Nikan Doosti

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EDUCATION

- **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

- **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

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

RESEARCH EXPERIENCE

- **Research Assistant (remote)** — Saarbrücken, Germany
  Artificial Intelligence aided Design and Manufacturing Group — *Jul 2020 - Mar 2021*
  Max Planck Institute for Informatics
  - Project Overview: **Novel self-supevised neural method for obtaining the optimum design showcased in Topology Optimization**
  - Collaboration: Supervised by **Dr. Vahid Babaei** and collaborated with **Prof. Julian Panetta** from the University of California, Davis, USA.
  - **Interdisciplinary Learning**: Successfully navigated and mastered new topics outside my primary field, such as mechanical engineering, through self-directed learning.
  - Experiment Management: Managed **large-scale experiments** by developing customized logging solutions and using MLflow to **track and report results**, particularly enabling **easy follow-up near deadline**.
  - Team Collaboration: Actively **supported group members by sharing expertise in AI**, particularly in implementing mathematical models with PyTorch, and optimized workflows by **guiding the team in using Slurm clusters** effectively.
  - Commitment: Dedicated **over 1500 hours** to research and development (excluding paper draft and revision), demonstrating a **strong commitment** to the project and its outcomes.
  - Manuscript Development: **Prepared all figures** and contributed approximately **65% to the manuscript**. Managed the submission process, including **handling revisions**, addressing **peer review feedback**, and overseeing all **administrative tasks** related to the paper's publication.
  - 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

- **Full-time Data Engineering and Data Science Specialist** — Karaj, Iran
  Specializing in Data-driven Decision Making for Business Optimization — *Apr 2022 - Jan 2024*
  Panafor
  - 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.

TEACHING EXPERIENCE

Head Teaching Assistant - Advanced Programming
Supervisor: Dr. Ghasem Mirroshandel - University of Guilan   *Aug 2018 - Feb 2019*

Head Teaching Assistant - Algorithms Design
Supervisor: Dr. Mojtaba Shakeri - University of Guilan   *Aug 2018 - Feb 2019*

Head Teaching Assistant - Computational Intelligence
Supervisor: Dr. Mojtaba Shakeri - University of Guilan   *Feb 2018 - Jul 2018*

As a teaching assistant, I **taught** Java in the Advanced Programming course, **designed and graded assignments**, and **evaluated the final project**. For the Algorithm Design and Computational Intelligence courses, I held **weekly Q&A sessions**, graded assignments, and **created pratical programming tasks** for Computational Intelligence.

VOLUNTARY ACTIVITIES

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

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, HTML, CSS
Familiar With:	Agile Methodologies, Shell Scripting

RESEARCH INTERESTS

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

AWARDS AND CERTIFICATES

- 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

Dr. Vahid Babaei (Research Scientist)   Saarbrücken, Germany

- *Role: Research project supervisor*   *vbabaei@mpi-inf.mpg.de*
  Max Planck Institute for Informatics

Prof. Julian Panetta (Assistant Professor)   Davis, USA

- *Role: Research project supervisor*   *jpanetta@ucdavis.edu*
  University of California, Davis

Dr. Mojtaba Shakeri (Research Scientist)   Los Angeles, USA

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