Niki Nezakati (She/Her)

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Education

Doctor of Philosophy in Computer Science — *2023 - Present*
University of California, Riverside, United States — **GPA: 3.91/4**
Co-supervised by Professors Amit K. Roy-Chowdhury and Vishwanath Saragadam

Bachelor of Science in Computer Engineering — *2019 - 2023*
Iran University of Science and Technology, Tehran, Iran — **GPA: 3.84/4**
Thesis: Generating Answer to Visual Questions in the Medical Domain

Diploma in Mathematics and Physics Discipline — *2013 - 2019*
Farzanegan 2 HighSchool, Tehran, Iran — **GPA: 4/4**
Operated by the National Organization for Development of Exceptional Talents

Research Experience

Robust Diffusion-Based Image Restoration — UC Riverside, VLG and CODE Labs
Graduate Research Assistant — *June 2025 – Present*
- Developing robust diffusion-based methods for image restoration under realistic sensor noise
- Designing restoration pipelines for RGB and thermal images
- Improving noise robustness and performance through algorithmic and architectural enhancements

3D Reconstruction and Neural Rendering — UC Riverside, in collaboration with USDA
Graduate Research Assistant — *June 2024 - Dec. 2024*
- Working with COLMAP for camera pose extraction of input videos
- Working with NeRF and Gaussian Splatting models for rendering scenes
- Working on object detection within NeRF modules

Robust Muli-Modal Machine Learning — UC Riverside, in collaboration with Amazon
Graduate Research Assistant — *Sept. 2023 - Sept. 2024*
- Improving robustness of multi-modal models under incomplete or missing modalities
- Optimizing performance across all input modality combinations
- Working with both homogeneous and heterogeneous data types

Generative Visual Question Answering — IUST, Natural Language Processing Lab
Undergraduate Research Assistant — *April 2022 - April 2023*
- Researched generative VQA models to generate multi-word answers to visual questions
- Implemented Transformer-based and LSTM-based decoders with pre-trained encoders
- Developed and tested FSVQA as the baseline model

Publications

CARD: Correlation Aware Restoration with Diffusion — Under Review
Niki Nezakati, Arnab Ghosh, Amit K. Roy-Chowdhury, Vishwanath Saragadam

MMP: Towards Robust Multi-Modal Learning with Masked Modality Projection — IEEE BigData 2025
Niki Nezakati, Md Kaykobad Reza, Ameya Patil, Mashhour Solh, M. Salman Asif

TDiff: Thermal Plug-And-Play Prior with Patch-Based Diffusion — HotSense 2025
Piyush Dashpute, Niki Nezakati, Wolfgang Heidrich, Vishwanath Saragadam

U2A: Unified Unimodal Adaptation for Robust and Efficient Multimodal Learning — arXiv
Md Kaykobad Reza, Niki Nezakati, Ameya Patil, Mashhour Solh, M. Salman Asif

Honors & Awards

Dean's Distinguished Fellowship Award — *2023*
University of California, Riverside

M.Sc. Admission Offer for Outstanding Students — *2023*
Iran University of Science and Technology, Computer Engineering Department

Honorary Member of Scientific Association — *2020-2021*
Iran University of Science and Technology, Computer Engineering Department

Undergraduate Tuition Fee Waiver for Exceptional Students — *2020*
Iran University of Science and Technology

Ranked Top 0.07% in National University Entrance Exam — *2019*
Ranked 293 out of over 400,000 students

Awarded at NODET's Young Researchers Competition — *2018*
Praised as one of the top tech projects, in honor of Prof. M. Mirzakhani

First place in Junior Demo Open AI & Robotics Challenge — *2017*
RoboCup IranOpen International Competitions

Skills (Proficient | Familiar)

Programming Languages : Python, C++, Bash | C/C#, Java, SQL, VHDL, Matlab
Libraries & Frameworks : PyTorch, TensorFlow, Keras | Django-Rest, Django, ASP.NET
Tools & Platforms : Linux, Git, CUDA, OpenCV, COLMAP | Docker, PostgreSQL, SQLite
Compute & Deployment : GPU compute pipelines, Cluster/Server workflows | SLURM, Conda
Languages : English (TOEFL iBT 115/120), Persian (Native)
Others : Piano, Swimming, Volleyball, Ballet

Research Interests

- Natural Language Processing
- Computer Vision and Image Processing
- Robust and Trustworthy ML
- 3D Reconstruction and Rendering

