

AMIRHOSSEIN HASSANKHANI

📍 Tehran, Iran

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🎓 EDUCATIONS

2015-PRESENT

Bachelors of Computer Engineering

K. N. Toosi University of Technology, Tehran, Iran

World University Rankings 2020: 800-1000th

GPA: 3.73/4.00 (17.55/20.00)

Last Two Years GPA: 3.98/4.00 (18.53/20.00)

Relevant Coursework: Foundation of Computer Vision, Fundamental of robotics, Artificial Intelligence and Expert System, Algorithm Design, Graph Theory and Algorithms, Numerical Methods, Embedded Systems

2012-2015

Hedayat High School, Tehran, Iran

🏆 HONORS AND AWARDS

Ranked within the top 5% of Graduating Class

Received Excellent Students Scholarship from Kanoon Farhangi Amoozesh Ghalamchi [2017-2019]

Best Representation in Iran Open 2018

Using Q-Learning and Other Algorithms in the Team Description Paper

League: Soccer 2D Simulation

Team: KN2C

9th Place in the ACM/ICPC 2018 Competition

Asia Region

Team: MSA

Qualified for ACM/ICPC Competitions Among K. N. Toosi University's Teams for 2016 and 2018

Received Full Tuition Fee Waiver Scholarship from K. N. Toosi University of Technology

Ranked within the top 1% of Iranian University Entrance Exam for Bachelor's Degree in Computer Engineering

🔗 SOCIAL CONNECT

🐙 github.com/amirhossein-hkh

📷 [instagram.com/amirhoseinhkh76](https://www.instagram.com/amirhoseinhkh76)

🌐 [linkednd.com/in/amirhossein-hassankhani-020a5a167](https://www.linkedin.com/in/amirhossein-hassankhani-020a5a167)

🔍 RESEARCH INTERESTS

Reinforcement Learning

Computer Vision

Robotics

Generative Adversarial Networks

Computational Geometry

📄 CERTIFICATES

OpenCV Workshop

20-Hour Workshop Held by IEEE

Iran Open 2018 International Competitions

Participation in Soccer 2D Simulation League

ACM/ICPC, Asia Region

Honorable Mention in ACM 2016 Competition

NasirCup 2017 International Competitions

Participation in Soccer 2D Simulation League

☰ PROJECTS

SUPER RESOLUTION LICENSE PLATE

THE BACHELOR'S THESIS

In my bachelor's thesis, I decided to work on enhancing the quality of the license plate's image using deep learning.

CODE

In Preparation

DEEP Q-LEARNING FOR ATARI GAMES

Video games are a good benchmark for reinforcement learning algorithms. So, I decided to implement DQN for the Atari game Pong using Keras. The agent was trained using Google Colab and RGB images as input.

CODE

<https://github.com/amirhossein-hkh/pong-dqn>

FACIAL EXPRESSION RECOGNITION

In this project, I used a convolutional neural network for training a model for facial expression recognition (sad, happy, angry, neutral, and surprised). The model was trained over the AffectNet and the fer2013.

CODE

<https://github.com/amirhossein-hkh/facial-expression-recognition>

AUXILIARY CLASSIFIER GAN

Generative adversarial network is a great framework for generating images from datasets. However, it does not provide a way for customizing the output. So, in this project, I implemented AC-GAN to generate images belonging to the desired category.

CODE

<https://github.com/amirhossein-hkh/Auxiliary-Classifier-GAN>

IMAGE COMPRESSION USING VORONOI DIAGRAM

In this project, I used the Voronoi diagram for compressing images. I found that the pixels around the edges are good choices for the diagram's sites.

CODE

<https://github.com/amirhossein-hkh/Image-Compression-Voronoi>

WUMPUS WORLD

Wumpus environment is a world to show the worth of knowledge-based agents. So, in this project, I implemented an agent who can find its way to the goal. The code was implemented in Prolog.

CODE

<https://github.com/brilacasck/wumpus-prolog>

ALGORITHMS IMPLEMENTATION

Knapsack Problem
Minimum Spanning Tree
Shortest Path
Matching

CODE

<https://github.com/amirhossein-hkh/Fractional-Knapsack>

LR PARSER IN COMPILER DESIGN

LR Parsers are bottom-up parsers used in compiler design. I implemented LR(0), SLR(1), CLR(1) and LALR(1)

CODE

<https://github.com/amirhossein-hkh/LR-Parser>

📁 JOB EXPERIENCES

TEACHING ASSISTANT

2019

ALGORITHM DESIGN COURSE

- Held recitation classes for solving challenging problems.
- Invigilated the midterm exam.
- Designed Project for the end of the semester
- Gave feedback to students about their projects and homework.

WEB DESIGNER

2018-2019

FREELANC PROJECT (COMMERCIAL WEBSITE)

- Designed the front-end of the website
- Implemented the front-end with React and similar technologies
- Connecting the front-end to the back-end

WEBSITE DOMAIN

<https://vornadecor.com>

RESEARCHER

2017-2018

KN2C ROBOTIC LAB (SOCCER 2D SIMULATION)

- Cofounded the soccer 2d simulation team in the KN2C lab
- Created documentation for server and base
- Implemented artificial intelligence algorithms
- Worked with neural network and q-learning
- Participated in the monthly meetings with supervisor

TEAM WEBSITE

<http://Kn2c.aras.kntu.ac.ir/rcss2d>

MACHINE LEARNING

REINFORCEMENT LEARNING

Actor Critic ,Q-Learning, SARSA, REINFORCE, Monte Carlo, TD Learning, Eligibility Traces, Deep Deterministic Policy Gradient, Normalized Advantage Functions

SUPERVISED LEARNING

Fully Connected Neural Networks, Convolutional Neural Networks, Haar Cascades, Support Vector Machines

FRAMEWORKS AND LIBRARIES

KERAS

PYTORCH

TENSORFLOW

OPENAI GYM

HALF FIELD OFFENCE

WEB DEVELOPMENT

FRONT-END

REACT

JAVASCRIPT

HTML

CSS

MATERIAL-UI

BOOTSTRAP

BACK-END

EXPRESS JS

PHP

DJANGO

DATABASE

MYSOL

MONGODB

PROGRAMMING

LANGUAGES

PYTHON

JAVA

C/C++

VHDL

MATLAB

PROLOG

FRAMEWORKS AND LIBRARIES

OPENCV

NUMPY

MATPLOTLIB

CUDA

SCIPY

SCKIT-LEARNING

LANGUAGE PROFICIENCY

ENGLISH

IELTS TEST: 7

LISTENING	READING	SPEAKING	WRITING
6	6	6	6

FARSI

NATIVE

ARABIC

NOVICE

HOBBIES

Watching Movies and TV Series

Listening Music

Working Out

Playing Video Games