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 an MVC architecture to improve reliability and developer velocity.
- Investigated connectivity and networking issues (routing, DNS, ROS master) 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 years 3 months)*

- Explored and evaluated D3QN, PPO, and genetic algorithms for:
  (a) improving value-function estimates of RCSS2D intelligent agents, and
  (b) robotic-arm path planning (see Publications).
- Integrating C++ RCSS system with PyTorch and Python modules, using Redis-based local networking and sensor data exchange.

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** : PyTorch, TensorFlow, OpenCV, Node.JS, React, Bootstrap
- **Databases** : MySQL, PostgreSQL, Apache Hive, Apache Hadoop, Pandas, Redis
- **Misc.** : GIT, Docker, CUDA, Webots, Gazebo

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