Saeed Kargar

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Education

2018–present **University of California, Santa Cruz, USA**, *Ph.D.*, *Computer Science and Engineering*.

2020 **University of California, Santa Cruz, USA**, *MS.C.*, *Computer Science and Engineering, GPA: 3.87/4.0*.

2008 and 2011 **B.Eng. - M.Eng.**, *Computer Engineering - Hardware/Computer Architecture, GPA: 16.45/20 - 18.42/20*.

Technical Skills

Coding & Tools & Frameworks: Python, C, C++, SQL, HTML, CSS, TensorFlow, Keras, scikit-learn, Pandas, TensorBoard, PyTorch, matplotlib, NumPy

Work Experience

Summer 2023 **Science Internship Program (SIP2023)**, Human-like Text Generation with Long Short-Term Memory Recurrent Neural Networks, California, Santa Cruz.
Mentoring a team of students to implement a text generator, which utilizes LSTM to learn human grammar from the source data and completes sentences when a user is entering text like in chatbots.".

June 2022 – August 2022 **Science Internship Program (SIP2022)**, Designing a Live American Sign Language (ASL) Interpreter Using Deep Learning-based NLP, California, Santa Cruz.
Mentoring a team of students to implement a sign language interpreter, which automatically recognizes and interprets live video feed of a person signing in American Sign Language from the camera to spoken language text, using Deep Learning-based NLP.".

June 2021 – August 2021 **Science Internship Program (SIP2021)**, Generative Adversarial Networks (GANs), California, Santa Cruz.
Mentoring a team of students to implement one of the most important and versatile neural network architectures in machine learning history, named "Generative Adversarial Networks (GANs)".

June 2020 – August 2020 **Science Internship Program (SIP2020)**, Neural Style Transfer (Transferring Style from Famous Paintings), California, Santa Cruz.
Leading a team of students to implement one of the most recent projects in Deep Learning named "Style Transfer" using advanced tools in machine learning and deep learning such as Tensorflow and Keras

Academic Projects

Spring 2022 - present **A Memory-Aware Write Scheme to Improve Energy Efficiency and Write Endurance of NVMs using Variational Autoencoders**, *Research Assistant, UCSC*.
Designing and implementing a deep learning-based reference search method for post-deduplication delta-compression techniques that are used in storage systems and edge technologies to minimize the management cost of a data center and improve their energy efficiency.

Fall 2021 - Spring 2022 **E2-NVM: A Memory-Aware Write Scheme to Improve Energy Efficiency and Write Endurance of NVMs using Variational Autoencoders**, *Research Assistant, UCSC*.
Designing and implementing an advanced intelligent deep learning-based software-level memory-aware storage layer that can be augmented with existing database systems and edge technologies to increase their efficiency and performance by utilizing NVMs.

Spring 2021 - Spring 2022 **Building Memory-Aware Key-Value Stores using Hamming Trees for NVMs**, *Research Assistant, UCSC*.
Designing and implementing a compact content representation data structure using Hamming Tree that can be augmented with existing NVM-based database systems and edge technologies.

Fall 2020 - Spring 2021 **Efficient Dynamic Record Linkage: Capturing Patterns from Historical Cluster Evolution**, *Research Assistant, UCSC*.
Designing and implementing a dynamic record linkage method that increases the efficiency and performance of existing data management systems using cluster-based unsupervised machine learning models.

Spring 2020 **Hamming Tree: The Case for Memory-Aware Bit Flipping Reduction for NVM Indexing**, *Research Assistant, UCSC*.
Designing a pluggable indexing data structure, which is based on tree-based data structures, such as B-Trees and B+Trees, to increase the life time of NVMs.

Summer 2020 **Predict and Write: Using K-Means Clustering to Extend the Lifetime of NVM Storage**, *Research Assistant, UCSC*.
In this work, we worked on designing a persistent key-value store (Database) using machine learning to adapt the next generation of memory technologies.

Position of Responsibility

Since 2011 **Reviewer of The Journal of Supercomputing (Springer, IF: 2.557 (2021), USA)**.

Since 2020 **Reviewer of Future Generation Computer Systems (Elsevier, IF: 7.307 (2021), Netherlands)**.

