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

Education

- **Iran University of Science and Technology** — Tehran, Iran
  Master of Computer Engineering - Artificial Intelligence — *Aug 2019 - Dec 2022*
  - **Thesis:** High Resolution Neural Topology Optimization via Differentiable Physics Engine
  - **Defense:** Defended with Full mark on 22 Oct 2022
  - **GPA:** 17.17/20.00
- **University of Guilan** — Rasht, Iran
  Bachelor of Computer Engineering — *Aug 2015 - Aug 2019*
  - **Final Project:** Rescreening of Halftone Images via Data-Driven Deep Learning Methods
  - **Class Rank:** 3
  - **GPA:** 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

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

Research Experience

- **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

Work Experience

- **Full-time Machine Learning Engineer** — Karaj, Iran
  Applications of Data Science and Machine Learning in Tourism — *April 2022 - Present*
  Nahal Gasht
  - 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, DVC, MLflow, Git, FastAPI, Godot, etc

Teaching Experience

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

Voluntary Activities

Mentor and Lecturer

- *An Open and Free Organization For Introducing AI and Mentorship* *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

Organizer and Mentor

- *An Open and Free Organization For Sharing Ideas, Showcasing Projects, and Mentoring Students* *2019 - 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

Member

- *Official forum with +50K members and authors of the PyTorch* *2018 - Present*
  Official PyTorch Forum
  - A top member (15th) with 183 solutions and 566 posts (summary)
  - Commended by Thomas Viehmann for insightful posts

Research Interests

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

Awards

- Accepted in M.Sc program without Entrance Exam as an Exceptional Talent 2019
- Tuition Waiver, M.Sc, Iran University of Science and Technology 2019
- Ranked 3rd among B.Sc graduates in Computer Engineering at the University of Guilan 2019
- Tuition Waiver, B.Sc, University of Guilan 2015

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*

Blume Global (prev. Assistant Professor at University of Guilan, Rasht, Iran)