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

o Thesis: High Resolution Neural Topology Optimization via Differentiable Physics Engine

o **Defense:** Defended with Full mark on 22 Oct 2022

o **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 o **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

"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 Max Planck Institute for Informatics

Jul 2020 - Mar 2021

- 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
- o 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

Work Experience

Full-time Data Engineering and Data Science Specialist

Karaj, Iran

• Specializing in Advanced AI Solutions for Business Optimization Nahal Gasht

April 2022 - December 2023

- o 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%.
- o 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.

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 - July 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 and Lecturer

• An Open and Free Organization For Introducing AI and Mentorship Rasht School of AI 2018 - 2021

- 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
IUST Projects

2019 - 2021

- o 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 Official PyTorch Forum 2018 - 2022

- A top member (15th) with 183 solutions and 566 posts (summary)
- o Commended by Thomas Viehmann for insightful posts

Research Interests

- Deep Learning and Machine Learning
- Computer Graphics and Physics-based Simulation
- AI for Engineering and Science

AWARDS

Awarded for dedication and leadership at Nahal Gasht	2023
• 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)

• Role: Research project supervisor

Max Planck Institute for Informatics

Saarbrücken, Germany vbabaei@mpi-inf.mpg.de

Prof. Julian Panetta (Assistant Professor)

• Role: Research project supervisor University of California, Davis $\begin{array}{c} \text{Davis, USA} \\ \textit{jpanetta@ucdavis.edu} \end{array}$

Dr. Mojtaba Shakeri (Research Scientist)

• Role: Undergraduate mentor and instructor MercuryGate (prev. Assistant Professor at University of Guilan, Rasht, Iran) Los Angeles, USA mojtaba.shakeri@gmail.com