Petar Isakovic

petar.isakovic@uwaterloo.ca | petarisakovic.ca | linkedin.com/in/petar-isakovic | github.com/PetarIsakovic

Skills

Languages: Java, C, C++, C#, JavaScript, Python, CSS, HTML, VHDL, Bash
Technologies & Tools: Git, Swing, JUnit, AWT, Unity, Spigot, Valgrind, Unix, Firebase, Tailwind, Bootstrap, Jira, Figma

Community Work Experience

Organizer & Tech Lead @ The GooseHacks Summer Hackathon — June 2023 - September 2023 | Kitchener, ON

- Designed and successfully implemented a fully **responsive website** using **JavaScript**, **CSS**, and **HTML**, attracting over **200 participants** and contributing to securing sponsorships from 11 prestigious organizations, such as **Unity** and **Desmos**
- Developed a **JavaScript** bot that identified relevant hackathons on Instagram and automatically followed all participating students to effectively and strategically promote the **GooseHacks Instagram Page**, resulting in increased engagement

Java Developer Spigot Minecraft Dev and Java Tutor Volunteer — September 2022 - September 2024 | Kitchener, ON

- Developed **Minecraft Spigot plugins** for popular servers with hundreds of players, such as Phantix and Galactic Games, through designing and developing custom game modes and innovative unique server features to enhance player experience
- Tutored high school and university students on the core fundamentals of Java, extensively covering essential topics such as **object-oriented principles** like inheritance and encapsulation and **abstract data structures** including arraylists and stacks

Projects

Online Multiplayer Snake Game 🔗 | **JavaScript, Firebase, Scrum, CSS, HTML** — January 2024 - April 2024

- Recreated the retro snake game as an online multiplayer remix, where you can play against your friends by leveraging **Firebase** for robust backend services and user authentication, effectively managing real-time synchronization of player data
- Utilized the **Scrum** project management framework by implementing **sprints** to strategically organize tasks, closely track progress, and ensure consistent iterative development along with timely delivery of all project goals, and milestones

Boxhead 🔗 | **JavaScript, ML5.js, P5.js, CSS, HTML** — September 2023

- Developed an immersive **augmented reality headset** out of low-cost Cardboard, Gorilla Utility Duct Tape, and JavaScript in the 2023 RythmHacks hackathon, integrating functionality for real-time object detection to assist visually impaired users
- Utilized the **ml5.js** library to implement **real-time object detection** using pre-trained machine learning models, enabling accurate identification of user-specified objects with low latency, and integrated the **p5.js** library for visual feedback overlays
- Incorporated SpeechRecognition and SpeechSynthesis libraries to create voice commands and audio feedback for a **two-way voice interaction** that allows users to control the headset seamlessly through natural language and receive verbal responses

Chess AI 🔗 | **Java, JUnit, Swing, AWT** — September 2022 - January 2023

- Developed a Java-based chess game with a **graphical user interface** (GUI), utilizing object-oriented design principles and the Swing framework, implementing features such as legal move validation, turn-based logic, and interactive piece movement
- Learned how to effectively and efficiently utilise **inheritance** for various chess pieces to inherit common properties and shared methods from a base class, thereby promoting reusability, streamlining code, and eliminating unnecessary redundancy

Piano Tiles 🔗 | **Java, JUnit, Scrum, Swing, AWT** — June 2023

- Developed a reaction game where the user needs to time their taps just right to play a virtual piano. This project was developed for a client requiring the use of **Scrum** to deliver the game within a tight deadline and with high-quality standards
- Utilized **abstract data types**, such as ArrayLists, to efficiently track the positions of randomly generated falling tile blocks in real-time, ensuring accurate updates and seamless gameplay while contributing to a very responsive user experience

Snake AI 🔗 **| Java, Swing, AWT, Dijkstra's algorithm** — March 2023

- Developed a single-player remix of a 2D snake game where you are a snake competing against an AI snake that utilises **Dijkstra's algorithm** to find the shortest path to the apple through the use of abstract data types such as HashMaps
- Designed an interactive graphical user interface (GUI) using **Java Swing** and **AWT frameworks** to visually render and manage the positions of snakes and apples within the game while also ensuring a user-friendly and efficient experience

Education

University of Waterloo — September 2024 – June 2029 (Exp.)
Bachelor of Software Engineering, Honours, Co-operative Program — Waterloo, Ontario

- Scotiabank Software Engineering Entrance Scholarship ($15, 000) — GPA: 4.0