

Karl Wesley Hutchinson

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Talented MSc graduate with strong C++ programming and maths skills with a passion for computer science and software development. A quick learner, a determined problem solver and a excellent group worker. Looking for a challenging programming role that will allow me to expand and refine my skills.

Technical Skills

Languages: C++, C, GLSL, HLSL, x86 asm, Haskell, Fortran

APIs: OpenGL (2 to 4), DirectX9, OpenMP, TBB.

Platforms: VxWorks, Android, Sony PS3, Microsoft Xbox One, Microsoft Kinect, Nintendo Gamecube.

Environments: MS Visual Studio 2008 to 2017, GDB (Android).

VCS & Development: Agile, Scrum, Perforce, SVN, GIT, Mantis, Trello, Jira.

Computer Science: data structures, algorithms, algorithmic complexity, object orientated design, parallel programming, artificial intelligence, 3D mathematics.

Personal: quick learner, determined problem solver, strong verbal and written communication, excellent team member, strong desire to create high quality code.

Career

Software Engineer, Leonardo-Finmeccanica, Feb 2017 - present

- Member of the Advanced Research team, tasked with topics such as: meta-modeling, graph databases, communicating sequential processes, event-B, software architectures, domain specific languages, and more.
- Prototype creation: ECOA property value parser, service oriented framework, cross-platform communication, flight trial scenario via SimDis and AirSim.
- Member of the CAPTOR-E radar team, providing development on radar functionality.
- Prototype creation: tools for CAPTOR-E radar.

Programmer, Frontier Developments, Jan 2015 – Jul 2015

- Member of the tools team, providing development, diagnostic and runtime tools to application teams across the company. These include software delivery and update tools for end users, a physics debugger, a state machine debugger, particle editor, among others.
- Jointly responsible for maintaining and extending existing tools, discussing needs with application developers and developing new features.
- Collaborating with application teams, developing and integrating application-side code to support tool features.

Graduate Programmer, Team 17 Digital, Mar 2013 – Dec 2014

- Member of The Escapists team on Xbox One for two months. Implemented all in game items, all interactive objects and save game.
- Winner of GB Game Jam 2014.
- Lead on Worms 3 Android for eight months. Implemented Google API integration, Amazon API integration, decoupled API usage in order to create simple build process, reworked C++ JNI use and created cross platform save game.
- Lead on short prototype project to create a game concept on iOS.
- Member of Worms 3 iOS team for eight months. Worked on client side network code, user interface creation, save game and save game encryption.

Education

MSc Games Programming (2.1), University of Hull, Sept 2011 – Sept 2012

Intense practical course spanning three semesters. Solely aimed at high caliber C++ and graphics programming with an attention to detail. Skills obtained: further C++, hardware based optimisations, OO design, multithreading, further OpenGL, GLSL, HLSL, Ray Tracing, PS3 architecture and efficient use.

Modules include C++ Programming and Design, Simulation and Concurrency, Real-Time Graphics, Advanced Rendering and AI for Games, Games Programming Dissertation, Game Development Architecture, Development Project.

Projects include networked physics simulation, simulated snow globe using OpenGL and GLSL, HLSL effects, AI controller for Pacman, real-time ray tracer on the PlayStation 3, designed and created a game engine, 48 hour assembler shaders and created a cross platform (PS3, PC) husky racing game in a group.

BSc Computer Science with games programming (2.1), University of Hull, 2008 – 2011

Challenging practical course spanning three years, increasing work load and complexity with each year. The course focused on aspects of computer science with additional game related areas such as C++, graphics, artificial intelligence, software architecture and networking.

First year covers fundamental aspects of the subject, including software engineering skills, HCI, mathematics, computer hardware architectures, operating systems and professional skills for computer science.

Second year specialises in games development while learning more advanced computer science skills. In addition to studying the fundamentals of the software engineering process, the course includes software design, systems analysis, artificial intelligence, C++, 2D computer graphics, networking technologies and games architectures.

Third year is the most focused and challenging, intended to exposing you to the expertise and experience that is required for entering the industry. Areas covered are C++, games architecture, commercial games development (group project), advanced 3D graphics, console development, concurrency, neural and emergent technology, distributed systems, visualisation and dissertation.

Most notable projects include a Rubik's cube tutorial program, a game created in a group, advanced shader effects, an artificial neural net which learns to shoot targets, a shooting gallery game and a distributed Traveling Salesman Problem solver.

Hobbies and Interests

Current personal project is an in-memory graph database, designed for querying, planned to feature a query language. Previous personal projects: STL-like container library with a focus on performance, n-dimensional GO game, raytracer, pathtracer, and Tetris clone where the player controls two games simultaneously. See my website for details.

Personal research in areas of graph databases and their applications, efficient containers and disassembling programs to learn about the compiler.

Interested in programming languages such as C++17, C++20, Fortran, APL, Haskell, also interested in esoteric languages such as Befunge and Fractran.

Activities such as swimming, table tennis, juggling (balls, clubs, rings), playing the guitar, puzzle solving, strategy games (GO, Chess), playing video games such as: Metal Gear Solid, Killzone, Gran Turismo, Dark Souls / Bloodborne, DOOM, From The Depths, Factorio, Kerbal Space Program, TIS-100, SHENZEN-IO, MHRD etc.

Referees

Available upon request.