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:** Descreening and Rescreening of Halftone Images via Data-Driven Deep Learning Methods
  - **Class Rank:** 3 out of 55
  - **GPA:** 18.64/20.00

Work Experience

Full-time Data Engineering and Data Science Specialist — Karaj, Iran

- *Specializing in Advanced AI Solutions for Business Optimization* — *April 2022 - December 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 a machine learning model (XGBoost) 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.
  - I predominantly, utilized Pandas for data manipluation, DVC for data versioning, SKlearn, Pytorch and AutoML(fast prototyping) for modeling, MLFlow for MLOps, FastAPI for inference via web services, Docker for deployment, git for code version control, and many more that has been used as was needed. Fun fact: I would have gone mad without Tmux!

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

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
  - Novel self-supevised neural method for obtaining the optimum design showcased in Topology Optimization
  - Under Supervision of **Dr. Vahid Babaei** and with 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 which was defined as my master's thesis, has been published and presented in ACM Symposium on Computational Fabrication 2021
  - I spent 1500+ hours until the submission of concluding paper

Voluntary Activities

Mentor and Lecturer

- *An Open and Free Organization For Introducing AI and Mentorship* *2018 - 2021*
  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 - 2022*
  Official PyTorch Forum
  - A top member (15th) with 183 solutions and 566 posts (summary)
  - Commended by Thomas Viehmann for insightful posts

Awards

- Awarded for dedication and leadership at Nahal Gasht 2023
- Accepted in M.Sc program without Entrance Exam as an Exceptional Talent 2019
- Ranked 3rd among B.Sc graduates in Computer Engineering at the University of Guilan 2019