CURRICULUM VITAE

Hajar Homayouni
Department of Computer Science
San Diego State University
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EDUCATION

May, 2020	Colorado State University
Ph.D.	Computer Science
December, 2017	Colorado State University
Master	Computer Science
December, 2013	Alzahra University of Tehran, Iran
Master	Artificial Intelligence
September, 2008	University of Kashan, Iran
Bachelor	Computer Science

TEACHING / LIBRARY SERVICE / COUNSELING POSITIONS

Fall 2021 – Present	Assistant Professor
San Diego State University	Computer Science

PROFESSIONAL GROWTH

REFEREED JOURNAL ARTICLES

1. **H. Homayouni**, I. Ray, S. Ghosh, S. Gondalia, and M. G. Kahn, "Anomaly Detection in COVID-19 Time-Series Data," *SN Computer Science* (Impact Factor: 2.2), vol. 2, no. 4, p. 279, 2021, doi: 10.1007/s42979-021-00658-w.
2. M. R. Keyvanpour and **H. Homayouni**, "Automatic Test Case Generation for Modern Web Applications Using Population-Based Automatic Fuzzy Neural Network," *International Journal of Information & Communication Technology Research* (*IJICTR*), pp. 30–40, 2014.
3. M. R. Keyvanpour, **H. Homayouni**, and S. Zolfaghari, "Population-Based Automatic Fuzzy Neural Network for Online, Knowledge-Based Learning," *The Modares Journal of Electrical Engineering*, vol. 14, no. 3, pp. 31–47, 2014.
4. M. R. Keyvanpour, **H. Homayouni**, and H. Shirazee, "A Classification Framework for Automatic Test Case Generation Techniques for Web Applications," *Journal of Information Processing and Management*, vol. 4, no. 3, pp. 26–39, 2013.
5. M. R. Keyvanpour, **H. Homayouni**, and H. Shirazee, "Automatic Software Test Case Generation: An Analytical Classification Framework," *International Journal of Software Engineering and Its Applications*, vol. 6, no. 4, pp. 1–16, 2012.
6. H. Shirazee, H. Rashidi, and **H. Homayouni**, "The Effects of Data Compression on Performance of Service-Oriented Architecture (SOA)," *International Journal of Emerging Trends & Technology in Computer Science* (*IJETTCS*), vol. 1, 2012.
7. M. R. Keyvanpour, **H. Homayouni**, and H. Shirazee, "Automatic Software Test Case Generation," *Journal of Software Engineering* (Acceptance Rate: 33%), vol. 5, no. 3, pp. 91–101, 2011.

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REFEREED BOOK CHAPTERS

1. **H. Homayouni**, S. Ghosh, and I. Ray, "Chapter Five - Data Warehouse Testing," in *Advances in Computers*, A. M. Memon, Ed., Elsevier, vol. 112, pp. 223–273, 2019, doi: 10.1016/bs.adcom.2017.12.005.