Selected Projects

Title	Technologies	Field
Tile Crack Detection with U-Net	Python, OpenCV, Keras, Numpy, Google Colab	Image Segmentation, Image Processing, Transfer Learning
Genetic and Ant Colony Algorithms	Python, Numpy, Google Colab	Computational Intelligence, Evolutionary Algorithms
Football Match Fuzzy Predictor	Python, Simpful, Google Colab	Computational Intelligence, Fuzzy logic
Image Recalling Hopfield Network	Python, Keras, Tensorflow, Panda, Numpy, Matplotlib	Deep Learning, Neural Networks, Computational Intelligence
SOM and RBF Clustering	Python, Keras, Tensorflow, Sklearn, Numpy, Matplotlib	Deep Learning, Neural Networks, Computational Intelligence
MLP From Scratch for Classification	Python, Keras, Tensorflow, Sklearn, Numpy, Matplotlib	Deep Learning, Neural Networks, Computational Intelligence
Berkeley's Pac-Man AI Game Project	Python	Machine Learning, Search Algorithms, Reinforcement Learning
Image Processor and Denoiser	Matlab, LaTeX	Signal Processing, Data Communication
HexClan Music Website	Python, Django, Django-rest, SQL, PostgreSQL, Git	Software Engineering, Database Design and Management
IMDB Based Server-Client Website	C#, ASP.NET Blazor, SQL Entity Framework, HTML, CSS Azure DevOps	Software Engineering, Database Design and Management
Burgular Alarm System with Ability to Call	C, Arduino, CodeVisionAVR, PIR Sensor, Magnetic Sensor, Sim800, DFPlayer	Embedded and Real-time Systems

Teaching Assistance

Introduction to Computer Science (Head TA) — UCR
Course Instructor: Prof. Kris Miller — *Jan. 2025 – June 2025*
- Held weekly lab sessions on programming fundamentals in C++.
- Answered theoretical and coding questions in office hours.

Introduction to Machine Learning and Data Mining — UCR
Course Instructor: Prof. Salman Asif — *Sept. 2024 – Dec. 2024*
- Designing, coordinating, and grading assignments, midterms, final.
- Answering theoretical and coding questions in office hours.

Computational Intelligence — IUST
Course Instructor: Prof. Nasser Mozayani — *Sept. 2022 – Jan. 2023*
- Designing, coordinating, and grading assignments.
- Answering theoretical and coding questions in private sessions.

Operating Systems — IUST
Course Instructor: Prof. Reza Entezari Maleki — *Feb. 2022 – Jul. 2022*
- Designing, coordinating, and grading assignments.
- Answering theoretical and coding questions in private sessions.

Theory of Languages and Automata — IUST
Course Instructor: Prof. Reza Entezari Maleki — *Feb. 2022 – Jul. 2022*

- Conducting weekly sessions to teach the course material and solve extra questions.
- Conducting weekly quiz sessions for students.
- Designing, coordinating, and grading assignments and final exams and projects.
- Answering theoretical and coding questions in private sessions.

Algorithms Design IUST
Course Instructor: Prof. Sauleh Eetemadi *Feb. 2022 – Jul. 2022*

- Mentoring students for coding exercises of this course which were based on UC, San Diego course.
- Answering theoretical and coding questions in private sessions.
- Reviewing and giving feedback for all coding exercises of students weekly.

Data Structures IUST
Course Instructor: Prof. Sauleh Eetemadi *Sept. 2021 – Jan. 2022*

- Mentoring students for coding exercises of this course which were based on UC, San Diego course.
- Answering theoretical and coding questions in private sessions.
- Reviewing and giving feedback for all coding exercises of students weekly.

Advanced Programming IUST
Course Instructor: Prof. Sauleh Eetemadi *Feb. 2021 – Jul. 2021*

- Designing assignments and final projects.
- Conducting weekly sessions to teach the course material and solve extra questions.
- Answering theoretical and coding questions in private sessions.
- Reviewing and giving feedback for all coding exercises of students weekly.

Discrete Mathematics IUST
Course Instructor: Prof. Vesal Hakami *Feb. 2021 – Jul. 2021*

- Conducting weekly sessions to teach the course material and solve extra questions.
- Conducting weekly quiz sessions for the students.
- Designing, coordinating, and grading assignments and final projects.
- Answering theoretical and coding questions in private sessions.

Related Coursework

Course	Grade	Course	Grade
Deep Learning	A+	Natural Language Processing	A+
Computational Intelligence	A+	Computer Vision	A+
Databases	A+	Cybersecurity	A+
Data Structures	A+	Signal Processing	A+
Differential Equations	A+	Operating Systems	A+
Advanced Programming	A+	Data Communication	A+

Online Courses

Course	Author	Organization
Natural Language Processing with Deep Learning	Christopher D. Manning	Stanford University
Improving Deep Neural Networks	Andrew Ng	DeepLearning.AI
Neural Networks and Deep Learning	Andrew Ng	DeepLearning.AI
Advanced Algorithms and Complexity	Alexander Kulikov et al.	UC, San Diego
Algorithms on Strings	Alexander Kulikov et al.	UC, San Diego
Algorithms on Graphs	Alexander Kulikov et al.	UC, San Diego
Data Structures	Alexander Kulikov et al.	UC, San Diego
Algorithmic Toolbox	Alexander Kulikov et al.	UC, San Diego
Python Data Structures	Charles Russell Severance	University of Michigan
Using Python to Access Web Data	Charles Russell Severance	University of Michigan
Web Application Technologies and Django	Charles Russell Severance	University of Michigan

References

Amit K. Roy-Chowdhury **Professor, Presidential Chair | amitrc@ucr.edu** **Website**
Vishwanath Saragadam **Assistant Professor | vishwans@ucr.edu** **Website**