Nick Houghton | Resumé

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Profile

Experienced software developer with advanced knowledge of rendering techniques and tools, 3D mathematics, game engine design, hardware systems, and operating systems. Skilled multi-language developer. Familiar with advanced programming techniques, development strategies and unit testing. Proven research experience. Proven experience with team leadership roles. Skilled in designing, developing, and maintaining software systems with a focus on building efficient and reliable products.

Key Competencies

- Rendering APIs OpenGL and WebGL.
- Shader development with GLSL and HLSL.
- Modern C++, Javascript and Java. Additionally familiar with C#, SQL, HTML, CSS, and more.
- Game development experience with Unreal Engine 4 and Unity 5.
- Scalable and distributed system development.
- Familiar with asset development tools such as Blender.
- Experienced with Agile methodologies.
- Experience with version control using both *Subversion* and *Git*.
- Considerable experience with customer relations in industrial settings.
- Team leader.
- Multiple academic publications.
- Passion for continued learning and skill development.
- Positive attitude.
- Extensive first-aid training.

Experience

JibJab Studios **Los Angeles CA**

Software Engineer/Developer *2017–Current*

Developed and maintained the rendering tools and libraries for web and mobile-app based animations. Rendered animation assets. Interfaced with web and mobile-app technologies.

- Used OpenGL and WebGL to develop rendering and animation tools.
- Worked with full-stack web technologies such as EmberJS and Ruby on Rails to integrate rendering tools.
- Worked with mobile-app languages Objective-C and Swift to integrate rendering tools.
- Rebuilt legacy mass gif-renderer in Java.
- Became familliar with legacy technologies such as Flash in order to update and replace.
- Used Amazon cloud services.
- Interfaced with artistic and technological teams to develop robust and reliable applications.

Ocean Networks Canada **Victoria B.C.**

Software Engineer/Developer *2016–2017*

Developed and maintained the data management and acquisition service (DMAS). This service ingests over 200 Terabytes of information a day while performing quality assurance analysis, data product generation, management of the large device network and hosting a web-based user interface.

- Developed *RESTful* web services using Java and Hibernate.
- Designed and developed user-interface applications with Javascript, HTML and CSS.
- Adapted database designs for continually changing models. Used SQL with *Oracle* and CQL with *Cassandra*.
- Project and team leader.
- Performance testing using *JMeter*.
- Employed version control with *Subversion*.
- Employed agile methodologies using the *Jira* ticketing system.

University of Victoria **Victoria B.C.**

Hardware Security Fellow *2015–2016*

Member of the Uvic hardware security fellowship. Studied the existence, characteristics, and impact of maliciously modified integrated circuits. Developed applications, tools, and techniques to combat industrial or military sabotage of computer hardware.

- Developed an application which can automatically detect and analyze hardware trojans in Field-programmable gate-arrays using Java and the *RapidSmith* library.
- Assisted in the development of a comprehensive topology to describe and organize characteristics of hardware trojans.
- Developed a web-based series of trojan analysis tools using ASP.NET and C#.
- Published four academic papers.

University of Victoria **Victoria B.C.**

Teaching Assistant *2015–2015*

Instructed and managed a laboratory section of Uvic Engineering's Computer Engineering 255: Computer Architecture class. The laboratories focused on exposing students to assembly programming, embedded system architecture and algorithm design.

- Became intimately familiar with embedded C programming, the *ARM* assembler language, low-level algorithm design and implementation, and platform architecture.
- Debug student code and troubleshot classroom equipment.
- Gave instructional lectures.
- Marked assignments.
- Recorded student grades.

University of Victoria **Victoria B.C.**

Research Assistant *2014–2015*

Selected to be a member of the cryptographic research fellowship under the supervision of Dr. Fayez Gebali. Responsible for the proof-of-concept C++ implementation of an experimental homomorphic encryption algorithm.

- Became intimately familiar with the practices of encryption, homomorphic algorithms and discrete mathematics.
- Designed and developed a proof-of-concept implementation of experimental algorithm using C++.
- Employed the *WestGrid* super-computer network to execute large, resource demanding experiments.
- Designed and developed a simple client-server system which encrypted/decrypted messages, performed performance analysis, and managed message transmission.
- Co-wrote and published an academic paper on findings.

Education

University of Victoria **Victoria**
Masters of Applied Science, 3.0 GPA *2015–2016*

- Wrote and published a thesis.
- Invented an application which automatically detects hardware trojan viruses in field-programmable gate-arrays. Written in Java.
- Three published academic papers. One pending.
- Gave a presentation on hardware trojans at the *International Workshop on Information Security, Assurance, and Trust* (I-SAT 2016).

University of Victoria **Victoria**
Bachelor of Engineering, Computer Engineering *2011–2015*

- Graduated with both the *Networks, Security and Privacy* and the *Digital and Embedded Systems* specialties.
- Won third place in the IEEE Student Technical Design Competition.

Continuing Education and Personal Projects

Dead-Earth Development Series **Online**
gameinstitute.com *2017*

- First person shooter game using Unity 5 with C#.
- AI and game engine development.
- Shader development.

Unreal Engine Developer Course **Online**
Udemy.com *2016*

- Completed three 3D games: Building Escape, Battle Tank, and Testing Grounds.
- Became intimately familiar Unreal Engine 4 developer interface.
- Studied material development and design.
- Familiar with both C++ and Blueprint development methodologies.

Personal Project
Unity 5: Jump-Ship *2016*

- Created a 2D space shooter game.
- Created sprites.
- Developed game mechanics and enemy AI in C#.
- Developed user-interface using the canvas system.
- Created simple explosion animations.

Various Personal Projects
OpenGL: Various Projects using C++ *2015–2016*

- Created a first person shooter called 'Zombie-Hunt'.
- Created a simulation of globular physics spurting from a fountain which employed an implicit mesher.
- Created a 2D simulation of a pendulum-cart system using Lagrangian Mechanics.

References

Dr. Brian Wyvill

- Prof. of Computer Science.
- University of Victoria
- Email: bwyvill@uvic.ca
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Dr. Fayez Gebali

- Prof. of Electrical and Computer Engineering.
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