Publications

My Google Scholar link

June 2023 **Saeed Kargar,** Faisal Nawab.
"Hamming Tree: The case for Energy-Aware Indexing for NVMs." in **ACM SIGMOD/PODS International Conference on Management of Data**, 18 - 23 June, 2023 h5-index: 68

March 2023 **Saeed Kargar,** Binbin Gu, Sangeetha Abdu Jyoth, Faisal Nawab.
"E2-NVM: A Memory-Aware Write Scheme to Improve Energy Efficiency and Write Endurance of NVMs using Variational Autoencoders." in **EDBT: 26th International Conference on Extending Database Technology**, 28th March - 31st March, 2023

September 2022 **Saeed Kargar,** Faisal Nawab.
"Challenges and future directions for energy, latency, and lifetime improvements in NVMs" in **Distributed and Parallel Databases**, Springer Nature Publication.

March 2022 Binbin Gu, **Saeed Kargar,** Faisal Nawab.
"Efficient Dynamic Clustering: Capturing Patterns from Historical Cluster Evolution" in . **Proceedings of the 25th International Conference on Extending Database Technology (EDBT)** h5-index: 28

May 2021 **Saeed Kargar,** and Faisal Nawab.
"Extending the Lifetime of NVM: Challenges and Opportunities" in **VLDB2021** (Ranked **#4** in Databases and Information Systems based on GoogleScholar) - **Based on my accepted paper, I have had a 90 minutes presentation on the recent developments in the field of Non Volatile Memory (NVM) technologies and how to extend their lifetime in one of the most eminent venues for the timely dissemination of research and development results in the field of database management in the world.** h5-index: 73

Apr 2021 **Saeed Kargar,** Heiner Litz, Faisal Nawab.
"Predict and Write: Using K-Means Clustering to Extend the Lifetime of NVM Storage" in ICDE2021 (Ranked #10 in Databases and Information Systems based on GoogleScholar). h5-index: 55

Jan 2021 **Saeed Kargar,** and Faisal Nawab.
"Hamming Tree: The Case for Memory-Aware Bit Flipping Reduction for NVM Indexing" in CIDR2021. h5-index: 28

2017 **Saeed Kargar,** and Leyli Mohammad-Khanli.
"Fractal: An advanced multidimensional range query lookup protocol on nested rings for distributed systems." Journal of Network and Computer Applications 87 (2017): 147-168. Elsevier Publication, (Ranked #8 in Computing Networks and Wireless Communications based on GoogleScholar) Impact Factor: 7.574, h5-index: 90.

2011 Leyli Mohammad Khanli, **Saeed Kargar**.
"FRDT: Footprint Resource Discovery Tree for grids", Future Gener.Comput. Syst. 27 (2011) 148–156, ISSN: 0167-739X, Elsevier publication, (Ranked #2 in Computing Systems based on GoogleScholar) Impact Factor: 7.307, h5-index: 133.

2012 Leyli Mohammad Khanli, **Saeed Kargar**, Ali Kazemi Niari.
"Grid Resource Discovery using Tree Data Structure for Multi-Trait Requests", in: The 2012 International Conference on Grid Computing and Applications (GCA'12),Las Vegas, USA, July 16-19, 2012.

2012 Leyli Mohammad Khanli, **Saeed Kargar,** Hossein Kargar.
"A novel approach to multiple resource discoveries in grid environment", International Conference on Contemporary Issues in Computer and Information Science (CICIS 2012), May 29-31, 2012

2011 Leyli Mohammad Khanli, **Saeed Kargar**, Ali Kazemi Niari.
"Using Matrix indexes for Resource Discovery in Grid Environment", in: The 2011 International Conference on Grid Computing and Applications (GCA'11), Las Vegas, Nevada, USA.

2011 Leyli Mohammad Khanli, Ali Kazemi Niari, **Saeed Kargar**.
"An Efficient Grid Resource Discovery Mechanism Based on Tree Structure", in: The 2011 CSI International Symposium on Computer Science and Software Engineering (CSSE 2011), Sharif University of Technology, Tehran, Iran.

2010 Leyli Mohammad Khanli, Ali Kazemi Niari, **Saeed Kargar**.
"A binary tree based approach to discover multiple types of resources in grid computing", International journal of computer science & Emerging Technology, 15-17 November, 2010, E-ISSN: 2044-6004, Sprinter Global Publication.