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REFEREED PROCEEDINGS

1. **H. Homayouni**, H. Aghayarzadeh, I. Ray, and H. Shirazi, "Anomaly Detection and Interpretation from Tabular Data Using Transformer Architecture," accepted for publication as a full paper in the *International Conference on Data Mining Workshops (ICDM-W)*, 2024.
2. Sh. K. Bashir, H. Shirazi, N. S. Faramarzi, T. S. Harris, A. Shishodia, **H. Homayouni**, and I. Ray, "Investigating Influential COVID-19 Perspectives: A Multifaceted Analysis of Twitter Discourse," in *Proceedings of NSS-SocialSec* (Best Paper Award), 2024.
3. D. Rozenshteyn and **H. Homayouni**, "Gender Gap Analysis in Cardiovascular Research," a short paper in *Proceedings of IEEE HealthCom*, 2024.
4. Jnaini, H. Shirazi, and **H. Homayouni**, "Synergy of GPT-3 Summarization and Vision-Encoder-Decoder for Chest X-Ray Captioning," in the *IEEE Canadian Conference on Electrical and Computer Engineering (IEEE CCECE)*, 2024. doi: 10.1109/CCECE59415.2024.10667261.
5. **H. Homayouni**, S. N. Dabhi, S. T. Nguyen, P. P. Badlania, M. Hashemib, and H. Shirazi, "Towards Comprehensive Functional Testing in ETL Processes: A Classification Framework and Empirical Validation on a Real-World Data Warehouse," in the *24th IEEE International Conference on Software Quality, Reliability, and Security Companion (QRS-C)*, 2024, pp. 476–482, doi: 10.1109/QRS-C63300.2024.00013.
6. S. Kaur, S. Kumar, and **H. Homayouni**, "Synthetic High-Resolution COVID-19 Chest X-Ray Generation," in *Proceedings of the 2023 Australasian Computer Science Week*, in *ACSW '23*. New York, NY, USA: Association for Computing Machinery, 2023, pp. 151–159, doi: 10.1145/3579375.3579395.
7. E. Navarro and **H. Homayouni**, "Topic Modeling in Cardiovascular Research Publications," in *Knowledge Discovery and Data Mining (KDD) - Undergraduate Consortium (UC)*, Long Beach, CA, 2023.
8. G. Maurina, **H. Homayouni**, S. Ghosh, I. Ray, and G. P. Duggan, "A Methodology for Energy Usage Prediction in Long-Lasting Abnormal Events," in *2022 IEEE 4th International Conference on Cognitive Machine Intelligence (CogMI)*, 2022, pp. 91–100, doi: 10.1109/CogMI56440.2022.00023.

9. J. Cuomo, **H. Homayouni**, I. Ray, and S. Ghosh, "Detecting Temporal Dependencies in Data," *Proceedings of the British International Conference on Databases*, 2022, accessed: Oct. 02, 2023. [Online]. Available: https://par.nsf.gov/biblio/10340373-detecting-temporal-dependencies-data.
10. **H. Homayouni**, S. Ghosh, I. Ray, S. Gondalia, J. Duggan, and M. G. Kahn, "An Autocorrelation-Based LSTM-Autoencoder for Anomaly Detection on Time-Series Data," in *2020 IEEE International Conference on Big Data (Big Data)*, 2020, pp. 5068–5077, doi: 10.1109/BigData50022.2020.9378192.
11. **H. Homayouni**, S. Ghosh, I. Ray, and M. G. Kahn, "An Interactive Data Quality Test Approach for Constraint Discovery and Fault Detection," in *2019 IEEE International Conference on Big Data (Big Data)*, 2019, pp. 200–205, doi: 10.1109/BigData47090.2019.9006446.
12. **H. Homayouni**, S. Ghosh, and I. Ray, "ADQuaTe: An Automated Data Quality Test Approach for Constraint Discovery and Fault Detection," in *2019 IEEE 20th International Conference on Information Reuse and Integration for Data Science (IRI)*, 2019, pp. 61–68, doi: 10.1109/IRI.2019.00023.
13. **H. Homayouni**, S. Ghosh, and I. Ray, "An Approach for Testing the Extract-Transform-Load Process in Data Warehouse Systems," in *Proceedings of the 22nd International Database Engineering & Applications Symposium*, in *IDEAS '18*. New York, NY, USA: Association for Computing Machinery, 2018, pp. 236–245, doi: 10.1145/3216122.3216149.

