

Steven Rice

 StevenRice.ca

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 [StevenRice99](https://www.linkedin.com/in/StevenRice99)

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SKILLS AND ASSETS

- Unity expert with experience developing [simulations and digital twins for robotic and automation processes](#), as well as [games including networking and multiplayer functionality](#).
- Full-stack .NET and ASP.NET developer with experience developing Blazor, Razor, MVC, and WPF applications implementing Entity Framework, ASP.NET Identity, and deploying to Microsoft Azure.
- [Machine learning research and development with PyTorch](#).
- Experience with multiple programming languages including C#, Python, Java, C, PHP, SQL, and front-end web development with HTML, JavaScript, and CSS.
- Experience with multiple architectural patterns and paradigms including Object-Oriented Programming (OOP), Dependency Injection (DI), Model-View-Controller (MVC), Model-View-ViewModel (MVVM), and singleton pattern.
- Skilled at implementing data structures and algorithms across programming languages.
- Experience developing applications throughout the entire software development life cycle (SDLC) and implementing unit testing along with continuous integration, continuous deployment, and continuous delivery pipelines including GitLab CI/CD and GitHub Actions.
- [Experience with all Office tools including scripting in VBA](#).
- American and Canadian citizenship.

EXPERIENCE

Adjunct Professor

Jan. 2024 to April 2024

University of Detroit Mercy

- Instructor for "CSSE-4900 Game Design, Development, and Tools", a course focusing on development with Unity.
- This course introduces students to professional game development tools and workflows. Students will become proficient with Unity, a powerful game engine, and its scripting language, C#. Topics will cover engine architecture, processing input, character movement, physics and collision handling, user interfaces, basic networking, and basic artificial intelligence. Additional topics may include graphics, textures, shaders, animation, and audio.
- Designed the course content, assignments, and examinations for the class.
- Created samples of the assignments for students to compare their work with alongside a template to use for their final project.

Software Developer

May 2019 to May 2020

AIS Technologies Group

- Created a robotics simulation platform with Unity to develop digital twins and prototypes of automation machinery both for internal and external customers.
- Created "VisionSim" with Unity, a system for replicating and testing vision systems with real-world accurate cameras.
- Developed CRUD applications for client companies primarily in ASP.NET MVC.
- Created responsive user interfaces for applications by integrating DataTables.
- Developed the WPF interface for the latest version of "Target Tracker".

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EXPERIENCE

Graduate and Teaching Assistant

Sept. 2018 to Present

School of Computer Science, University of Windsor

- Recipient of the 2023 Computer Science Society Outstanding Teaching Assistant Award.
- Assistant for "COMP-4770 Artificial Intelligence for Games", "COMP-4740 Advanced Topics in Artificial Intelligence II", "COMP-3670 Computer Networks", "COMP-2540 Data Structures and Algorithms", "COMP-1400 Introduction to Algorithms and Programming I", and "COMP-1000 Key Concepts in Computer Science".
- Created an artificial intelligence library for Unity to help teach "COMP-4770 Artificial Intelligence for Games".
- Created the final project and a grading server for "COMP-3670 Computer Networks".
- Tutored students on artificial intelligence, machine learning, deep learning, game development, data structures, algorithms, and logic.
- Ran lectures, conducted labs, graded assignments and tests, and proctored exams.

Information Technology Specialist

Sept. 2020 to Dec. 2020

Ground Effects Ltd.

- Automated the company's order confirmation process with Python, OpenCV, Tesseract OCR, and Selenium to reduce task completion time from hours of manual work to minutes running a single script.
- Developed and optimized the databases, backends, and frontends for applications.
- Developed lightweight JavaScript translation capabilities for company websites for use in Mexico and other foreign facilities using IBM Watson Language Translator and storing results into local databases for efficient future lookup and cost mitigation.
- Introduced the company to ASP.NET and developed an internal application that resulted in more efficient systems allowing for improved productivity.
- Optimized database queries and stored procedures.
- Updated multiple outdated PHP 5 applications to PHP 7 and began the process of further migration to PHP 8.

Pool Coordinator

May 2022 to Sept. 2023

Tecumseh Leisure Pool, Town of Tecumseh

- Supervised twenty lifeguard staff members.
- Developed software to automate staff shift logging and wage calculation, greatly improving efficiency and accuracy.
- Ensured facility was ready to open for the season and passed all inspections.
- Scheduled programs and ensured all were fully staffed.
- Conducted staff training and confirmed all staff met the required certifications.
- Provided a safe environment for both patrons and staff.
- Ensured all programs were conducted to a high standard.

Lifeguard and Swim Instructor

May 2016 to Sept. 2021

Tecumseh Leisure Pool, Town of Tecumseh

- Instructed Learn to Swim and leadership classes meeting Lifesaving Society criteria.
- Developed and instructed the Aquafit program to increase the number of patrons.
- Recognized and responded to first-aid situations.