2011 Leyli Mohammad Khanli, Ali Kazemi Niari, **Saeed Kargar**.
"Multiple Resource Discovery based on binary tree in grid computing environment", in: 16th Annual International Computer Society of Iran Computer Conference, Sharif University of Technology, Tehran, Iran. (2011) Language: Persian.

2011 Leyli Mohammad Khanli, Ali Kazemi Niari, **Saeed Kargar**.
"Efficient Method for Multiple Resource Discoveries in Grid Environment", in: The 2011 International Conference on High Performance Computing & Simulation (HPCS 2011) July 04 – July 08, 2011 Istanbul, Turkey.

2011 Ali Asgar Pourhaji Kazem, **Saeed Kargar,** Ali Kazemi Niari.
"A new resource discovery approach using tree structure in grid", First CSUT Conference on Computer, Communication and Information Technologies, University of Tabriz, Tabriz, Iran. 16-17 November 2011, Language: Persian

Book Chapters

2010 Leyli Mohammad Khanli, **Saeed Kargar**.
"A new qos guided scheduling algorithm for grid computing", Advances in Grid Computing, Zoran Constantinescu, ed, InTech Open access publisher, 16 June, 2010, Rijeka, Croatia. p.29- 48.

2012 Leyli Mohammad Khanli, **Saeed Kargar** Ali Kazemi Niari.
"A new approach to resource discovery in grid computing", Grid Computing - Technology and Applications, Widespread Coverage and New Horizons", ISBN: 978-953-51-0604-3. InTech Open access publisher (2012).

Under preparation/submitted

Under preparation **Saeed Kargar,** and Faisal Nawab.
"Building Memory-Aware Key-Value Stores using Hamming Trees for NVMs"

Under preparation **Saeed Kargar,** Binbin Gu, Sangeetha Abdu Jyothi, and Faisal Nawab.
"E2-NVM: A Memory-Aware Write Scheme to Improve Energy Efficiency and Write Endurance of NVMs using Variational Autoencoders"

Teaching Experiences

Spring 2023 **Teaching Assistant**.
Algorithms and Abstract Data Types, CSE101 (under-grad level) at CS Dept, UCSC

Winter 2022 **Teaching Assistant**.
Algorithms and Abstract Data Types, CSE101 (under-grad level) at CS Dept, UCSC

Fall 2022 **Teaching Assistant**.
Introduction to Analysis of Algorithms, CSE102 (under-grad level) at CS Dept, UCSC

Winter 2022 **Teaching Assistant**.
Introduction to Analysis of Algorithms, CSE102 (under-grad level) at CS Dept, UCSC

Fall 2021 **Teaching Assistant**.
Introduction to Analysis of Algorithms, CSE102 (under-grad level) at CS Dept, UCSC

Winter 2021 **Teaching Assistant**.
Algorithms and Abstract Data Types, CSE101 (under-grad level) at CS Dept, UCSC

Spring 2020 **Teaching Assistant**.
Algorithms and Abstract Data Types, CSE101 (under-grad level) at CS Dept, UCSC

Winter 2020 **Teaching Assistant**.
Analysis of Algorithms, CSE201 (graduate level) at CS Dept, UCSC

Fall 2019 **Teaching Assistant**.
Algorithms and Abstract Data Types, CSE101 (under-grad level) at CS Dept, UCSC

Summer 2019 **Teaching Assistant**.
Algorithms and Abstract Data Types, CMPS101 (under-grad level) at CS Dept, UCSC

Spring 2019 **Teaching Assistant**.
Algorithms and Abstract Data Types, CMPS101 (under-grad level) at CS Dept, UCSC

Winter 2019 **Teaching Assistant**.
Analysis of Algorithms Course, CMPS201 (graduate level) at CS Dept, UCSC

Fall 2018 **Teaching Assistant**.
Analysis of Algorithms Course, CMPS201 (graduate level) at CS Dept, UCSC

Skills and Interests

Languages **Azerbaijani, Persian, English, and Turkish (familiar)**.

Interests **Walking, cooking, reading, and listening to music**.