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EXTERNALLY CRITIQUED PERFORMANCES OR JURIED EXHIBITIONS OF WORKS

1. H. Homayouni, 2024. "Synthetic Medical Data Generation", Microsoft Research, Seattle, WA.
2. H. Homayouni, 2024. ''Anomaly Detection and Explanation from Tabular Data using Transformer Architecture", Statistics and Data Science Seminar, Department of Mathematics and Statistics, San Diego State University.
3. H. Homayouni, M. Pourebadi, H. Shirazi, 2024. "Poster: Federated Multimodal Medical Data Generation",
4. presented in the Network and Distributed System Security Symposium (NDSS).
5. H. Homayouni. "Generative Models for Synthetic Data Generation", 2023. IEEE CIS Summer School, SMNIT Jaipur, India.
6. H. Homayouni. "Synthetic COVID-19 Data Generation", 2023. Computational Science Research Center (CSRC), San Diego State University.
7. H. Homayouni. "Anomaly Detection and Explanation in Big Data", 2021. Computational Science Research Center (CSRC), San Diego State University.
8. H. Homayouni, S. Ghosh, I. Ray. "Anomaly Detection and Explanation in Big Data", 2020. Rising Stars, UC Berkeley.
9. H. Homayouni, S. Ghosh, I. Ray, "IDEAL: Interactive Detection and Explanation of Anomalies using Autocorrelation-based LSTM-Autoencoder for Time-Series Data" 2020. virtual poster presentation at Rocky Mountain Advanced Computing Consortium.
10. H. Homayouni, S. Ghosh, I. Ray, "ADQuaTe: An Automated Interactive Data Quality Test Approach", 2019, poster presentations at Graduate Show Case, Colorado State University, USA
11. H. Homayouni, S. Ghosh, I. Ray, "ADQuaTe: An Automated Interactive Data Quality Test Approach", 2019, poster presentations at Grace Hopper Celebration of Women in Computing, USA
12. H. Homayouni, S. Ghosh, I. Ray, "ADQuaTe: An Automated Interactive Data Quality Test Approach", 2019, poster presentations at Tapia Celebration of Diversity in Computing, Sandiego, USA
13. H. Homayouni, S. Ghosh, I. Ray, 2019. "ADQuaTe: An Automated Data Quality Test Approach for Constraint Discovery and Fault Detection", poster presentation at Rocky Mountain Advanced Computing Consortium, Boulder, USA.
14. H. Homayouni, S. Ghosh, I. Ray, 2018. "Using Autoencoder to Generate Data Quality Tests", paper presentation at Rocky Mountain Celebration of Women in Computing (RMCWIC), Denver, USA, November 2–3.
15. H. Homayouni, S. Ghosh, 2016. "A Study of Evosuite as an Automatic Test Case Generation Approach to Kill First Order Mutants", paper presentation at Rocky Mountain Celebration of Women in Computing, Salt Lake City, USA.

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PUBLICATIONS IN PROCESS

1. H. Homayouni, T. Kantilal Gada, H. Shorazi, S. Mehrotra, S. Ghosh, I. Ray. "Anomaly Detection in Time Series Data: A Comparative Evaluation of Methods", submitted to the Journal of Data and Information Quality (ACM JDIQ), 2024.

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SCHOLARLY AWARDS

1. Teach Access Fellowship ($4000) for Teaching the Fundamental Concepts and Skills of Accessibility, 2025
2. Weber Honors College Research Fellowship to Support Two Undergraduate Students, 2025
3. ICDM NSF Travel Award, 2024
4. Course Design Institute course credit for "faculty developing new high-impact, large enrollment, or bottleneck online courses, 2024
5. CASHI LREU Fellowship ($3000) to Supervise Underrepresented Undergraduate Students 2022 and 2023
6. CASHI Travel Award to attend the Great Minds in STEM Conference, 2023 and 2024
7. SDSU CS Department Travel Award to Attend Grace Hopper Celebration of Women in Computing, 2023
8. CRA Travel Award to Attend the LEVEL UP Workshop, 2023
9. STARS Computing Corps Fellowship ($1000) to Support Diverse Cohorts of Students, 2023
10. SDSU Grants Research and Enterprise Writing (GREW) Fellowship, 2022
11. SDSU Inclusive Excellence Faculty Fellowship, 2022
12. Faculty Travel Award, ACM Richard Tapia Celebration of Diversity in Computing, 2022
13. Faculty Travel Award, Rocky Mountain Advanced Computing Consortium (RMACC), 2022
14. Faculty Travel Award, Grace Hopper Celebration of Women in Computing, 2022
15. Student Travel Award, ACM Richard Tapia Celebration of Diversity in Computing, 2019 and 2020
16. Graduate ACM Student Research Competition in Tapia, 1st place ($500), 2019
17. Western Association of Graduate Schools WAGS-Proquest Distinguished Master's Thesis Award ($1000), 2019
18. Great Minds in Research Award ($100), CSU Graduate Student Showcase, 2019
19. P. R. Mukherjee Award in Computer Science ($1500), Colorado State University, 2019
20. Computer Science Graduate Fellow ($5000), Colorado State University, 2019
21. Best Graduate Student Talk in Rocky Mountain Celebration of Women in Computing, 2018
22. Robert B. France Fellowship in Computer Science ($3000), Colorado State University, 2018

