# 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

**Human-Robot Interaction Laboratory** — *UNB, Fredericton, Canada*
**RESEARCH ASSOCIATE** — *September 2023 - Present*

Applied UI/UX principles to Teleoperation interfaces, in order to achieve better user performance and experience. Implemented automation for robot network configuration.

Used ROS and tkinter along with Python3 to develope the interface and operate the robot

**Robotics Laboratory** — *SBU, Tehran, Iran*
**RESEARCH ASSOCIATE** — *July 2021 - Present*

Applied Reinforcement Learning, and Data Mining principles to Soccer Simulation 2D League for RoboCup Competitions to analyze and improve team performance
Applied the same principles in addition to Obstacle avoidance, and Navigation algorithms to develope A.I. for SBU Omni-Directional Robot, and resolved sensor inaccuracies to enhance high-precision mapping capabilities.

Worked with C++, Pandas, TensorFlow, ROS, Webots, Docker, and Catkin

**Introduction to Game Developement** — *UNB, Fredericton, Canada*
**TEACHING ASSISTANT** — *January 2024 - April 2024*

Instructor: Daniel J. Rea; Responsible for marking and reviewing the lab assignments

Used Godot Engine.

**Introduction to Robotics** — *SBU, Tehran, Iran*
**INSTRUCTOR** — *June 2023 - August 2023*

Instructed for summer workshops, in order to recruit new passionate individuals for the lab.

Taught Fandamentals of Robotics, Machine Learning, A.I. Algorithms, and Simulation concepts

**Concealand Game Studio** — *SBU, Tehran, Iran*
**GAME DEVELOPER INTERN** — *February 2023 - April 2023*

Applied Reinforcement Learning, Imitation Learning, and Curriculum Learning for Procedural Content Generation (PCG, procedural animation for a humanoid character) to reduce the animation state complexity for artists.

Worked with Unity3D IK frameworks, animation rigging package, and ML model training.

**Introduction to Algorithms Design** — *SBU, Tehran, Iran*
**TEACHING ASSISTANT** — *September 2022 - December 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.

**Introduction to Robotics** — *SBU, Tehran, Iran*
**INSTRUCTOR** — *June 2022 - September 2022*

Instructed for summer workshops, in order to recruit new passionate individuals for the lab.

Taught Fandamentals of Robotics, Machine Learning, A.I. Algorithms, and Simulation concepts

**NAO Research and Development Group** — *SBU, Tehran, Iran*
**ROBOTICS ENGINEER INTERN** — *July 2021 - September 2021*

Responsible for Robot motion and A.I.
The project was implementing an autonomous control system for SBU omni-directional robot. Applied Localization and Mapping algorithms using ROS2 slam libraries with LIDAR sensors.
Applied using Python3.
Fixing the 3D Model in Webots which was causing a dynamic motion failure and getting familiar with robot 3D models, URDF and Proto, and the SBU omni-robot structure in Webots.

Setting Up the ROS2 platform for the robot and getting familiar with the ROS2 networking protocols and architectures.

**Digital Logic Circuits** — *SBU, Tehran, Iran*
**TEACHING ASSISTANT** — *February 2019 - June 2019*

Instructor: Hamidreza Mahdiani; Responsible for marking concept assignments.

## Honors and Awards

**RoboCup 2024 International Competitions, Soccer 2D Simulation 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*

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

**The Best Bachelor Thesis Project**
Nominee *Summer - 2022*

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

**Konkour, National University Entrance Exam**
Tuition waived admission to Shahid Beheshti University - Ranked top 4% *Fall - 2017*

## Skills

**Languages** : Python, C/C++, Javascript, **Frameworks** : Keras/Tensorflow, Node.JS, React, OpenCV, PyTorch, **Databases** : SQL, PostgreSQL, Pandas, Redis **Simulators** : Webots Simulator, Unity Game Engine, Robocup Soccer Simulator, Gazebo Robot Simulator, OpenAI Gym, **Knowledge** : Computer Vision, Image Processing, Signal Processing, ML, ANNs, Reinforcement Learning, SLAM (Simultaneous Localization and Mapping), Planning, Optimal Control, Evolutionary Algorithms **Operating Systems** : Windows, Ubuntu, Raspbian **MISC.** : Robot Operating System(ROS), GIT, Docker, CUDA

## Languages

- **English** : Fluent
- **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*

## Projects (Chronological Order)

**Avatar Robots to Mitigate Social Biases**
Research Project Professor Daniel J. Rea *Summer 2024*

**Inducing Empathy, A Method of Integrating Social Interfaces to Teleoperation**
**[more info]**
Master Thesis Supervisor: Professor Daniel J. Rea *Winter 2024*

**Overcoming Phobias Through Virtual Reality Exposure**
Hobby Project *Winter 2024*

**Implementation and Analysis of Binary Index Trees for Historical Blockchain Databases [more info]**
Big Data Systems Professor Suprio Ray *Winter 2024*

**Comparing Relative Aim Control Schemes with Mouse and Controller with Aim Assistance Techniques And Gyrosensor**
Human-Centered Interface Design Professor Daniel J. Rea *Fall 2023*

**Implementation of Encoder-Decoder LSTM Network Towards Synthetic Summarized Titles From Indian News Reports**
Natural Languages Processing Professor Paul Cook *Fall 2023*

**Likelihood Calculation for Student Success Based on Preprepared Dataset**
Machine Learning and Data Mining Professor Francis Palma *Fall 2023*

**Learning Hand-Written Digit Patterns Using Robotic Arms (Bachelor Thesis Project) [more info]**
Supervisor: Professor Armin Salimi-Badr / Referee: Professor Yaser Shekofteh *Summer 2022*

**Heater/Cooler Control System (Course Project)**
Embedded And Real-Time Systems Professor Seyed-Hosein Attarzadeh-Niaki *Fall 2021*

**Classification of Different Car Brand Models (Course Project)**
Fundamentals Of Computational Intelligence Professor Hamed Malek *Fall 2021*

**Simple Bitcoin Estimator Using Regression (Course Project)**
Fundamentals Of Computational Intelligence Professor Hamed Malek *Fall 2021*

**Survivability Likelihood of Titanic Passengers Data Analysis (Course Project)**
Fundamentals Of Computational Intelligence Professor Hamed Malek *Fall 2021*

**E-Puck Robot Wall Following and Obstacle Avoidance (Course Project)**
Principles of Robotics Professor Armin Salimi-Badr *Spring 2021*

**Analysis and Optimization of the Shazam Algorithm (Course Project)**
Matlab Programming Workshop Professor Yaser Shekofteh *Fall 2020*

**A Clone of Skype's Background Blurring on Webcams (Course Project)**
Computer Vision Professor Alireza Talebpour *Fall 2020*

**An Implementation of Decaf Compiler (Course Project)**
Compiler Design Professor Mohammad Reza Bahrami *Fall 2020*

**Automated Scheduling and Course Selection for Students (Course Project)**
Artificial Intelligence Professor Mehrnoush Shamsfard *Fall 2019*

**Eight Puzzle Platform and Solver (Course Project)**
Artificial Intelligence Professor Mehrnoush Shamsfard *Fall 2019*

## References

**Available upon request**