

Cole Chang

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EDUCATION

Western University

London, ON

Bachelor of Science in Computer Science (Hons) 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

Landscaper

Summer 2017 – 2022

DC Corporation

Toronto, ON

- Improved landscape appearance for various complexes and homes for 5+ years
- Collaborated with team members to efficiently complete landscaping projects within deadlines, ensuring smooth workflow and timely completion of tasks.
- Provided excellent customer service by communicating with clients to understand their needs, addressing their concerns, and providing expert advice on landscaping options.

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 advanced ray tracing techniques, such as path tracing and ray-sphere intersection

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

- 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, SQL, R, Bash, Linux

Tools/Technologies: Git, Unreal Engine, GNU, Visual Studio, Jira

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