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FUNDED RESEARCH GRANTS

1. $7,500, SDSU Seed Grant, PI, 2025—2026
   Advanced Analysis of Cardiovascular Research Using Large Language Models
2. $50,000, Microsoft Accelerating Foundation Models Research, PI, 2024—2025
3. $25,000, Microsoft Azure Credit, PI, 2024—2025
4. $80,000, Google Sponsored Computing Alliance of Hispanic-Serving Institutions, Co-PI, 2023—2024
5. $7,815, Google Cloud Platform Credit (GCP), Co-PI, 2023—2024
6. $102,817, Division of Research and Innovation (DRI) Equipment Funding, Co-Director, 2022—2025
7. $2,400, Google Cloud Credit Grant to Support COVID-19 Research, PI, 2020—2021

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GRANTS SUBMITTED

1. $120,000, Amazon Research Award, PI, 2024—2025 (pending)
2. $249,744, NIH-SuRE-FIRST R16, PI, 2024—2026 (pending)
3. $400,000, NIH-NIBIB R21 Trailblazer, PI 2024—2026 (unawarded)
4. $175,000, NSF-CRII-CISE, PI, 2024—2026 (unawarded)
5. $250,000, NSF-CIRC-CISE, Co-PI, 2023—2024 (unawarded)
6. $ 635,877, NSF- DMREF, Co-PI, 2023—2026 (unawarded)
7. $694,422, NSF-CAREER-CISE-SaTC, PI, 2022—2027 (unawarded)
8. $500,000, NSF-FM Co-PI, 2022—2024 (unawarded)

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WORKS-IN-PROGRESS

1. Synthetic multimodal health data generation

2. Anomaly detection and explanation in medical data
3. Exploratory data analysis of factors associated with impactful health scientific research

