Nikan Doosti (Officially: Mohammad DoostiLakhani) Email: nikan.doosti@outlook.com
Web: https://www.nikronic.com

Experience (Chronological)

Full-time Machine Learning Engineer Karaj, Iran
- *Applications of Data Science and Machine Learning in Tourism* *April 2022 - Present*
  Nahal Gasht/Pana4
  - Developed and implemented a new data architecture that reduced bad data by 35%, resulting in increased accuracy of machine learning models.
  - Designed and implemented a full pipeline of data extraction, transformation, and preprocessing dealing with low/unlabeled data regime.
  - Created engaging and informative user interactions by integrating gamification objectives in designing and training machine learning models.
  - Collaborated with employees, software engineers, and managers to revamp the data architecture and ensure smooth integration with existing systems.
  - Utilized Python, PyTorch, SKlearn, Pandas, Snorkel, Docker, MLflow, Git, FastAPI, Godot, etc

Research Assistant Saarbrücken, Germany
- *Artificial Intelligence aided Design and Manufacturing Group* *Jul 2020 - Mar 2021*
  Max Planck Institute for Informatics
  - Novel self-supevised neural method for obtaining the optimum design showcased in Topology Optimization
  - Supervision of **Dr. Vahid Babaei**
  - Collaboration of **Prof. Julian Panetta** at University of California, Davis, USA.
  - Physics-based simulation of stiffness of the obtained design
  - Generative continuous design via a single fixed mesh through controlling the frequencies
  - This project has been published and presented in ACM Symposium on Computational Fabrication 2021
  - This project was defined as my master's thesis
  - I spent 1500+ hours until the submission of concluding paper

- **Award**
  Accepted in MSc program without Entrance Exam as an Exceptional Talent *Sep 2019*

- **Award**
  Tuition Waiver, MSc, Iran University of Science and Technology *Sep 2019*

Organizer and Mentor
- *Voluntary activity* *Dec 2019 - Jul 2021*
  IUST Projects
  - Attempted to challenge the university's siloed culture through open scientific/general discussions
  - Mentored junior students in preparation for going through the M.Sc thesis process, from ideation to publishing

- **Master of Computer Engineering - Artificial Intelligence** Tehran, Iran
  Iran University of Science and Technology (IUST) *Sep 2019 - Dec 2022*
  - IUST is one of the most prestigious universities of the country
  - **Thesis:** High Resolution Neural Topology Optimization via Differentiable Physics Engine
  - **Defense:** Defended with Full mark on 22 Oct 2022
  - **GPA:** 17.17/20.00

- **Long Vacation** Iran
  Travel *Aug 2019 - Sep 2019*

- **Award**
  Ranked 3rd among BSc graduates in Computer Engineering, University of Guilan *Jul 2019*

Mentor and Lecturer

- *Voluntary activity* — *Dec 2018 - Present*
  Rasht School of AI
  - Held lectures around applications of AI, particularly digital image processing (Slides)
  - Mentored a few students who were interested in artificial intelligence and its applications

Head Teaching Assistant

- *Advanced Programming* — *Aug 2018 - Feb 2019*
  University of Guilan
  - Supervision: Dr. Ghasem Mirroshandel
  - Taught undergraduate students Java programming language in weekly 4-hour sessions
  - Designed and graded their assignments and the final project

Head Teaching Assistant

- *Algorithms Design* — *Aug 2018 - Feb 2019*
  University of Guilan
  - Supervision: Dr. Mojtaba Shakeri
  - Held weekly 2-hour QA sessions and graded the assignments

Head Teaching Assistant

- *Computational Intelligence* — *Feb 2018 - Jul 2018*
  University of Guilan
  - Supervision: Dr. Mojtaba Shakeri
  - Designed programming assignments
  - Held weekly 2-hour QA sessions and graded all the assignments

- **Internship** — Tehran, Iran
  Matris Co — *Jul 2018 - Sep 2018*
  - Examination, troubleshooting, and repair of computers
  - Research and investigation in technical areas to optimize the repair process

- **No Activity** — *Jul 2017 - Sep 2017*

- **No Activity** — *Jul 2016 - Sep 2016*

- **Award**
  Tuition Waiver, BSc, University of Guilan — *Aug 2015*

- **Bachelor of Computer Engineering** — Rasht, Iran
  University of Guilan — *Aug 2015 - Aug 2019*
  - **Final Project:** Rescreening of Halftone Images via Data-Driven Deep Learning Methods
  - **Class Rank:** 3
  - **GPA:** 18.64/20.00

- **Pre-university diploma of Mathematics and Physics** — Karaj, Iran
  Shahid Mire-ei Highschool — *Sep 2014 - Aug 2015*

- **No Activity** — *Jun 2014 - Sep 2014*

- **High school diploma of Mathematics and Physics** — Kamal Shahr, Iran
  Malek Ashtar Highschool — *Sep 2011 - Jun 2014*

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

- Doosti, Nikan. 2022. "Neural Design Representations." Toronto Geometry Colloquium. March 4, 2022. toronto-geometry-colloquium.github.io. (Length: 10 mins., Video)

Research Interests

- Deep Learning
- Physics-based Simulation
- Computer Graphics
- Computational Fabrication
- Digital Image Processing
- Computational Neuroscience

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)