- (2009) Math and Geometry, 10^{th} grade, AmirAlmomenin High School

2019 **Workshop Instructor (Origami and Geometry)**

- Allame Helli 1 and Allame Helli 2 for 8^{th} grade
- Teaching geometry concepts through origami.
- Enhancing critical thinking and problem-solving skills.
- Developing teamwork and social skills.

2019 **Workshop Instructor (Probability)**

- Allame Helli 2 for 7^{th} grade
- Teaching probability and statistics concepts using interactive games and software.
- Exploring real-life problems and patterns related to probability and statistics.
- Enhancing critical thinking and problem-solving skills.
- Developing teamwork and social skills.

2016–2018 **Question Designer**, *Iranian Geometry Olympiad*, Iran

- Designed problems for the first levels of the national Olympiad

Administrative Experience

2024–2025 **Co-organizer of Ottawa Mathematics and Statistics Conference**, *with the other executive members of the University of Ottawa Mathematics and Statistics Graduate Student Association.*

2024–2025 **V.P. Equity and Student Life**, *Mathematics and Statistics Graduate Student Association (MSGSA)*, University of Ottawa

- Holding the 1 in 5 initiative workshop at the science faculty to advocate and promote psychological well-being and mental health literacy. A multidisciplinary group of the University of Ottawa leads this workshop.
- Acting as a guide to potential resources for graduate students,
- Acting as a representative of the Association and its Members on any relevant committee, association, etc. concerning equity, diversity, and/or inclusivity,
- Advocating for and promoting equity, diversity, and inclusivity within the Association and among its Members.

Computer Skills

Linux, Python, SageMath, LaTeX