AKASH SIDHU

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SOFTWARE DEVELOPMENT

Analytical and motivated professional with a solid academic foundation and experience in software development. Explores the capabilities of AI and AR technologies in developing applications, contributing to software development efforts. Collaborates with mentors and colleagues to develop and execute numerous software projects, involving machine learning, AI/AR, database design and creation, and game design, among others. Demonstrates a keen interest in emerging technologies for utilization in software development workflows.

CORE SKILLS & COMPETENCIES

- Game Development
- Software Development Lifecycle
- Project Management

- AI / AR Research & Development
- Web Development
- Object-Oriented Programming

- Team Collaboration
- Full-Stack Development
- Problem-Solving Skills

Technical Acumen: Java | C++ | Unity | Python | C# | HTML | CSS

JavaScript | SQL | React | Git / GitHub

ACADEMIC ACCOMPLISHMENTS

BS Computer Science | University of the Fraser Valley | Abbotsford, BC   **2020**

Relevant Coursework: Artificial Intelligence | Object-Oriented Programming | Structured Programming | Software Engineering | Database & Database Management Systems | Malicious Software & Attack Prevention | Data Structures & Algorithms | Machine Architecture | Operating Systems | Languages, Computation & Machines | Computers & Society

Sampling of Skills Acquired:

- **Artificial Intelligence:** Developed and honed the skills through learning about AI techniques such as knowledge representation and reasoning, logical inference, machine learning, and practical use of rule-based systems and fundamentals essential for Expert Systems development.

- **Object-Oriented Programming:** Obtained knowledge and essential skills in object-oriented programming and design, with practical, hands-on programming exercises emphasizing the large and complex collaboration of objects.

- **Structured Programming:** Focused on the scientific and numerical applications of implementing algorithms in a procedural programming language through programming exercises and assignments.

- **Software Engineering:** Explored object-oriented and software engineering techniques, software lifecycle, and the Unified Modelling Language (UML).

- **Database & Database Management Systems:** Learned about the theoretical foundations of database design and implementation, normalization and practical design considerations for efficient utilization of database management systems. Acquired knowledge and skills on data modeling techniques and data manipulation languages such as SQL.

- **Malicious Software & Attack Prevention:** Examined the inherent vulnerabilities in computer programs, learning about stack and buffer overflows, race conditions, file operations, string handling, inter-process communication, and injection attacks.

Key Projects Completed:

Object-Oriented Modeling & Design

Developed a Java-based arena-style battle game, monitoring player engagement and progress throughout the game via their health status, acquired points, and available resources.

ACADEMIC ACCOMPLISHMENTS (CONTINUED)

Classic Brick Breaker Game In Unity

Developed a practice game in a unity environment, utilizing engine and C# scripts to create a modified version of the classic breakout game. Built the game design with 2 levels, a start screen, and a high-score tracker.

- Integrated simple engine physics for the game's key controls, such as the balls velocity and trajectory launching. Added game interactions and deployed animations through applied programming techniques learned from self-study of the engine.

- Designed the high-score tracker to record and save previous high score, challenging players to break it and input their name once a new high score is obtained.

Minecraft Mod

Developed a Java-based modified Minecraft game, adding new items, blocks, crafting recipes, and biome generation into the game.

AI & AR Research Assistant | University of the Fraser Valley | Abbotsford, BC   **Jun. 2020 – Feb. 2021**

Overview: Contributed to software development efforts in the artificial intelligence and augmented reality disciplines, collaborating with the supervising professor on several AI and software projects. Independently performed assigned activities with AR stack in implementing motion tracking into a computer, as well as conducting presentations of project results, and time and task monitoring to ensure completion of all independent and group projects.

Selected Accomplishments:

- ✔ Experimented with how AI and AR technology could be used to help senior adults stay active and maintain a sense of well-being while socially isolating during the COVID-19 pandemic.

- ✔ Successfully developed a program that allowed doctors to record and share virtual models of exercises with their patients, utilizing Unity to translate data into a readable, open-source model, C# to allow the model to react to real-time data, and an Azure Kinect camera to obtain joint data from user movements.

- ✔ Developed an AI companion dog by training an AI model through real-word data to identify unique facial expressions and utilizing a Java API to create responses to different expressions.

Key Responsibilities:

- *AI / AR Research:* Explored and experimented with the capabilities of AI and AR technologies in developing applications, including in the field of elderly care to ensure their physical and mental well-being while socially-isolated during the pandemic.

- *Project Management:* Oversaw all phases of software development, from planning to execution of projects while providing assistance to the team to ensure the success of the project.

- *Team Collaboration:* Coordinated with the team in ensuring that project activities were completed following timelines and milestones as well as ensuring the quality of the output.

Lab Monitor | University of the Fraser Valley | Abbotsford, BC   **Dec. 2018 – Feb. 2020**

Overview: Provided pedagogical support to students within the Introduction to Programming & Object-Oriented Programming courses, tutoring them during and after classes to clarify concepts. Assisted students with their assignments, providing guidance and examples to ensure full knowledge of all necessary information. Taught students strategies for debugging code and techniques for approaching coding problems/exercises.