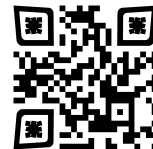


# Nikan Doosti

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Homepage: <https://nikronic.com>



## EDUCATION

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- **Iran University of Science and Technology (IUST)** Tehran, Iran  
*Master of Science in Computer Engineering - Artificial Intelligence* Aug 2019 - Dec 2022
  - **Thesis:** High Resolution Neural Topology Optimization via Differentiable Physics Engine
  - **Defense:** Achieved **maximum score** during defense on *Oct 22, 2022* with **GPA of 17.17/20.00**
  - **IUST:** This university is one of the most prestigious in the country, being in **top-4** consistently.
- **University of Guilan (UoG)** Rasht, Iran  
*Bachelor of Science in Computer Engineering* Aug 2015 - Aug 2019
  - **Final Project:** Descreening and Rescreening of Halftone Images via Data-Driven Deep Learning Methods
  - **Class Rank:** Graduated **3rd** out of 55 with a **GPA of 18.64/20.00**

## PUBLICATIONS

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- **Doosti, Nikan**, Julian Panetta, and Vahid Babaei. "Topology Optimization via Frequency Tuning of Neural Design Representations." In **Symposium on Computational Fabrication**, pp. 1-9. 2021. (ACM)

## TALKS

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- "Neural Design Representations." **Toronto Geometry Colloquium Advised by Alec Jacobson** - University of Toronto. March 4, 2022. [toronto-geometry-colloquium.github.io](https://toronto-geometry-colloquium.github.io). (Length: 10 mins., Video)

## RESEARCH EXPERIENCE

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- **Max Planck Institute for Informatics** Saarbrücken, Germany  
*Research Assistant (remote)* Jul 2020 - Mar 2021  
*Artificial Intelligence aided Design and Manufacturing Group*
  - Project Overview: **Novel self-supervised neural method for obtaining the optimum design showcased in Topology Optimization**
  - Supervisors: Supervised by **Dr. Vahid Babaei** and collaborated with **Prof. Julian Panetta** from the University of California, Davis, USA.
  - **Interdisciplinary Work:** Successfully navigated and **mastered uncharted domains** beyond my primary field.
  - Experiment Management: Managed **large-scale experiments** by developing customized software solution to **track and report results**, particularly enabling **easy follow-up near deadline**.
  - Group Collaboration: **Shared AI expertise** with group members, focusing on PyTorch model implementation and **optimizing workflows with Slurm clusters**.
  - Manuscript Development: **Prepared all figures** and contributed approximately **65% to the manuscript**. Also, I oversaw all **administrative tasks** related to the paper's publication, including **handling revisions** and addressing **peer review feedback**.
  - Outcome: Resulted in a **master's thesis and a paper** that was published and presented at the ACM Symposium on Computational Fabrication 2021 (see Publications)

## WORK EXPERIENCE

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- **Panafor** Karaj, Iran  
*Full-time Machine Learning Specialist* Apr 2022 - Jan 2024  
*Specializing in Data-driven Decision Making for Business Optimization*
  - The Problem: Developed and implemented a **Data-driven AI solution** that optimized resource allocation by **prioritizing high-potential customer profiles**, significantly **reducing operational overhead and minimizing errors** in processing critical applications.

- Impact: Decreased personnel error by 10%, **mitigating potential losses equivalent to 5.5 times my annual salary**. Also, **awarded for dedication and leadership**, leading to two promotions and a 70% salary increase within one year. Moreover, **I established myself as the primary resource for onboarding and training** new team members, receiving praise for my **ability to simplify fundamental concepts**.
- Developed a **comprehensive screening process automation** from customer communication to profiles prioritization, filtering calls based on the complexity of inquiries, **reducing manual workload by 40%**.
- Oversaw the development of a proprietary data extraction and preprocessing pipeline, resulting in a **35% reduction in poor-quality data**.
- Deployed **classical machine learning** models alongside **deep learning** methods, coupled with **explainable AI** techniques to prioritize profiles and provide transparent reasoning for each decision.
- Exhibited **proactive problem-solving** by **manually preparing years of "analog data" within the first 2.5 months**, a critical task which I prioritize over my role-specific duties to ensure project success.
- **Managed a 15,000-line codebase**, ensuring maintainability and performance. **Designed 7 modules, with 3 adopted by other projects**, enhancing reusability and impact.

## TEACHING EXPERIENCE

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- **Head Teaching Assistant - Advanced Programming (AP)**  
*Supervisor: Dr. Ghasem Mirroshandel - University of Guilan* *Aug 2018 - Feb 2019*
  - **Head Teaching Assistant - Algorithms Design (AD)**  
*Supervisor: Dr. Mojtaba Shakeri - University of Guilan* *Aug 2018 - Feb 2019*
  - **Head Teaching Assistant - Computational Intelligence (CI)**  
*Supervisor: Dr. Mojtaba Shakeri - University of Guilan* *Feb 2018 - Jul 2018*
- Taught Java** in AP, designed and graded assignments, and **evaluated final projects**. Held **weekly Q&A sessions**, graded assignments, and **created programming tasks** for AD and CI courses.

## VOLUNTARY ACTIVITIES

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- **Mentor, Lecturer, and Organizer**  
*Rasht School of AI, IUST Projects, and PyTorch Forum* *2018 - 2022*
  - **Lecturing:** Delivered talks on AI applications, focusing on digital image processing (Slides)
  - **Mentorship:** Guided students in AI and M.Sc thesis processes, from ideation to publication
  - **Organizing:** Facilitated open discussions at IUST to promote collaboration and challenge the siloed culture
  - **Community Engagement:** Active in the PyTorch Forum, ranking 15th with 183 solutions and 566 posts (summary); praised for insightful contributions by Thomas Viehmann

## TECHNICAL SKILLS

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Deeply Involved: Python, PyTorch, Tensorflow, Git, Windows, Linux/Debian, MLFlow, DVC, ExplainableAI, Sphinx Doc, "why you should care"

Have Experience With: Docker, CI/CD, Slurm, PostgreSQL, FastAPI, Shell Scripting, HTML/CSS

## RESEARCH INTERESTS

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- Deep Learning and Machine Learning
- Computer Graphics and Physics-based Simulation
- AI for Engineering and Science

## AWARDS AND CERTIFICATES

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- Awarded for **dedication and leadership** at Panafor 2023
- Completed **training in Workplace Ethics and Professionalism**, Organizational Behavior, etc. 2023
- Accepted in M.Sc program as a **National Exceptional Talent**, with **Tuition Waiver** at IUST 2019
- **Ranked 3rd** among B.Sc graduates in Computer Engineering, with **Tuition Waiver** at the UoG 2019
- Participated in the Deep Learning Summer School at Gdańsk University of Technology 2020

## REFEREES

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**Dr. Vahid Babaei (Research Scientist)**

- *Role: Research project supervisor*  
*Max Planck Institute for Informatics*

Saarbrücken, Germany  
*vbabaei@mpi-inf.mpg.de*

**Prof. Julian Panetta (Assistant Professor)**

- *Role: Research project supervisor*  
*University of California, Davis*

Davis, USA  
*jpanetta@ucdavis.edu*

**Dr. Mojtaba Shakeri (Research Scientist)**

- *Role: Undergraduate mentor and instructor*  
*MercuryGate (prev. Assistant Professor at University of Guilan, Rasht, Iran)*

Los Angeles, USA  
*mojtaba.shakeri@gmail.com*