Arya **Parvizi**

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Education

Master of Computer Science — *Fredericton, NB, Canada*
UNIVERSITY OF NEW BRUNSWICK

Bachelor of Computer Engineering — *Tehran, Iran*
SHAHID BEHESHTI UNIVERSITY

Experience

RESEARCH ASSISTANT
UNB, Fredericton, Canada

Human-Robot Interaction Laboratory —University of New Brunswick — *September 2023 - Present (2 years)*

- Built teleoperation interfaces with ROS + Python (Tkinter); implemented anMVC architecture to improve reliability and developer velocity.
- Investigated connectivity and networking issues (routing, DNS, ROSmaster) and implemented automated recovery routines to stabilize robot communication.
- Performed hardware diagnostics on the Jackal's MCU/User Power Board—re-terminating connectors, verifying VBAT/power continuity, and preventing intermittent disconnections.
- Maintained and refactored a legacy codebase, improving readability, modularity, and documentation quality.
- Contributed to ongoing research on UI/UX design, system robustness, and human-robot interaction for teleoperation studies. (Empathy with Teleoperated Robots, and Mitigating Racial and Gender Bias Using Avatar Robots)

RESEARCH ASSISTANT
SBU, Tehran, Iran

Robotics Laboratory —Shahid Beheshti University — *July 2021 - October 2023 (2 year 3 months)*

- Explored and evaluated reinforcement-learning methods (DQN, PPO) andevolutionary algorithms, integrating them with PyTorch and Python modules, and linking via Redis-based local networking and sensor data exchange. This work aimed to improve the value-function estimation in our existing chain-action module for RCSS2D intelligent agents.
- Worked with C++, Pandas, TensorFlow, PyTorch, ROS, Webots, and Docker

TEAM LEAD
SBU, Tehran, Iran

Robotics Laboratory —Shahid Beheshti University — *September 2021 - August 2023 (2 years)*

- Coordinated lab ongoing projects, onboarding, and weekly meetings across 9 active members.
- Secured a sponsorship grant from Divar to support competition and lab activities.
- Managed Git and version control, set branching strategies, code reviews, andreleases.
- Designed and operationalized technical frameworks, establishing workflows,roles, processes, and milestones for four different projects (RoboCup 2dsim, Quadcopter drone, SBU Robot, and NAO).
- Packaged modules for the intelligent systems' fit, and majorly responsible for integration to the code base.
- Ran statistical analyses to assess quality of new developments; built a semi-manual CI/CD-style validation pipeline with in-house tools, and parsed/processed sparse datasets across projects to produce actionable QA reports.

ROBOTICS ENGINEER INTERN
SBU, Tehran, Iran

Robotics Laboratory —Shahid Beheshti University — *May 2021 - September 2021 (5 months)*

- Implemented and evaluated bug algorithms and obstacle-avoidance (Webots, Python); later explored particle filters and SLAM for higher autonomy (Webots, ROS, Python).
- Improved sonar-based obstacle detection (corner-miss issue) via semi-circular sweep motion; compared against sensor-swap and decoupled-panel alternatives for accuracy and energy.
- Set up ROS 2 platform and packages; worked with networking, nodes, and launch configs.
- Fixed Webots 3D model issues (URDF/PROTO) on the SBU omni-directional robot to resolve dynamic-motion failures.

GAME DEVELOPER INTERN
Tehran, Iran

Concealand Game Studio — *January - August 2023*

- Applied Reinforcement Learning, Imitation Learning, and Curriculum Learning for Procedural Animation of a humanoid character to reduce the animation state complexity and workload for artists.
- Worked with Unity IK frameworks, animation rigging package, and ML model training

Honors and Awards

RoboCup 2024 International Competitions, Soccer Simulation 2D League
Ranked 5th - as a Member of R2D2 Team — *Summer - 2024*

Scholarship from School of Graduate Studies, University of New Brunswick
Board of Governors Merit Awards for Graduate Studies — *Fall - 2023*

