Nikan Doosti

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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 Search Engine Optimization (SEO) — *April 2022 - Present*
  Nahal Gasht
  - Counseled employees, software engineers, and managers on revamping the data architecture, resulting in mitigating bad data by at least %35
  - Designed a full pipeline of data extraction, transformation, and loading targeting data science applications
  - Integrated gamification objectives in designing and training machine learning models to produce engaging and informative user interactions
  - Advocated for using best practices such as proper documentation, git, and open source, which led to full utilization of these topics in the daily workflow of the IT department

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