TEACHING EFFECTIVENESS

Dates	Student and Project
Fall 2024	Christian Quiroz, Master's project, CSRC, SDSU, "Anomaly Detection"
Fall 2024	Arshia Ilaty, Ph.D., CS, SDSU-UCI, "Synthetic Data Generation"
Spring 2024—Present	Sabnam Pandit, Master's project, CS, SDSU, ''Topic Modeling in CVD Research"
Spring 2024—Present	Anastasia Kurakova, Master's project, CS, SDSU, "Synthetic Medical Data Generation"
Spring 2024—Present	John Pateros, Master's project, CS, SDSU, "Spatial Data Clustering"
Fall 2024	Sai Kiran Veera, CS, SDSU, "Spatial Data Clustering"
Fall 2024	Hamed Aghayarzadeh, Ph.D., CS, ColoState, "Anomaly Detection and Explanation"
Spring 2024	Uriel Baldesco, CASHI LREU, CS, CalState LA, "Anomaly Detection and Explanation"
Fall 2023	Rutuja Medhekar, Volunteer Reseacrh, CS, SDSU, "Anomaly detection from genome data"
Fall 2023	Yousif Jabbo, Master's project, CS, SDSU, "Anomaly detection from genome data"
Fall 2023	Keerthan Balagam, Master's project, CS, SDSU, "Automated DQ Assurance"
Fall 2023	Mansi Vyas, Master's project, CS, SDSU, "Automated DQ Assurance"
Fall 2023	Sai Praveen Janapareddi, Master's project, CS, SDSU, "Automated DQ Assurance"
Fall 2023	Satya Srirag Andavilli, Master's project, CS, SDSU, "Automated DQ Assurance"
Fall 2023--Present	Ezer Patlan, Master's thesis, CS, SDSU, "Anomaly Detection and Explanation in Health Data"
Spring 2023—Present	Ashmita Shishodia, Master's thesis, CS, SDSU, "Misinformation Detection"
Spring 2023	Edgar Navarro, Undergraduate Research Assistant, CS, SDSU, "Topic Modeling in Cardiovascular Research"
Spring 2023	Eric Garcia, Undergraduate Research Assistant, CS, SDSU, "Impact Analysis in Cardiovascular Research"
Spring 2023	Abdellah Jnaini, Visiting Student, CS, Mohammed First University, Morocco, "Synthetic Multimodal Medical Data Generation"
Spring 2023	Tobias Jordan, Visiting Student, CS, Bundeswehr University, Germany, "Visual Phishing Detection"
Spring 2023—Summer 2023	Ruitao Wu, Master's project, CS, SDSU, "Multimodal Synthetic Medical Data Generation"
Spring 2023—Summer 2023	Saiprasanth Paladugula, Master's project, CS, SDSU, "Multimodal Synthetic Medical Data Generation"
Summer 2023—Present	Priti Badlani, Volunteer graduate researcher, CS, SDSU, "Functional ETL Testing"
Summer 2023—Present	Sharad Nagjibhai, Volunteer graduate researcher, CS, SDSU, "Functional ETL Testing"
Summer 2023—Present	Pritesh Choksi, Volunteer graduate researcher, CS, SDSU, "Functional ETL Testing"
Spring 2023—Present	Steven Nygun, Master's project, CS, SDSU, "Functional ETL Testing"
Spring 2023—Present	Abril Zuniga, Master's Thesis, Biology, SDSU, "Database design for genome scale metabolic model data"
Spring 2023	Basil Sajid Shaikh, Research Assistant, CS, SDSU, "Visual Phishing Detection"
Spring 2023	Abdul Noushad, Research Assistant, CS, SDSU, "Visual Phishing Detection"
Fall 2022—Summer 2023	Twinkal Kantilal Gada, Master's project, CS, SDSU, "Anomaly Detection in Medical Data"
Spring 2023	Chandler Ebrahimi, Master's project, CS, SDSU, "Functional ETL Testing"
Fall 2022—Summer 2023	Stephani Zarrouk, Master's thesis, CS, SDSU, "Synthetic COVID-19 Data Generation"
Summer 2022—Fall 2022	Amir Hossein Adibfar, Ph.D., Engineering JDP, SDSU, "Anomaly Detection in Wastewater Infrastructures using Supervised and Semi-supervised Learning"
Fall 2021—Spring 2023	Diana Rozenshteyn, Master's thesis, CS, SDSU, "NIH-Funded Publications Analysis: Topics and Impactfulness"
Spring 2022—Summer 2022	Johanna Walker, Ph.D., Department of Psychology, CS, SDSU, "Neural mechanisms of risk for irritability across the transition to adolescence"

Spring-- Summer 2022	Shad Fernandez, Master's project, CS, SDSU, "Anomaly Detection in Wastewater Infrastructures using Supervised and Semi-supervised Learning"	
Summer 2022	Gabriele Maurina, Ph.D., CS, Colorado State University, "A Methodology for Energy Usage Prediction in Long-Lasting Abnormal Events"	
Spring 2022	Abraham Carranza, undergraduate, CS, SDSU, "Predicting Heart Disease using Machine Learning Techniques"	
Spring 2022	Kelvin Murillo, Master's project, CS, SDSU, "Downscaling of Precipitation in the San Diego Region using XGBoost for Feature Selection"	
Spring 2022	Sehajpreet Kaur, undergraduate, TIET, "Synthetic High-Resolution COVID-19 Chest X-Ray Generation"	
Spring 2022	Sai Aparna Avva, Master's project, CS, SDSU, "A Methodology for Energy Usage Prediction in Long-Lasting Abnormal Events"	
	Mahshid Helali Moghadam, PhD, CS, Swedish research creating sustainable growth (RISE), "Anomaly Detection from Time Series Data"	
Fall 2021	Alireza Dehlaghi Ghadim, PhD, CS, Swedish research creating sustainable growth (RISE), "Anomaly Detection from Time Series Data"	
Fall 2021	Joaquin Cuomo, Master's project, CS, Colorado State University, "Detecting Temporal Dependencies in Data"	

