Taha Rostami

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Summary of Qualifications

- More than two years of academic research experience in Computer Engineering, specializing in Software Engineering
- Strong programming skills in C#, Python, SQL Server, XGboost, LightGBM, PyTorch, Tensorflow, and more
- Proven ability to learn quickly and work hard and consistently, in addition to sincere honesty, commitment, and work ethic
- Successful experiences in conveying technical ideas to technical and non-technical audiences through written and verbal communication

Computer Skills

- **Highly skilled in Microsoft technologies**, with 6+ years of expertise in C#, SQL Server, ASP.NET Core, ML.NET, SignalR, and more
- **Highly experienced in data science tools**, with 3+ years of experience in Python, PyTorch, TensorFlow, LightGBM, Optuna, and more
- **Familiar with** Z3, LLVM, Hugging Face, NLTK, PyG, Stable Baselines, PyGad, JavaScript, Java, C, MySQL, Docker, Git, and more

Education

M.Sc., Software Engineering, Tarbiat Modares University (TMU), Iran, GPA: 3.88/4.0 **2019 - 2022**

B.Sc., Software Engineering, Babol Noshirvani University of Technology (BNUT), Iran, GPA: 3.55/4.0 **2014 –2019**

Work Experience

Research Assistant, TMU **Sep 2020 - Oct 2022**

- Developed innovative methods for predicting fault-revealing mutants, resulting in a 9% accuracy improvement
- Developed transfer learning-based methods that outperformed previous solutions in Mutant Selection and Prioritization by 67% and 4%
- Investigated predictive mutation testing and proposed a method that handles missing values with a 10% accuracy improvement
- Formulated two new problems in mutation testing: Dynamic Mutant Prioritization (DMP) and Dynamic Mutant Selection (DMS)
- Suggested concrete frameworks for future research on DMP and DMS

Mentor, Faradars [link] **Jan 2021 – Mar 2021**

- Created and taught a C# course on Consuming Web Services, purchased by around 250 students with very positive feedback

Intern, RADMAN **Jul 2019 – Sep 2019**

- Customized RADMAN's website template using Html5, CSS3, and Java Script
- Designed and Implemented a SQL server database for their website
- Implemented the website's backend by C#, and ASP.NET Core

Teaching Assistant, BNUT **Feb 2017 – Jun 2017**

- Designed and oversaw a project for an Advanced Programming course, delegating tasks to 70 students
- Instructed C# by guiding students through multiple practice problems

Intern, Behineh System **Jul 2015 – Sep 2015**

- Developed management software for a client using C#

- Designed and implemented a SQL Server database for the software
- Created a custom Persian calendar feature for the software

Chess player, Asasaraye Same **Oct 2011 – Oct 2013**

- Participated in two sessions as a chess player with excellent performance

Volunteer Activities

- Applied technical expertise to interdisciplinary projects such as [link] and [link]
- Contributed to scientific integrity by identifying bugs or recognizing misconduct in a few papers such as [link]
- Mentored 10 computer science, chess, and language students on study strategies, career development, and problem-solving techniques
- Provided detailed assistance to Farsi language learners on HiNative [link]

Selected Academic Projects

DeepRL_EmotionRecognition_UsingEEGsignals [link] **2021**

- Proposed, implemented, and evaluated a deep reinforcement learning-based method for emotion recognition using EEG signals in collaboration with another member

Harif- a graph-based automatic course-selection system that recommends schedules based on students' preferences [link] **2018**

- Analyzed the curriculum published by the Ministry of Science and BNUT
- Formulated the core problem as MAX-SAT with a set of hard and soft constraints
- Designed and implemented a randomized algorithm for solving the problem that satisfies all hard constraints and maximizes a given objective function calculated based on soft constraints
- Designed and implemented efficient software using C# that provides all the above facilities with a modern and user-friendly interface

NitPhoneBook- A phone book for BNUT [link] **2018**

- Specified the system's requirements by conducting a series of interviews with BNUT's administrators
- Analyzed the specified requirements and designed an architecture for the software
- Designed and implemented a recursive algorithm that satisfies one of the primary requirements of the system
- Designed and implemented a SQL server database of the system in collaboration with other members
- Designed and implemented a desktop application with a modern and user-friendly interface

Awards

Academic **2014-present**

- Outstanding student, ranked 1st at Computer Engineering Dept., TMU, Tehran, Iran, 2021
- Highly Competitive Scholarship for MSc in Software Engineering study at TMU, 2019
- Highly Competitive Scholarship for BSc in Software Engineering study at BNUT, 2014

Others **beginning-2013**

- Iran Chess Premier League, 1st with Asa Saraye Sameh Team, 2013
- Ranked 3rd place in Asian Youth Blitz chess championships, with Iranian National Team, Southern, Sri Lanka, 2012
- Iran Chess League One,3rd with Asa Saraye Sameh Team, 2011

- Ranked 1st place in Calligraphy Competition, Mazandaran, Iran, 2007

Publications

Scientific Journal/Working Papers

- **T. Rostami**, S. Jalili, "Predicting useful mutants by fine-tuning the UniXcoder pre-trained model," in prep., 2023 [link]
- **T. Rostami**, S. Jalili, "Predicting fault-revealing mutants based on mutant killing severity," submitted to Information and Software Technology, Under Review, 2023 [link]
- **T. Rostami**, "An interpretable model for predicting non-trivial equivalent mutants of the MART," submitted to The Journal of Systems & Software, Under Review, 2023 [link]

Scientific Conference Papers

- **T. Rostami**, S. Jalili, "A heuristic function for improving the prediction accuracy of fault revealing mutants," in 9th Iranian Joint Congress on Fuzzy and Intelligent Systems, 2022 [link]
- **T. Rostami**, S. Jalili, "A method for improving predictive mutation testing that considers the impacts of missing data," in 12th International Conference on Information and Knowledge Technology, 2021 [link]

Non-Scientific

- **T. Rostami**, "Navigating the Challenges of Studying Computer Science: A Guide for Students at Babol Noshirvani University of Technology," 2023 [link]

Languages

- **Persian - Native**
- **English – TOEFL iBT: Total 93, Reading 28, Listening 21, Speaking 22, Writing 22, April 01, 2023**

Potential Future Research Directions (without order)

- **Text Analysis-** anything that is represented textual, e.g., source code of a program, natural language text, clinical text, etc.
- **Machine Learning Algorithms-** classical and symbolic ones, reinforcement learning, and deep learning; moreover, enjoy thinking in-depth about ensemble learning methods
- **Computational Logic and Reasoning-** both classical and probabilistic one
- **Constraint Satisfaction Problems-** especially from the practical perspective, i.e., by formulating and solving real-world problems such as the ones raised in software verification and using tools such as Z3
- **Complexity Theory & Designing Algorithms-** it is an old but lifelong appetite to someday work in depth on it