

# Hamid Shafieasl

PhD Student in Computer Science (Artificial Intelligence / Data Science), University of Utah  
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Google Scholar | Website | LinkedIn | Math.SE (3,065 rep)

## Professional Summary

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PhD student in Artificial Intelligence with a previous PhD in Mathematics (Harmonic Analysis). My research and coursework focus on large-scale data analysis, machine learning, algorithmic reasoning, geometric computation, and intersections between mathematics and computer science. I work extensively with graph algorithms, signal sampling approaches, shape analysis methods, reinforcement learning techniques, and computational geometry.

## Research Interests

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High-dimensional data analysis and large-scale computation, machine learning and reinforcement learning, graph and spectral methods, computational geometry and shape analysis, and the mathematical foundations of machine learning.

## Education

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- **Ph.D. in Computer Science (Artificial Intelligence)**, University of Utah *Expected 2029*  
*Coursework:* High-Dimensional Data Analysis, Data Mining, Artificial Intelligence, Machine Learning
- **Ph.D. in Mathematics**, Azerbaijan Shahid Madani University 2019  
*Coursework:* Calculus of Variations, Optimization
- **M.Sc. in Mathematics**, Azerbaijan Shahid Madani University 2011  
*Coursework:* Advanced Algebra, Real and Complex Analysis, Harmonic Analysis, Algebraic Topology  
Ranked 1st in cumulative GPA
- **B.Sc. in Mathematics**, Azad University of Tabriz 2009  
*Coursework:* Linear Algebra, Principles of Programming Languages  
Ranked 1st in cumulative GPA

## Awards & Honors

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- Ranked 1st in cumulative GPA (B.Sc. and M.Sc. in Mathematics).

## Technical Skills

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**Programming:** Python, object-oriented programming, numerical computing.

**Data & Algorithms:** High-dimensional data analysis, noise reduction, signal sampling, graph algorithms (PageRank, Dijkstra), search and optimization methods.

**Machine Learning & AI:** Supervised and unsupervised learning, reinforcement learning (policy and search methods), model evaluation.

**Computational Geometry & Shape Analysis:** Geometric reasoning, classification of star-shaped versus non-star-shaped structures, curve and surface analysis.

**Mathematics:** Harmonic analysis, linear algebra, probability, differential equations, complex analysis, discrete mathematics.

**Tools:** NumPy, SciPy, Matplotlib, Rhino–Grasshopper (rhinoscriptsyntax).

## Research & Projects

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- **Computational Geometry (Submitted Paper).** Developed a new interdisciplinary framework for analyzing star-shaped and non-star-shaped 2D objects. Combines mathematical structure with algorithmic computation for shape recognition and geometric decision problems.
- **Geometric Origami Modeling.** Used Python and Rhino–Grasshopper to model curved origami structures, contributing to published research in geometric computation.
- **Discrete Curve Geometry.** Studied curvature and torsion of discretized curves with applications in CAD, graphics, and geometric modeling.

## Professional Experience

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- **Python Instructor**, Private Institutes 2020–Present
  - Taught Python with emphasis on data workflows, algorithms, and machine learning fundamentals.
- **Mathematics Lecturer**, Azerbaijan Shahid Madani University 2010–2018
  - Taught Linear Algebra, Calculus, Analysis, Differential Equations, Complex Functions, and Discrete Mathematics.
  - Guided students in applying mathematical reasoning to computational and algorithmic problems.
- **Mathematics Teacher**, Various Colleges 2009–2024
  - Taught advanced mathematics with focus on abstraction, rigor, and analytical problem-solving.

## Publications

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- **H. Shafieasl**, A. M. Tavakkoli. “On the extension of inner derivations from dense ideals in Banach algebras.” *arXiv preprint*, 2026. [Link](#)
- A. Safary, **H. Shafieasl**, J. Mitani. “Parameterized Folded State Shape Modeling of David Huffman’s Ellipse.” *Journal for Geometry and Graphics*, 28(2):199–212, 2025. [Link](#)
- A. Safary, **H. Shafieasl**, J. Mitani. “Geometric Design Tool for One-Fold, a Curved Origami with a Single Fold.” *Journal for Geometry and Graphics*, 28(1):089–101, 2024. [Link](#)
- H. Pourm Mahmood-Aghababa, M.H. Sattari, **H. Shafieasl**. “Bounded Pseudo-Amenability and Contractibility of Certain Banach Algebras.” *Filomat*, 34(5):1701–1712, 2020. [Link](#)
- **H. Shafieasl**. “A Note on Ramified Coverings of Riemann Surfaces.” *International Mathematical Forum*, 15(8):377–381, 2020. [Link](#)
- **H. Shafieasl**, M.H. Sattari. “Symmetric Module and Connes Amenability.” *Sahand Communications in Mathematical Analysis*, 5(1):49–59, 2017. [Link](#)
- M.H. Sattari, **H. Shafieasl**. “Product of Derivations on Triangular Banach Algebras.” *Journal of Hyperstructures*, 6(1), 2017. [Link](#)