

Arya Parvizi

Fredericton, NB, Canada

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Education

Master of Computer Science
UNIVERSITY OF NEW BRUNSWICK

Fredericton, NB, Canada

Bachelor of Computer Engineering
SHAHID BEHESHTI UNIVERSITY

Tehran, Iran

Experience

RESEARCH ASSISTANT

HUMAN-ROBOT INTERACTION LABORATORY — UNIVERSITY OF NEW BRUNSWICK

UNB, Fredericton, Canada

September 2023 - Present (2 years)

- Designed and implemented teleoperation interfaces and control systems using ROS + Python (Tkinter, MVC) to improve responsiveness and human-robot collaboration.
- Conducted hardware diagnostics and sensing calibration on Clearpath's Jackal robot (MCU/User Power Board, VBAT continuity, signal integrity).
- Simulated and evaluated robotic task performance, analyzing latency, control precision, and sensor feedback quality.
- Developed data pipelines for sensor fusion and real-time performance monitoring.
- Collaborated on empathetic robot design and autonomous behavior research to enhance operator safety and trust.
- visit <https://github.com/cserobotic> for more info.

TEAM LEAD

ROBOTICS LABORATORY — R3SBU TEAM

SBU, Tehran, Iran

September 2021 - August 2023 (2 years)

- Led a 9-member interdisciplinary robotics team developing autonomous and semi-autonomous robots (RoboCup 2D, quadcopter, SBU omni-robot, and Humanoid NAO).
- Designed simulation and testing frameworks for robot motion and vision system evaluation.
- Integrated sensor data, motion planning, and control algorithms across C++ and Python environments.
- Managed Git workflows, documentation, and milestone delivery across multiple concurrent projects.
- Built and maintained a semi-automated CI/CD-style validation pipeline, performing statistical analyses on sparse datasets to generate actionable QA reports.
- Secured sponsorship from Divar grant to support lab research and competitions.
- Visit <https://github.com/cserobotic> for more info.

ROBOTICS ENGINEER INTERN

ROBOTICS LABORATORY — R3SBU TEAM

SBU, Tehran, Iran

May 2021 - September 2021 (5 months)

- Developed and tested autonomous navigation algorithms (BUG1/BUG2, SLAM) using Webots and ROS.
- 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.
- Modeled robotic systems in simulation for collision detection and motion validation.
- 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.
- Visit <https://ph504.github.io/projects/projects-4/> for more info.

GAME DEVELOPER INTERN

CONCEALAND GAME STUDIO

Tehran, Iran

January - August 2023

- Applied Reinforcement Learning for Procedural Animation of a humanoid character to significantly reduce the animation state complexity and workload for artists.
- Tuned PyTorch training pipelines to reduce GPU usage and improve convergence time.
- Worked with Unity IK frameworks, animation rigging package, and Unity ML model training

Teaching

INSTRUCTOR

INTRODUCTION TO ROBOTICS

SBU, Tehran, Iran

Summers 2022 & 2023

- Instructed summer workshops to recruit and train new lab members.
- Taught Fundamentals of Robotics, Machine Learning, AI Algorithms, and Simulation concepts, using C++ and Python

TEACHING ASSISTANT

ALGORITHMS DESIGN AND ANALYSIS

UNB, Fredericton, Canada

Winter 2025

- Instructor: Huajie Zhang; Responsible for marking and reviewing assignments

TEACHING ASSISTANT

INTRODUCTION TO ALGORITHMS DESIGN

Shahid Beheshti University,

Tehran, Iran

Fall 2022

- Instructor: Ramak Ghavamizadeh; Responsible for teaching labs and designing lab assignment problemsets.
- Used C++ and bash scripts to automate the test units for marking while assessing edge cases in each problem.

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' E-puck Line Follower league, Isfahan university of technology

RANKED 1ST

Fall - 2021

Skills

- **Languages** : Python, C/C++, MATLAB, Java, Javascript
- **Frameworks** : PyTorch, TensorFlow, OpenCV, ROS, ROS2, Node.JS, React, Bootstrap
- **Simulation & Robotics** : Webots, Gazebo, Clearpath Jackal, SLAM, Motion Planning, Sensor Fusion, PID Control
- **Hardware & Control** : Embedded Systems, Sensors & Actuators, Microcontrollers, Vision Systems, System Diagnostics
- **Databases** : MySQL, PostgreSQL, Redis, Pandas, Apache Hive, Apache Hadoop
- **Misc.** : Docker, GIT, Linux, Unity, Simulation Prototyping, CAD Familiarity, SOP Creation, Network Diagramming

Languages

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

Publications

Generating Hand-Written Symbols With Trajectory Planning Using A Robotic Arm

2023 13TH INTERNATIONAL CONFERENCE ON COMPUTER AND KNOWLEDGE ENGINEERING (ICCKE)

27 Nov 2023

R3CESBU Soccer Simulation 2D Team Description Paper 2023

TEAM DESCRIPTION PAPER FOR ROBOCUP 2023

27 Nov 2023

Independent Projects

- A Serious VR Game to Overcome Arachnophobia, Using Unity and MetaQuest3
- An Implementation of a 2D Soccer Platform, and NEAT Algorithm to Train AI Using Unity C#
- A Clone of Feed and Grow Game, A Platform to train NEAT Algorithm Using Unity C#
- A Clone of Hollow Knight Game, Using Unity
- A Clone of Stick Hero Game, Using C++ SDL Library
- Spaceship Adventure Game, Using Unity C#
- Dummy Paradox — GMTK 2025 GameJam Prototype (Themed Loop)

Curricular Projects

- Wall Following and Path Finding Using BUG1 and BUG2 Algorithms for E-Puck Robot in Webots Simulator, Using Webots C++
- Heater/Cooler with Energy Consumption Modeling and Optimization Control System, Using Matlab
- Automated Scheduling and Course Selection for Students, Using Java, and CSP Algorithm
- Eight Puzzle Game and AI Solver Using BFS, DFS, A*, and IDA*, Using Java
- Analysis and Optimization of the Shazam Algorithm in Music Recognition, Using Matlab
- Classification of Different Car Brand Models, Using CNNs and Webscraping with Keras
- Synthetic Summarized Titles From Indian News Reports, Using Python NLTK Based on Real-World Dataset from Kaggle
- Implementation and Analysis of Binary Index Trees for Historical Blockchain Databases, Using Java
- Comparing Relative Aim Control Schemes with Aim Assistance Techniques and Gyrosensor, Using Unity C#
- A Complete Implementation of Decaf Compiler, Using Java
- A Clone of Skype's Background Blurring on Webcams

References

Available upon request