

Cole Chang

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EDUCATION

Western University

London, ON

Bachelor of Science in Computer Science GPA 3.7/4.0

Sept. 2018 – May 2022

Relevant Coursework Operating System, Artificial Intelligence, Computer Architecture, Data Structures and Algorithms, Object-Oriented Design and Analysis, Calculus I and II, Linear Algebra, Internet Algorithmics, Game Design

EXPERIENCE

Undergraduate Research Lead

Sept 2021 – May 2022

Western University

London, ON

- Implemented a working system displaying a psychosocial behaviour framework in a fully functional 3D environment in the Unreal Engine Metahuman system
- Developed decision tree models with different depths (5-10) to simulate NPC decision-making in various game scenarios, achieving a decision accuracy of ~80% and enhancing overall game play experience
- Collaborated with professors and fellow researchers to refine research methodologies and validate results
- Implemented an emotional response system with 20+ emotions through stimuli sources integrated in highly realistic characters
- Completed a working prototype that can be distributed for future projects

Landscaper

Summer 2017 – 2022

DC Corporation

Toronto, ON

- Improved landscape appearance for various complexes and homes for 5+ years
- Maintained an efficient work pace and ensured friendly environment customer service

PROJECTS

Ray Tracer | C++, OpenGL

- Utilized ray tracing techniques to generate visually stunning and physically accurate images with realistic lighting, shadows, and reflections
- Applied problem-solving skills to identify and resolve issues related to ray tracing, ensuring high-quality rendering results
- Proficient in implementing and optimizing ray tracing algorithms using C++ and OpenGL

Sticky Keys - 2D Platformer | C++, Jira, Git, Linux CL, bash, Git

- Developed a game that outscored the rest of the class by 23% compared to other projects
- Acted as lead project manager, facilitating the initial Jira board, user story fabrication process and biweekly coding sprints
- Troubleshoot and resolved 50+ software bugs, ensuring a stable and bug-free game experience for players
- Designed and built 5+ game levels, incorporating background art, character animations, and sound effects, resulting in an average playtime of 10 minutes per level

Publish-Subscribe System | Java, UML

- Created using UML for design and specification documents and Java for implementation
- Generated the different use cases and their respective diagrams, identified the actors and entities for this project and established the system's non-technical requirements
- Designed the components of the system with 7+ design patterns ranging from the Singleton to the Observer design patterns and then implemented these into a multi class Java program

TECHNICAL SKILLS

Languages: C++, Java, Python, C, SQL, HTML/CSS, R, Bash

Tools/Technologies: Unreal Engine, Godot, Git, GNU

Libraries/APIs: Vulkan, OpenGL, STL, Boost, pandas, NumPy, Matplotlib