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**
- **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, demonstrating a strong commitment to the project and its outcomes.
  - **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 - Dec 2023*
  Nahal Gasht
  - The Problem: **Implemented an AI-driven solution to address the challenge of prioritizing customers applications in the tourism sector.**
  - 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 application 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 applications and provide transparent reasoning for each decision.
- This experience demonstrates my ability to leverage AI technologies to optimize decision-making processes, drive significant business outcomes, and collaborate effectively with stakeholders from various backgrounds.

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

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 Nahal Gasht 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