Pouya Parsa

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Research Interests: Generative Modeling, Multimodal Learning, Natural Language Processing

Education

B.Sc. in Computer Science — **Tehran, Iran**
Amirkabir University of Technology — *2018 – 2023*

- GPA: **3.72**/4
- Thesis: Transformer-Based Model for Stock Price Prediction
- Selected Courses: Artificial Intelligence (A+), Numerical Linear Algebra (A+) Design and Analysis of Algorithms (A), Linear Optimization (A), Probability-1 (A+)
- Online Courses: CNNs for Visual Recognition (Stanford CS231n, online, audited), Generative Adversarial Networks (Coursera, online, certificate), Deep Reinforcement Learning (Udacity, online, audited), Introduction to NLP (IPM, certificate)

High School Diploma in Mathematics and Physics — **Tehran, Iran**
National Organization for Development of Exceptional Talents (Sampad) — *2014 – 2018*

- GPA: **20**/20

Publications

Consistent Multi-Shot Clip Sequencing (In Progress)
Pouya Parsa, Maral Zarvani, Reza Zolfaghari — *April 2023*

- A weakly-supervised framework that uses texts as input to automatically create video sequences from an extensive collection of shots.

Research Experience

Computer Vision Researcher — **Berlin, Germany**
Zebracat.ai — *Sep 2022 – Present*

- Conducted a literature review on text-video retrieval models
- Trained shot transition detection models using dilated DCNN and frame similarity features
- Working on context-aware footage selection

Research Assistant Amirkabir University of Technology — **Tehran, Iran**
Novelties, Optimization & Redesigning of Cities (NORC) Lab — *Aug 2021 – Feb 2022*

- Advised by Prof. Mehdi Ghatee
- Utilized DeepLab and computer vision techniques to create a robust model for detecting and recognizing Iranian car plates with an accuracy greater than 87%
- Trained generative adversarial network (GAN)-based models to effectively eliminate fog artifacts from images captured by transportation cameras.(Github)

Research Assistant Amirkabir University of Technology — **Tehran, Iran**
Data Science Innovation Center — *Sep 2021 – March 2022*

- Advised by Prof. Mohammad Akbari
- Interpreted the latent space of GANs for semantic face editing
- Implemented the paper 'Progressive Growing of GANs for Improved Quality, Stability, and Variation' as a preliminary step towards using StyleGAN for semantic image editing (GitHub)

Work Experience

- **Data Scientist Intern** — **Tehran, Iran**
  MCI (Hamrahe aval) — *July 2022 – Sep 2022*
  - I was a member of the R&D team responsible for developing recommender systems at MCI, Iran's first and largest mobile operator with over 67 million users
  - Created a fault-tolerant Extract, Transform, Load (ETL) system data preparation
  - Implemented a highly efficient collaborative filtering algorithm that provides suggested posts to a user with response times of less than 10ms
- **Machine Learning Intern University of Zurich** — **Zurich, Switzerland**
  KrauthammerLab — *Aug 2021 – Feb 2022*
  - Advised by Prof. Michael Krauthammer
  - Contributed to the development of software interfaces for data ingestion, data pre-processing, machine learning, visualization, and report generation

Technical Skills

- Programming: Python, Java, C/C++
- Vision/ML Libraries: PyTorch, TensorFlow, Numpy, Scikit-Learn, OpenCV
- Data Manipulation: Pandas, SQL, NoSQL

Honors and Awards

- National University Entrance Exams (Konkur): Ranked 403^{th} among 150,000
- Acknowledged as an outstanding student, recognized for academic excellence, by Amirkabir University of Technology Honors and Olympiads program

University Projects

- **Heart Rate Measurement from Video**
  - Detected heart rate non-invasively by capturing imperceptible changes in light transmitted from the human face (GitHub Link)
- **A Comparative Analysis of Meta-Heuristic Approaches for Neural Network Optimization**
  - Comparison of two popular optimizing algorithms, Particle Swarm Optimization (PSO) as a well-known no-gradient method, and Adaptive Moment Estimation(ADAM) as a famous gradient-based method (GitHub Link)
- **Movie Recommender**
  - A recommendation algorithm utilizing collaborative filtering and relying on the Singular Value Decomposition (SVD) method (GitHub Link)
- **Artificial Intelligence Cup**
  - A reinforcement learning agent based on deep Q-network (DQN) architecture that learns to react and defeat the enemy in a game by receiving the game screen as input and dynamically deciding between shooting, jumping, or moving actions

Teaching Experience

- **Computer Vision**
  Instructor: Dr. Mostafa Shamsi — *Winter 2023*

- **Optimisation in Neural Networks**
  Instructor: Dr. Mostafa Shamsi *Winter 2023*
- **Artificial Intelligence**
  Instructor: Dr. Mohammad Akbari *Winter 2022*

Volunteer Experience

- **Board Member of Scientific Association**
  Amirkabir University of Technology *2020-2021*
- **Member of Khayam-Turing Scientific Group**
  Khayam-Turing - A Machine Learning and Data Science Competition *2020-2021*

Languages

- **English(Fluent): TOEFL: 104/120**, Reading:26/30, Listening:28/30, Speaking:23/30, Writing:27/30
- **Persian:** Mother tongue