Ali Miramirkhani

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Department of Computer Engineering
University of Isfahan,
Isfahan, Isfahan Province, Iran

Research Interest

- **Computer Vision**
- **Digital Image processing**
- **Machine Learning**

Education

BS **Isfahan University**, Computer Engineering — Sep. 2020
GPA: 3.67/4.0

Related Courses

Data Mining (A+), Artificial intelligence and expert systems (A+), Semantic web (A+), Internet Engineering (A+), Object-oriented systems design (A+), Software Engineering (A), Systems analysis and design (A), Designing programming languages (A+)

Research and Experience

Bachelor's Thesis University of Isfahan, Isfahan, Iran — Sep. 2020
Advisor: Dr. Ahmad R. Naghsh-Nilchi

- Refining two-dimensional grayscale raw **angiographic X-ray images** (DICOM) dataset to provide an **open source** standard database
- Produce **noise-free**, labeled congestion grade, enhanced and **segmented** coronary arteries map database

Internship Payam Pardaz Co, Isfahan, Iran — Aug. 2018
Advisor: Mr. Hassani

- Developing automated **End-to-End (E2E) test** for an enterprise angular web app
- Using **protractorJS** framework along with **Jasmine** testing framework in **JavaScript** language

Independent Studies

Fundamentals of Digital Image and Video Processing — July 2020
Coursera online image processing course
Offered by Northwestern University, Dr. Aggelos K. Katsaggelos

Python 3 Image Processing Masterclass — Dec. 2019
Udemy online image processing course

AI for Medical Diagnosis — Nov. 2020
Coursera online deep learning course
Offered by Deeplearning.ai

Notable Course Projects

- Refining X-ray 2D grayscale medical image dataset, including **registration**, **segmentation** and **classification** using s**cikit-image**, **openCV** and **pydicom** libraries
- Implement supervised text **classifier** to detect mobile spam text messages, deploy **Decision Tree** and **KNN** models, **Naive Bayes** using **N-Grams** feature generator, **TF-IDF** as feature weighting method

and **F1-Score** for accuracy evaluation with **python** and **scikit-learn**

- Design, implement and evaluate a **Genetic Algorithm**, **Simulated Annealing** from scratch to find admissible solution for 4*4 and 9*9 sudoku tables in **C#** langeuage
- Implement a query search system based on **Vector Space Model**, using **TF-IDF** weighting and **Cosine Similarity** concepts for ranking the related documents
- Design and implement **Boolean Information Retrieval Model** on text corpus for boolean and positional search queries using **python**
- Implement learning model to calculate product relationship using **FP-Growth** concept in **rapidminer**
- Implement supervised classification using **decision tree (id3, Cart)**, **rule model** and **KNN classifier** to detect intoxication in mushroom dataset
- Develop **Linux Shell** program to fully create/delete/check system users using **Bash Script**
- Design and implement **8-bit ALU** module using **Verilog HDL** and simulate in **Modelsim** to run specific instruction with a connected ROM
- Design and implement **16-bit CPU** module from scratch in **Logisim** software

HONORS & AWARDS

Honor student, Ranked **3rd** among the students of Computer Engineering - software engineering group — Sep. 2020

Ranked within the **top 5%** of National University Entrance Exam — Aug. 2015

Honor student, Ranked **1st** in highschool, diploma in mathematics and physics (GPA: 4.00) — July 2014

LANGUAGES

English: Advanced (IELTS **7.5**, C1 CEFR, TOEFL iBT equivalent = **102-109**)
IELTS Academic scores: Listening 8, Reading 7.5, Writing 6, Speaking 7.5
Persian: Native Language

SKILLS

Programming and Data-Base Languages: Python, C#, C/C++, Java, Web (HTML, CSS, JS), Bash-Script, Prolog, MS-SQL, MySQL, SQLite

Software and Frameworks: Scikit-Learn, OpenCv, RapidMiner, PyDicom

Software development: Git, ProtractorJS, MS Visio, Scrum

Hardware Tools and Languages: Logisim, MIPS Assembly, Modelsim, Verilog

Typesetting: LaTeX, MS-Word

Operating Systems: Linux (Ubuntu, Red Hat), Windows