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

- **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

- **Iran University of Science and Technology** — Tehran, Iran
  Master of Computer Engineering - Artificial Intelligence — *Sep 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

- **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

- **Vacation**   Lahijan, Iran
  Long Travel   *Aug 2019 - Sep 2022*

- **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

- **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

- **Matris Co**   Tehran, Iran
  Internship   *Jul 2018 - Sep 2018*
  - ○ TBD

- **No Activity**   Kamal Shahr, Iran
  -   *Jul 2016 - Sep 2016*

- **No Activity**   Kamal Shahr, Iran
  -   *Jul 2017 - Sep 2017*

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

- **No Activity**   Kamal Shahr, Iran
  -   *Jun 2014 - Sep 2014*

- **Malek Ashtar Highschool**   Kamal Shahr, Iran
  Highschool - Mathematics and Physics   *Sep 2011 - Jun 2014*

Work Experience

Full-time Machine Learning Engineer
<div align="right">Karaj, Iran</div>

- *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.
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- *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)