Bahar Amirian Varnousefaderani

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Education

Kyungpook National University, Daegu, South Korea Sept 2023 – July 2025
MS in Computer Science and Engineering

- Current GPA: 4.3/4.3 (Transcript)
- Funded by the Global Korea Scholarship (*GKS-G 2022*)
- **Relevant coursework:** Machine Learning, Pattern Recognition, Artificial Intelligence Applications

Chungnam National University, Daejeon, South Korea Sept 2022 – Sept 2023
Korean Language Program (Level 4 to 7 (last))

- Funded by the Global Korea Scholarship (*GKS-G 2022*)

Shahid Beheshti University, Tehran, Iran
Some MS Courses in Computer Engineering (Artificial Intelligence and Robotics) Sept 2021 – July 2022

- GPA: 18.43/20 (Transcript)
- Funded by the Government of Iran (*Direct Entry through the Exceptional Talent Quota*)
- **Relevant coursework:** Natural Language Processing, Image Processing, Computer Vision, Deep Learning

Shahid Beheshti University, Tehran, Iran
BS in Computer Engineering Sept 2017 – July 2021

- GPA: 18.3/20 (Transcript)(*Top 10%*)
- Funded by the Government of Iran (*Top 1% in Nationwide University Entrance Exam*)
- **Relevant coursework:** Fundamentals of Computer Vision, Fundamentals of Computational Intelligence, Artificial Intelligence and Expert Systems, Fundamentals of Robotics

Research Interest

Machine learning, Computer vision, Multimodal systems, Zero/Few-shot learning, Anomaly detection

Experience

Graduate Student Researcher Sept 2023 – July 2025
Multimedia Information Processing Laboratory of Kyungpook National University, Daegu, South Korea

- Under the supervision of Prof. Jeonghong Kim
- Leading academic and industrial projects in machine learning, deep learning, computer vision, and anomaly detection, with a focus on developing innovative solutions for real-world problems.

Graduate Teaching Assistant Sept 2023 – July 2025
Kyungpook National University, Daegu, South Korea

- **Course:** Data Structure
- Guided classes of 50+ students and assisted in grading assignments and exams, mentoring students, and class management.

BS Thesis and Junior Graduate Student Researcher Jan 2021 – July 2022
Shahid Beheshti University, Tehran, Iran

- Under the supervision of Prof. Mohsen Ebrahimi Moghaddam
- BS Thesis: Design and Implementation of an AI-Powered Image Description System for Mobile Devices
- Developed foundational research skills in computer vision and natural language processing through work on image captioning.
- Gained hands-on experience with deep learning frameworks and model evaluation, in addition to the design and development of web-based Android applications for deploying AI models.

Teaching Assistant Sept 2018 – July 2021
Shahid Beheshti University, Tehran, Iran

- **Courses:** Fundamentals of Computer Vision, Fundamentals of Cryptography, Technical Language (English for Computer Engineering), Advanced Computer Programming, and Fundamentals of Computer and Programming
- Guided classes of 30+ students and assisted in conducting workshops and extra classes, preparing and grading assignments, course projects, and exams, developing test cases for automatic grading, and providing feedback.

Software Engineering Assistant Aug 2018 – July 2021
Faraz Pardaz Tehran, Tehran, Iran

- Engaged in financial and administrative system design, development, analysis, and support procedures while practicing communication, teamwork, and problem-solving to tackle the intrinsic challenges of small-scale tech businesses.

Programmer (Java/XML) and Mentor Aug 2020 - May 2021
Data Science Laboratory of Shahid Beheshti University, Tehran, Iran

- Contributed to a startup project as a programmer, responsible for developing more than five mini-applications, conducting peer-testing, documenting processes in various forms such as a wiki, and updating codes following system updates.
- Guided a class of 50+ students in designing, implementing, and presenting multiple industry-level projects on behalf of the Data Science Laboratory while providing documentation, facilitation, and supplementary instructions.

Research as First Author

Enforced Clustering for Zero-to-One-Shot Texture Anomaly Detection 2024

- **Bahar Amirian Varnousefaderani**, Rakhmonov Akhrorjon, Jae-Soo Kim, Jeonghong Kim
- *Being submitted to SCIE journals*

Conditioned-Guided Denoising Diffusion Model for Texture Anomaly Detection Oct 2024

- **Bahar Amirian Varnousefaderani**, Rakhmonov Akhrorjon, Taehun Kim, Jeonghong Kim
- *To be presented at the Fall Conference of the Korean Society for Internet Information*

Anomaly Detection and Localization with Synthesized Anomaly Features and Assisted MLP Jan 2024

- **Bahar Amirian Varnousefaderani**, Barathi Subramanian, Rakhmonov Akhrorjon, Jeonghong Kim
- *Presented at the 2024 Winter Conference of Society for Computational Design and Engineering*
- *Awarded as one of the Best Student Papers*

Recent Projects

Road Segmentation without Lane Markings Using Machine Learning and Image Processing Solutions

- Fine-tuned YOLOP using a custom dataset for lane detection in scenarios where traditional lane markings are absent, achieving an accuracy improvement of up to 5%.
- Applied various image processing techniques to develop a faster and more efficient solution fitted for edge devices (on CPU).

Age Prediction from Asian Facial Images

- Applied transfer learning techniques to CNNs and transformers for age prediction from Asian facial images, followed by model optimization and an accuracy improvement of up to 15%.

Additional Education

- **Neural Networks and Deep Learning Course:** Authorized by DeepLearning.AI and offered through Coursera
- **IBM Data Science Professional Certificate:** 8 Courses authorized by IBM and offered through Coursera
- **Google UX Design Professional Certificate:** 6 Courses authorized by Google and offered through Coursera
- **Workshops of the 11th Conference on IKT 2020:** Authorized by IEEE Iran Section: 1. An Introduction to Deep Learning for NLP and 2. Model-Based Design and Test for Embedded Software
- **Android Development Course:** Authorized by Tehran University
- **ReactJS:** Authorized by Sharif University of Technology
- **Front-End Web Development and Design:** Authorized and offered by Maktabkhooneh

Skills

- **Programming:** Python (and its libraries for machine learning, deep learning, and data science), Web development (using HTML, CSS, JavaScript and ReactJS, Python and Flask), Java (Java SE and android development), C/C++, SQL
- **Tools:** Jupyter Notebook, Visual Studio Code, JetBrains toolbox, Google Workspace, Microsoft Office, Git
- **Languages:** English (last IELTS overall score 8.0), Korean (TOPIK level 6 + completed KIIP + passed KIPRAT and KINAT), Persian (Native)