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EDUCATION

Master of Science in Computer Science

May 2024 to May 2025

University of Windsor

- Artificial Intelligence Stream

Honors Bachelor of Computer Science

Sept. 2017 to May 2024

University of Windsor

- Specialization in Artificial Intelligence
- 92.55% Major Average
- Minor in Mathematics with an 88.17% Average

Honors Bachelor of Commerce Business Administration

Sept. 2017 to May 2023

University of Windsor

- 85.28% Major Average

PROJECTS AND PUBLICATIONS

Fusion IK: Solving Inverse Kinematics using a Hybridized Deep Learning and Evolutionary Approach

- Submitted for publication at [NAMRC 52](#).
- Inverse kinematics is a core aspect of robot manipulation. This paper presents an approach to solving Inverse Kinematics (IK) for robots, including articulated industrial ones, combining deep learning with an evolutionary algorithm. Fusion IK passes the manipulator's target and current joint values into a neural network, the results of which are then used to seed an evolutionary algorithm, Bio IK, to complete the solution of the inverse kinematics problem. Fusion IK allows for solving the position and orientation of the robot while attempting to minimize joint movement times. Comparisons between Fusion IK and its underlying algorithm Bio IK are tested on a six-degree-of-freedom articulated industrial robot as well as a 20-degree-of-freedom robot to explore the move times that Fusion IK produces. The comparisons show that the variations of the Fusion IK algorithm show comparable results to its underlying evolutionary Bio IK algorithm on a six-degrees-of-freedom articulated robot and improvements on a 20-degree-of-freedom robot without any additional hyperparameter tuning. The results show that Fusion IK could be of real value regarding the movement time and the quality of the obtained solutions upon further research, especially with higher degree-of-freedom robots.

Easy-AI

- Unity artificial intelligence library.
- Used to teach the class "COMP-4770 Artificial Intelligence for Games" at the University of Windsor.
- Easy-AI consists of three assignments and a final project. Assignment one introduces students to sensors and actuators for agents, assignment two teaches state machines and has students develop steering behaviors, and assignment three has students implement corner-graph node placement and A* pathfinding navigation. Each assignment is designed to be a building block to prepare for the final project of creating a game of capture the flag. Source code is fully commented with guidance to where sections are to be completed in each assignment.
- Available upon request to be used for teaching students.

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PROJECTS AND PUBLICATIONS

Dynamic Duos

- Unity capture-the-flag game and multiplayer template.
- Used to teach the class "CSSE-4900 Game Design, Development, and Tools" at the University of Detroit Mercy.
- Dynamic Duos is a game of capture-the-flag with weapons, pickups, and map rotation designed to be a reference for students when developing their final project for the class.
- The multiplayer template which Dynamic Duos itself is an extension of is provided to students which provides them with server hosting and joining, a lobby and ready-up system, and basic character movement to get them started with their game development.

AWARDS

Vector Institute

- Vector Scholarship in Artificial Intelligence 2024

University of Windsor

- Ontario Graduate Scholarship 2024
- University of Windsor In-Course Scholarships 2024
- Computer Science Society Outstanding Teaching Assistant Award 2023
- John Carter William Scholarship 2022
- Co-op Rising Star Award Finalist 2021
- Windsor University Faculty Association Scholarship Fund 2018
- FIRST Robotics Scholarship 2017
- Odette Young Leadership Scholarship 2017
- International Baccalaureate (IB) / Advanced Placement (AP) Scholarship 2017
- University of Windsor Entrance Scholarship 2017

World Powerlifting Congress Canada

- National Champion - 82.5 kg Male 20-23 Junior Raw 2019
- National Squat Record - 75 kg Amateur Male 18-19 Teen Raw 2018
- High School Championships Second Place - 75 kg Male 18-19 Teen Raw 2017

CERTIFICATIONS

Pre-Script

- Pre-Script Barbell 2023

Lifesaving Society

- Aquatic Supervisor 2021
- National Lifeguard 2015
- Standard First Aid with CPR-C 2015
- Advanced Instructor 2015
- Lifesaving Instructor 2015
- Emergency First Aid Instructor 2015
- Swim Instructor 2015

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CERTIFICATIONS

High Five

- QUEST 2 2022
- Healthy Minds for Healthy Children 2022
- Principles of Healthy Child Development 2014

COURSES

University of Windsor

- COMP-4960 Research Project 100%
- COMP-4770 Artificial Intelligence for Games 98%
- COMP-4740 Advanced Topics in Artificial Intelligence II 93%
- COMP-4730 Advanced Topics in Artificial Intelligence I 93%
- COMP-4540 Design and Analysis of Computer Algorithms 85%
- COMP-4400 Principles of Programming Languages 99%
- COMP-3770 Game Design, Development and Tools 98%
- COMP-3710 Artificial Intelligence Concepts 95%
- COMP-3670 Computer Networks 90%
- COMP-3540 Theory of Computation 97%
- COMP-3340 World Wide Web Information Systems Development 97%
- COMP-3300 Operating Systems Fundamentals 95%
- COMP-3220 Object-Oriented Software Analysis and Design 91%
- COMP-3150 Database Management Systems 87%
- COMP-3110 Introduction to Software Engineering 90%
- COMP-2660 Computer Architecture II: Microprocessor Programming 96%
- COMP-2650 Computer Architecture I: Digital Design 84%
- COMP-2560 Systems Programming 84%
- COMP-2540 Data Structures and Algorithms 96%
- COMP-2310 Theoretical Foundations of Computer Science 84%
- COMP-2140 Computer Languages, Grammars, and Translators 95%
- COMP-2120 Object-Oriented Programming Using Java 95%
- COMP-2067 Programming for Beginners 98%
- COMP-2057 Introduction to the Internet 99%
- COMP-1410 Introduction to Algorithms and Programming II 97%
- COMP-1400 Introduction to Algorithms and Programming I 100%
- COMP-1047 Computer Concepts for End-Users 100%
- COMP-1000 Key Concepts in Computer Science 86%
- MATH-3940 Numerical Analysis for Computer Scientists 92%
- MATH-2780 Vector Calculus 94%
- MATH-1730 Integral Calculus 85%
- STAT-2910 Statistics for the Sciences 79%
- MSCI-3310 Operations Management I 90%
- MSCI-2200 Quantitative Decision Models I 95%
- MSCI-2130 Introduction to Management Information Systems 90%
- STEN-4980 Strategic Management 90%
- STEN-3970 The Law and Business Administration 84%
- STEN-3900 Entrepreneurial Resource Management 90%