Dates	Participation in Teaching Training
Fall 2024	GMiS-Google.org: Generative AI Curriculum Integration
Spring 2024	SDSU ITS Course Design Institute (CDI)
Spring 2023	SDSU Inclusive Excellence Workshop
September 2022	ACM Richard Tapia

- An improved vision and model for CS teacher professional development
- Improving Equity Through Novel Assessments and Grading Policies
- Integrating conference attendance into a diversity-focused course for CS students

SERVICE

Service for the Department
1. 2023—2024   Member, CS MS Exam Committee
2. 2024   Chair, CS Diversity Committee
3. 2022, 2023   Member, CS Diversity Committee
4. 2021   Member, CS Faculty Search Committee
5. 2021 and 2022   Designer and Evaluator, Database Master's Exam

Service for the College
1. Fall 2023   Mentor, SDSU Future GRADS MentorSHPE Plans
2. Summer 2022, 2024   Advisor, SDSU STEM Pathways
3. Spring 2022   Judge, Applied Computational Sciences and Engineering Student success (ACCESS)

Service for the University
4. Fall 2022   Mentor, SDSU Faculty Development Program

Service for the Profession
1. 2024   Panelist, Microsoft, Opportunities and Challenges of Research at and with MSIs
2. 2024   Reviewer, Annual Computer Science Conference for CSU Undergraduates (CSCSU)
3. 2022—2024   Judge, Applied Computational Sciences and Engineering Student success (ACCESS)
4. 2024   Guest Editor, Mathematics, Advances in Mathematical Methods in Generative Models
5. 2023   Mentor, CASHI Advocate
6. 2023 and 2024   Reviewer, IEEE CogMI

7. 2023   Panelist, UCSD CS Academia Job Panel
8. 2024   Reviewer, 29th European Symposium on Research in Computer Security, 2024
9. 2023 and 2024   Program Committee, IEEE Cognitive Machine Intelligence (IEEE CogMI)
10. 2023   Reviewer, Department of Energy
11. 2022 and 2023   Reviewer, National Science Foundation
12. 2023,   Reviewer, SN Computer Science
13. 2023,   Chair, Undergraduate Consortium at KDD (KDD-UC)
14. 2022—Present   Point of Contact, Computing Alliance of Hispanic-Serving Institutions (CASHI)
15. 2022   Reviewer, Journal of Machine Learning with Applications (MLWA)
16. 2022   Program Committee, IEEE International Conference on Collaboration and Internet Computing
17. 2022,   Reviewer, Scientific Reports
18. 2021,   Session Chair, IEEE CIC/CogMI/TPS Joint Conferences
19. 2021,   Reviewer, IEEE Transactions on Power Systems
20. 2022,   Reviewer, The ACM India Joint International Conference on Data Science & Management of Data
21. 2021   Reviewer, 41th IEEE International Conference on Distributed Computing Systems (ICDCS)
22. 2021,   Reviewer, 11th ACM Conference on Data and Application Security and Privacy (CODASPY)
23. 2020,   Session Chair, 2nd Special Session on Machine Learning on Big Data in IEEE Big Data
24. 2020,   Reviewer, 16th International Conference on Information Systems Security, India
25. 2020,   Reviewer, IEEE Transactions on Services Computing
26. 2019   Reviewer, 19th IEEE International Conference on Software Quality, Reliability, and Security
27. 2018   Reviewer, 3rd Workshop on Attribute Based Access Control, Arizona, USA
28. 2018   Reviewer, 23rd ACM Symposium on Access Control Models and Technologies
29. 2022   Faculty member, Data Science Alliance (DSA)
30. 2019—2020   President, Upsilon Pi Epsilon (UPE)

Service for the Community

1. 2022—Present   Member, Iranian Women Faculties at SDSU
2. 2018—2020   Advisor, Iranian Student Organization (ISO) at Colorado State University