# **Soheil Sepahyar**

#### **Phone Number**: (906)3700091

Dynamic Computer Science Ph.D. with a robust foundation in Virtual Reality (VR), Augmented Reality (AR), Computer Graphics, and Human-Computer Interaction. Adept in a range of programming languages, including C++, Python, and C#, with in-depth experience in 3D environments through Unity Game Engine and OpenGL. Brings a proven track record in innovative VR application development, data analysis scripting, and graphical systems design. Acclaimed for advancing distance perception research and deep learning applications in automated driving systems. As an effective communicator and educator, I deliver complex concepts in data structures, discrete math, and programming languages at the University of Massachusetts Boston.

## **COMPUTER TECHNICAL SKILLS**

C++	Python	C#
OpenGL	Autodesk Maya	Unix
GLSL	Unity Game Engine	Linux

## WORK & INTERNSHIP/CO-OP EXPERIENCE

Lecturer in Computer Science	University of Massachusetts Boston (Boston, MA, USA)	
<ul> <li>CS 220 Applied Discrete Mathematics</li> <li>CS210 Intermediate Computing</li> <li>CS240 Programming in C</li> </ul>	(Summer 2024)	
<ul> <li>CS 220 Applied Discrete Mathematics</li> <li>CS 410 Software Engineering</li> <li>CS 450 section 01 The Structure of Higher-Level Languages</li> <li>CS 450 section 02 The Structure of Higher-Level Languages</li> </ul>	(Spring 2024)	

#### **PhD VR Researcher**

Michigan Technological University Advisor: Dr. Scott Kuhl

- Developed VR applications using cutting-edge Head-Mounted-Displays, such as Meta Quest Pro and Quest 2, with Unity Game Engine and C#
- Implemented Python postscripts for efficient data processing and analysis.
- Utilized OpenGL and GLSL for coding in C and C++ languages.

### **Product Design Technical Lead Intern**

Visteon Automotive company

- Led and managed hardware and software engineering teams.
- Tested and analyzed data for final production.
- Assessed software and hardware development.
- Developed testing software to analyze data for final production.

(May-August 2022) (Van Buren Township, MI, USA)

### Email: sepahyar@mtu.edu

(January 2019 – Fall 2023) (Houghton, MI, USA)

#### AI/ML and Testing Engineer Intern

Visteon Automotive company

#### **Project:**

- Worked on a driver monitoring system (DMS) for vehicles' AI and ML levels.
- Utilized deep learning algorithms to monitor driver head position and vehicle dynamics.
- Conducted research on the latest lightweight networks to improve computational speed.

#### **ADAS Engineer Intern**

Visteon Automotive company

#### **Project:**

- Working on the development and design of advanced driver-assistance systems software.
- Detected distance and depth perception using LiDAR and Monocular cameras with deep learning and image processing.
- Employed Convolutional Neural Networks and deep learning for data training in depth perception, improving accuracy and distance detection.

#### **Teaching Assistant & Lab Instructor**

Michigan Technological University

- Taught and graded courses including Computer Graphics, Data Structure, Computer Organization, and Formal Models of Computation using various languages such as C, C++, and Java
- Served as a lab instructor for Introduction to Programming Language

## **PROJECT EXPERIENCE DETAILS**

#### Virtual Reality Distance Judgment (Pre-Experiment Blind Walk effect)

• **Project Description:** Implemented a VR program for accurately measuring distances using VR head-mounted displays (HMD) Meta Quest Pro and Quest 2. The project was developed using Unity and relied solely on headset computational power, eliminating the need for additional motion capture systems. The project independently gathered essential information from participants, such as walking patterns, speed, and other data.

#### Virtual Reality Distance Judgment (Effect of Brightness and Darkness on VR)

• **Project Description:** Analyzed distance judgment in VR environments based on varying brightness levels. Created a virtual environment using C and C++ programming with OpenGL with an external Tracking system motion capturing system.

#### Computer Graphics

Project Description: Designed graphical environments and objects using OpenGL and C++ programming, linear algebra, and mathematics. Created various settings in OpenGL, including terrain, earth, cameras, particles, and mesh. (<u>https://github.com/soheilAppear</u>).

#### **EDUCATION**

Michigan Technological University		Houghton, Michigan, USA
PhD in Computer Science	GPA: 3.71/4 (95 credits)	(January 2019 - Fall 2023)
Michigan Technological University Master's in computer Science	GPA: 3.7/4 (30 credits)	Houghton, Michigan, USA (January 2019 – April 2022)
Islamic Azad University of Central Tehran Branch		Tehran, Iran
BS in Computer Software Engineering	GPA: 3.74/4 (146 Credits)	(September 2014- July 2018)

(May-August 2021) (Van Buren Township, MI, USA)

(June-August 2020) (Van Buren Township, MI, USA)

(January 2019-December 2023)

(Houghton, MI, USA)

# **Soheil Sepahyar**

#### **Phone Number**: (906)3700091 **PUBLICATIONS & CONFERENCES**

- 1) VR Distance Judgments are Affected by the Amount of Pre-Experiment Blind Walking (SAP 22) (<u>https://dl.acm.org/doi/abs/10.1145/3548814.3551463</u>)
- 2) Effects of Brightness on Distance Judgments in Head-Mounted Displays. (SAP 2020) (https://dl.acm.org/doi/abs/10.1145/3385955.3407929)
- 3) Comparing Four Sorting Algorithms with Different Data Sizes Based Upon the Time Complexity. (ACAI 2 019) (<u>https://dl.acm.org/doi/abs/10.1145/3377713.3377808</u>)
- 4) Poster Session by Soheil Sepahyar, Effects of Different Types of Pre-Experiment Walking on Distance Perception in VR (Part 1), Computing [MTU] Showcase, 4/2022, Michigan Technological University, Houghton, MI, USA.
- 5) Poster Session by Soheil Sepahyar, Effects of Different Types of Pre-Experiment Walking on Distance Perception in VR (Part 1 and 2 respectively), Graduate Research Colloquium, 4/2022 & 4/2023, Michigan Technological University, Houghton, MI, USA.

#### **INVITED REVIEW OF OTHERS' WORK FOR**

- 1. IEEE VR 2024, the 31st IEEE Conference on Virtual Reality, Orlando, Florida, USA, March 16-20, 2024.
- 2. VRST 2023 Conference Reviewer.
- 3. IEEE VR 2023, the 30th IEEE Conference on Virtual Reality, Shanghai, China, March 25-29, 2023.
- 4. Reviewer PeerJ Journal of Computer Science, 2021.

#### AWARDS

- 1. Received a Business Opportunity Recognition Certificate of Achievement. Startup Challenge (Virtual Reality Startup Company "VRSPACE"), San Antonio, TX, US
- 2. Recipient of the prestigious Finishing Fellowship Grant Award for my PhD research project for summer 2023 from Michigan Technological University, Houghton, MI, USA