HR Manager   December 8, 2016
Pixar

Dear Sir or Madam,

I would like to submit express my interest in the Software Engineer (Simulation) position advertised.

I have steered my education and career in the path of gaining the most applicable skills possible precisely for a position such as this. During the completion of my masters I learned to work with OpenGL and quickly became hooked. The world of animation has quickly become a serious fascination to me. I worked closely with Dr. Brian Wyvill whose research is focused on animation. Since he taught me the 12 principles of animation, I see their application vividly. To gain experience with their effect I made a quick animation about a toaster. Though it was short it was clear to me how their use can bring something so mundane as a toaster to life. It inspired me to do anything I could to make animation the focus of my career.

C++ has always been my favorite programming language. Unlike most higher level languages I feel like I have a much better understanding of what the code is actually doing under the hood. It is the language I have had the most formal training with; I was instructed in modern techniques and coding practices during a multi-resolution signal processing class during my masters. This knowledge I have applied to each of my OpenGL projects. I made a basic first person shooter game which I called 'Zombie Hunt'. It involved basic animations using blender, AI programming and game-engine mechanics. During my studies with Dr. Wyvill I was introduced to more complex simulation techniques. Using Lagrangian mechanics, quaternions and spline paths I created a globular physics simulation. I imported a fountain object and had it spray out droplets of a liquid. These droplets were subject to attraction and repulsion forces. Tweaking the values could modify the behavior to look like water, putty, even powder. I have made videos demonstrating these projects, a URL to view them is available upon request.

I have excellent personal skills. I am an experienced team leader, a natural independent thinker, and a concise communicator. I believe that I will make a strong candidate for this position; I wish to help Pixar create breathtaking visual experiences. Thank you for your time and consideration.

Yours faithfully,

Nick Houghton

Attached: curriculum vitæ

Nick Houghton
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Nicholas Houghton
Curriculum vitae

WORK EXPERIENCE

MAY 2016 - CURRENT

Ocean Networks Canada
Software Developer

Designed, developed, and maintained software for acquiring, publishing and processing large-scale oceanic data. Used Java, Javascript, CSS, HTML, and SQL; frequently used performance analysis tools such as Grafana and JMeter.

SEPTEMBER 2015 - DECEMBER 2015

Univeristy of Victoria - ECE Department
Teaching Assitant

CENG 255, Computer Architecture: Responsible for student learning in a hands on lab environment. Required to have intimate knowledge of the STM32 32-bit ARM MCU use in class as well as the Eclipse IDE, the C programming language and ARM assembly programming.

SEPTEMBER 2014 - MAY 2015

Univeristy of Victoria - ECE Department
Junior Research Assistant

Responsible for the software implementation of a experimental fully-homomorphic encryption algorithm using the C++ programming language and contributed to the algorithm design and conception. Responsible for testing management and execution on the *Westgrid-Research Computing* super computer servers. Designed and built a graphical user interface for an experimental run-time operating system using the Swing Jframe.

JANUARY 2014 DECEMBER 2014

Saanich Commonwealth Place - Victoria B.C.
Aquatic Team Leader / Lifeguard

Responsible for the direct supervision and management of lifeguards and swim instructors. Responsible for facility and equipment management. Performed incident management, quality of first-aid assessment and supervision, emergency medical services communication. Responsible for facility inter-departmental co-operation and communication.

SKILLS

SOFTWARE	C++, OpenGL, GLSL, Blender, Java, JavaScript, HTML, CSS, Ruby on Rails, Linux, C, C#, Git, SVN
ACADEMIC	Lagrangian Mechanics, Quaternions, Splines, Integrators, Calculus, Physics, Academic Writing, Research, Public Speaking
PERSONAL	*TopCoder* Competitive Programming, First-Aid, Music

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EDUCATION

2015-2016	**Computer Engineer** M.ASc *University of Victoria*	
2010-2015	**Computer Engineer** B.ENG *University of Victoria*	

PROJECTS

2016	**Automated Hardware Trojan Detector** *Java, Java-Swing, RapidSmith*
2016	**Globules - Physical System Simulation** *C++, OpenGL 3, GLSL*
2015	**Zombiehunt - Video Game** *C++, OpenGL 2, Blender*
2015	**Hardware Trojan System** *HTML, C#, CSS, JS*
2015	**Day Trading - Distributed System** *Java, XML*
2015	**Homomorphic Encryption** *C++. OpenMP*

REFERENCES

DR. BRIAN WYVILL	Computer Science University of Victoria Email: bwyvill@uvic.ca Phone:250 472 5760
DR. FAYEZ GEBALI	Electrical and Computer Engineering University of Victoria Email: Fayez@ece.uvic.ca Phone: 250 721 6036

NOTES

- Visit my youtube channel to see videos on work I have done with OpenGL (url upon request).

- More references available on request.