Arya Jalali

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Education

Yale Graduate School of Arts and Sciences — **August 2025 – January 2031**
Doctor of Philosophy (PhD) in Computer Science — *New Haven, New York*

Sharif University of Technology — **September 2019 – January 2024**
Bachelor of Science in Computer Engineering — *Tehran, Iran*

- Overall GPA: 19.59/20.00
- Major GPA: 19.75/20.00
- **Rank: 3/196**

Transcripts

Honors and Awards

National University Entrance Exam (Konkur) Mathematics and Physics branch — *2018*

- **Ranked 4^{th}** among more than 164,000 participants

National University Entrance Exam (Konkur) Foreign Languages (English) branch — *2018*

- **Ranked 72^{th}** among more than 165,000 participants

Research Interests

- ML Theory
- System Design
- Distillation
- retrieval
- Language Models
- Knowledge
- Information

Experience

Sharif University of Technology — **September 2019 - Now**

Research Experience — *June 2023 - Now*

- Research Assistant at **IPL (Image Processing Lab)** - Under supervision of Prof. Kasaei
- Developed a novel feature distillation method leveraging attention modules for Knowledge Distillation in Semantic Segmentation, leading to enhanced accuracy in state-of-the-art models. The paper is under review for Computer Vision and Image Understanding.

Research Experience — *March 2023 - June 2023*

- Research Assistant at **BCB (Bioinformatics and Computational Biology)** - Under supervision of Dr. Rohban
- My work mainly focused on testing state-of-the-art Super Resolution models for dental CT scan images and leveraging medical image specific features to improve the accuracy of aforementioned models.

Mohaymen ICT Company — **June 2022 - September 2022**

Software Engineer

- As a backend software engineer, I played a crucial role in designing and maintaining the API and database of an Extract, Transform, Load (ETL) process. I utilized ASP.NET Core and C# to develop this process

Publications

- **A. Jalali***, A.M. Mansourian, R. Ahmadi, S. Kasaei, "Attention-guided Feature Distillation for Semantic Segmentation," *Computer Vision and Image Understanding (under review)*, 2024, Draft, (* equal contribution).

Projects

Retrieval System | *Pytorch, Sklearn, Tensorflow,* | Github — **January 2023 - May 2024**

- Completing a multi-phase search engine incorporating different classic and modern retrieval techniques.
- The project included designing and implementing different ranking systems, compression techniques (gamma, variable byte) and using deep word embeddings using NLP techniques. Complete with a User Interface for ease of use.

Link Shortener | *Django, Agile* | Github — **January 2023 - May 2024**

- Implementing a RESTful API for the URL shortener using Django REST Framework
- Implementing analytics and reporting for the URL shortener, including click tracking and referrer data

Box Area Optimization | *Pytorch, Numpy, Optimization*

- Implemented and compared different optimization methods for Box Area Size minimization for E-commerce applications
- Comparison of three different methods for optimization (Neural Networks, Exact optimization formulation and dynamic programming) on a real world dataset.

ML/DL Course Projects | *Pytorch, Sklearn, Tensorflow, Matplotlib* | Github **January 2023 - February 2023**

- Generative Adversarial Networks - Image Captioning- Self Supervised Learnig - Model Interpretability

CMinus Compiler | *Python* | Github **September 2021 - January 2022**

- Immplemented a Compiler for CMinus Langauge, a simplified subset of the C language, using Python and its standard libraries. The compiler consisted of Lexer, Parser, Code Generator, and Semantic Analyzer.

SnappFoodMinus | *Java, Android* | Github **March 2022 - August 2022**

- An online food ordering and delivery app on Android. Loosely based on the real world version (SnappFood).

Digikala Minus | *Java, JavaFX* | Github **March 2020 - August 2020**

- Designed and Implemented a clone of the Digikala as part of the Advanced Programming course using Java and JavaFX.

Coursework

Convex Optimization	Dr. Hamed Shah-Mansouri
Introduction to Machine Learning	Dr. Sharifi Zarchi
Artificial Intelligence	Dr. Arash Abdi Hejrandoost
Modern Information Retrieval	Dr. Soleimani
Signals and Systems	Dr. Hossein Sameti
Computer Architecture	Prof. Hossein Asadi
Operating Systems	Prof. Hossein Asadi
Computer Networks	Dr. Jafari Siavoshani
Compiler Design	Dr. Gholamreza Ghassem-Sani
Design of Algorithms	Dr. Hamid Zarrabi-Zadeh
Data and Network Security	Dr. Kambiz Mizanian
Mobile Programming	Dr. Hossein Nari

Independent Learning

Natural Language Processing	Stanford CS224N
Convolutional Neural Networks for Visual Recognition	Stanford CS231N
Foundations of Machine Learning	Prof. Mehryar Mohri

Technical Skills

General Programming Languages: C, C++, Go, Python, Java, Javascript, PHP, C#, R
Assembly Programming Languages: MIPS, x86
Mobile Development: Java, Swift
Typsetting Languages: LaTeX, Markdown
Domain SpecificLanguages: Verilog, P4
Machine Learning Libraries: Pytorch, Tensorflow, Sklearn, Matplotlib, Numpy
Web Technologies/Frameworks: Django, ASP.net Core, React, MySQL, Postgres, MongoDB, Elasticsearch
Hardware Development Boards: Raspberry Pi, Arduino

Languages

English: Professional working proficiency
Persian: Native proficiency