Granted Facilities from the National Elites Foundation, Iran
As a winner of an Elite Competitive Event (RoboCup IranOpen2023) — *Summer - 2024*

RoboCup IranOpen2023 International Competitions, Soccer Simulation 2D League
Ranked 3rd - as a Member of R3CESBU Team — *Spring - 2023*

ROBOIUT2021, Webots' Line Follower league, Isfahan university of technology
Ranked 1st — *Fall - 2021*

Skills

Languages : Python, R, Matlab, C/C++, Javascript, Java **Frameworks** : Keras/Tensorflow, OpenCV, PyTorch, NLTK, Node.JS, React, Bootstrap **Databases** : Pandas, Redis, MySQL, PostgreSQL, Apache Hive, Apache Hadoop **Simulators** : Webots Simulator, Unity Game Engine, Robocup Soccer Simulator, Gazebo Robot Simulator, OpenAI Gym, **Knowledge** : Data Exploration and Cleaning, Statistical Analysis, Machine Learning, Deep Learning, Reinforcement Learning, Evolutionary Algorithms, Predictive Modeling, Natural Language Processing **Operating Systems** : Windows, Ubuntu, Raspbian **Misc.** : Robot Operating System(ROS), GIT, Docker, CUDA

Languages

- **English** : Fluent (IELTS 7.5)
- **Persian** : Native
- **Japanese** : Intermediate

Publications

Generating Hand-Written Symbols With Trajectory Planning Using A Robotic Arm
[more info]
2023 13th International Conference on Computer and Knowledge Engineering (ICCKE) — *27 Nov 2023*

R3CESBU Soccer Simulation 2D Team Description Paper 2023 [more info]
Team Description Paper for RoboCup 2023 — *27 Nov 2023*

Independent Projects

- **A Serious VR Game to Overcome Arachnophobia, Using Unity C# and MetaQuest3**
[github] • **A Clone of Feed and Grow Game, A Platform to train NEAT Algorithm Using Unity C#**
- **An Implementation of a 2D Soccer Platform, and NEAT Algorithm to Train AI Using Unity C#**
- **A Solution to Minesweeper Using Naiive Bayes and Inference Approach (Mineswiper), Application on Excel**
- **Intelligent Agent Tic-Tac-Toe Player, Using Java**

Curricular Projects

[github] • **Likelihood Calculation with multiple ML Approaches for Student Success Based on Engineered Real-World Dataset**
[github] • **Generating Synthetic Summarized Titles From Indian News Reports, Using Python NLTK Based on Real-World Dataset from Kaggle**
• **Heater/Cooler with Energy Consumption Modeling and Optimization Control System, Using Matlab**
[github] • **Classification of Different Car Brand Models, Using CNNs and Webscraping with Python Keras**
[github] • **Simple Bitcoin Estimator Using Regression, Using Python Pandas and Numpy**
[github] • **Survivability Likelihood of Titanic Passengers Data Analysis, Using Python Based on Real-World Dataset**
• **Analysis and Optimization of the Shazam Algorithm in Music Recognition, Using Matlab**
[github] • **Implementation and Analysis of Binary Index Trees for Historical Blockchain Databases, Using Java**
[github] • **Comparing Relative Aim Control Schemes with Aim Assistance Techniques and Gyrosensor, Using Unity C#**
[github] • **E-Puck Robot Wall Following and Obstacle Avoidance, Using Webots Python**
[github] • **A Complete Implementation of Decaf Compiler, Using Java**
[github] • **A Clone of Skype's Background Blurring on Webcams**
[github] • **Eight Puzzle AI Solver Using BFS, DFS, A*, and IDA*, Using Java**
• **Automated Scheduling and Course Selection for Students, Using Java**
• **Wall Following and Path Finding Using BUG1 and BUG2 Algorithms for E-Puck Robot in Webots Simulator, Using Webots C++**
[github] • **Multi-player Chess Platform Using JavaFX**

References

Available upon request