Reza **Ghanbari**

(+98) 910 065 6149 | rezaghanbari781@gmail.com | reza-ghanbari

Education

University of Tehran *Tehran, Iran*

B.Sc. in Computer Engineering *Sep 2017 - present*

- GPA: 19.06/20 (3.95/4)
- Ranked 7th among 103 Computer Engineering Students
- Relevant Course Marks
  - Data Structure and Algorithm (20/20)
  - Software Testing (20/20)
  - Software Engineering (20/20)
  - Design and Analysis of Algorithms (20/20)
  - the Theory of Formal Languages and Automata (20/20)
  - Programming Languages and Compiler (20/20)

Research Interests

- Software Engineering
- Software Testing
- Programming Languages
- Software Verification
- Language Design
- Computer Systems

Research Experience

Java String Verification by JayHorn [repository] *UT, Iran*

Under supervision of Prof. **Hosein Hojjat** *Mar 2021 - present*

This research aimed to define models for String methods in Java by means of Constrained Horn Clauses to statically verify programs containing those methods. The models has been implemented in JayHorn Framwork, a unbounded model checker for Java, and the tool is going to compete with other verifier in SV-COMP 2022.

Decentralized Enforcement in Orbit Framework [repository] *UT, Iran*

Under supervision of Prof. **Fatemeh Ghasemi** *Jun 2021 - present*

This research has been conducted to enhace orbit framework, an actor based system, to identify and prevent some sequence of messages which may violate system functionalities. To achieve this, a decentralized algorithm has been desinged and implemented, and also the framework has changed to adapt new algorithm.

Real Time Verification and Evaluation for Rebeca Language [repository] *UT, Iran*

Under supervision of Prof. **Fatemeh Ghasemi** *Jun 2020 - Oct 2020*

Rebeca is an actor-based language used for formal verification. We have created a tool that runs Rebeca code and evaluates its correctness based on a run-time enforcement algorithm.

Rebeca Code Generator [repository] *UT, Iran*

Under supervision of Prof. **Fatemeh Ghasemi** *Jun 2020 - Oct 2020*

In this research, a configurable code generation tool for rebeca framework has been developed that is used in order to test some functionalities of rebeca compiler such as deadlock detection.

Projects

AirHocky: a real-time multiplayer android game [repository]

Cyber-Physical Systems Course *Spring 2021*

- A real-time game for android devices that relies on bluetooth for connection. the project was mainly focused on a reliable data transfer protocol and syncronization of devices
- Tools: Java, Gradle, Android SDK

LOGHME: an online food delivery website [frontend] [backend]

Internet Engineering Course *Spring 2020*

- This project is a food delivery website that used javascript for frontend and java for backend. Deployment, designing a proper UI and API design was major issues in this project that were solved using Docker and Kubernetes, Spring framework, and react-web.
- Tools: Java, Spring, Maven, Docker, Kubernetes, MySQL, Tomcat, Javascript, React

FPU: a floating point processing unit [repository]

Computer Aided Design Course — *Fall 2020*

- This project is a hardware that is designed to run square-root and division on single/double precision floating points. The device is implemented by verilog and synthesized by Vivado, and can be used as a co-processor. In addition, what we coped with in this project was timing, optimization, and performance of device.
- Tools: Verilog, Modelsim, Vivado, Python, TCL

Acton: An actor based compiler [repository]

Programming Languages and Compiler Course — *Fall 2020*

- Acton is an actor-based compiler that is designed to run parallel codes and simpulate asynchronous events. Codes written in Acton will be compiled to java class files using jasmin and could be run on any device that has JRE.
- Tools: Java, Antlr, Jasmin

Honors & Awards

Fall 2019 - 2021 — **University of Tehran Scolarship,** Received scolarship from UT sponsors Foundation as an exceptional talent — *UT. Iran*

Fall 2017 — **University Enterance Exam,** Ranked as top student in university enterance exam; Ranked 281th (national) and 173th (regional) among more than 148000 candidates — *Iran*

Teaching Assistance

the Theory of Formal Languages and Automata — *UT, Iran*

By Prof. Hosein Hojjat — *Fall 2020, Spring 2021, Fall 2021*

- Role: TA, Responsible for homework about Turing Machines, Decidability and Reducibility

Programming Languages and Compiler — *UT, Iran*

By Prof. Fatemeh Ghasemi — *Fall 2020, Spring 2021*

- Role: TA, Responsible for homework about Parser and Functional Programming, and also correcting quizes

Software Testing — *UT, Iran*

By Prof. Ehsan Khamespanah — *Fall 2021*

- Role: TA, Responsible for Project about Unit Testing and Test Doubles

Engineering Probability and Statistics — *UT, Iran*

By Prof. Behnam Bahrak — *Fall 2020, Fall 2021*

- Role: TA, Responsible for homework about Continues Distributions and Joint Distributions

Introduction to Computing System and Programming — *UT, Iran*

By Prof. Manochehr Moradi — *Fall 2018*

- Role: TA, Responsible for correcting homework and exams

Skills

Programming Languages

Java, Python, C, C++, C# , Javascript, R, Verilog HDL

Web Frontend frameworks

Angular, React-web, Vuejs, Jquery, HTML, CSS, Bootstrap

Database Tools

MySQL, Postgres, Redis, Neo4j, Elastic Search

Other Frameworks
Express, Node, Spring, JUnit

Other Tools
Git, LaTeX, Android Studio, Antlr4, Docker, Gradle, Maven, Modelsim, Quartus, Vivado, Multisim, Proteus

Languages

Persian
Native

English
Fluent
- TOEFL Test: To be taken at November 6, 2021

References

Available upon request