LUCIAN TRANC

4th year Computer Science Student

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Technical Skills

Languages: C#, C++, C, GLSL, Cg/HLSL, SQL, JavaScript, Python

Technologies: Unity, .NET, OpenGL, Git, xUnit, SDL2, React.js, Node.js, Bash, Makefile

Experience

Electronic Arts - Unity Software Engineer Co-op May 2022 – Aug 2022

- Worked in agile teams to develop gameplay features and systems for mobile games in Unity/C#
- Developed a multiplayer voting system for a core framework used in games with over 100 million players
- Wrote a Cg/HLSL shader for an XP bar with configurable animations, used in multiple game prototypes
- Built multiple features for a pre-production prototype (leveling system, ability shop, player profile widget)

Magnet Forensics - Software Developer Co-op Jan 2022 – April 2022

- Developed C# .NET code for digital forensics tools used by 4000+ criminal investigation agencies
- Designed a parsing system that uses regexes to extract 34% more passwords/tokens from Apple Keychain
- Added support for retrieving Firefox logins from macOS by reverse engineering the login storage patterns
- Performed QA measures like regression testing, unit testing with xUnit, and analyzing build performance

McMaster University - Game Programmer Dec 2020 – Aug 2021

- Created Hemoworld, an educational iOS game studied in a JTH publication in part of the DATCH project
- Lead the development of the game while collaborating with doctors and United Nations representatives
- Designed and Implemented gameplay logic, UI, sound, animations, and dynamic 2D lighting in Unity/C#
- Animated UI popups with text writing effects that improved readability and engagement scores by 20%

Projects

Soft-body Physics (C++, OpenGL) Jan 2022 – Aug 2022

- Programmed a simulation that mimics the behaviour of deformable objects using a spring-mass model
- Developed a physics engine that uses Hooke's Law and Euler Integration to calculate spring forces

Pathfinding and Maze Generation (C++, SDL2) Jan 2022 – May 2022

- Created a tool that visualizes the differences of pathfinding algorithms like A*, Dijkstra, BFS and DFS
- Designed a GUI that allows users to compare algorithms on user drawn and randomly generated mazes

Android & iOS Mobile Games (C#, Unity) Jun 2020 – Aug 2022

- Practiced engineering and design skills by releasing Android and iOS games (200+ players, 5.0 ratings)
  ⇒ **Heaviside:** Infinite scrolling skill game where the player dodges energy fields to achieve high scores
  ⇒ **Hover Rocket:** Physics game where the player controls the tilt of a rocket to navigate through a cave

Conway's Game of Life Multithreading (C, pthreads) Sep 2021 – Oct 2021

- Coded the Game of Life using multithreading to compare improvements with different thread counts
- Decreased execution time by 240% using a 4-thread data parallel approach compared to a serial solution

Billiards Game (C++, OpenGL) May 2021 – Aug 2021

- Developed a Billiards game with realistic collision physics, and a pool cue with shot intensity mechanics
- Learned to work with shaders and OpenGL's rendering pipeline to draw lines, circles, and textures

Education

University of Guelph - Bachelor of Computing Honours, Computer Science Sep 2018 – Dec 2023

- 85.7% cumulative GPA - Minor in Mathematics - Dean's Honour List
- Working as an Undergraduate Teaching Assistant for Intro to Programming