Drew Harris

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Education

Bachelor of Engineering - Electrical (digital signal processing specialization) **2008-2013**
University of Victoria, Victoria, BC

Work Experience

exfm, Server-side JavaScript Developer **2012.09 to 2012.12**

- Worked both independently and with other developers to develop distributed node.js back-end services for a music streaming and discovery web application
- Interacted with NoSQL databases DynamoDB, MongoDB and LevelDB using both node.js and Python
- Wrote and maintained Python scripts to handle automated service deployment on Amazon Web Services with Amazon CloudFormation and other Amazon cloud services
- Developed a C++/JavaScript application in Qt to play HTML5 audio streams on embedded devices

Alcatel-Lucent, Java Software Developer **2012.01 to 2012.05**

- Developed Java web software to interact with network infastructure hardware
- Developed and deployed an internal time-tracking PHP web application in a Solaris environment
- Worked on a team of several developers to fix high-priority bugs in customer projects

UVic High Energy Physics (HEP) Group, Cloud Computing Developer **2010.09 to 2010.12**

- Developed Python software and BASH scripts to manage virtual machine (VM) images and deploy VMs in a High Energy Physics distributed computing environment.
- Developed a Python client to manage VM images and administrate users and groups on a VM repository system developed by the HEP Group (Repoman).

UVic Computer Help Desk, Hardware Analyst **2009.05 to present**

- Assisted clients with computer problems ranging from email and network problems to hardware diagnostic and repair.
- Deployed workstations for faculty and staff.

Technical Skills

Programming

- Experience in JavaScript, Python, HTML5, C++, Java, PHP, and MATLAB
- Experience developing and deploying highly scalable back-end services (node.js and Python) to efficiently handle heavy network traffic and interact with SQL and NoSQL databases
- Front-end web experience using jQuery and Backbone.js to create efficient and responsive web applications using HTML5 technologies such as WebSockets and WebAudio
- Experience developing desktop and mobile applications using C++ (Qt, openFrameworks) and JavaScript (Phonegap)
- Experience developing and maintaining Python web applications with frameworks such as Flask, Web.py and Django
- Experience writing and debugging large-scale Java web applications in a network infrastructure environment using the Spring WebFlow framework
- Experience using C++ and Arduino microcontrollers to interact with physical controllers and light apparatus (synchronized to music software using MIDI)

- Experience with versioning systems Git and Subversion and Linux command line tools including VIM

Web Services

- Experience managing and interacting with many Amazon Web Services (AWS) services via node.js and Python libraries, including EC2, DynamoDB, Route53, S3, CloudFront and CloudFormation
- Experience launching and scaling EC2 virtual machines with Elastic Load Balancers
- Experience designing tables and making efficient queries to both SQL and NoSQL databases

Circuit Design and Implementation

- Hands-on experience programming and debugging microcontrollers and building electronic circuits
- Built an Arduino-based live music controller using multiplexers to interpret and transmit data to a computer in real-time
- Built an array of 100 high-power LEDs driven through PWM by a microcontroller synchronized to a computer

Lab Skills

- Experience building logic and memory circuits and using laboratory equipment such as oscilloscopes and logic analyzers
- Experience designing, implementing and debugging linear electronic circuits

Transferrable Skills

Teamwork

- Experience working in small teams in both small and large companies to solve problems from scaling to large-scale network infrastructure deployment. This required both independent work and cooperation to write code and solve problems quickly.

Problem Solving

- Working with new languages and tools such as node.js and Amazon DynamoDB required extensive debugging and test-driven development to solved complex problems.

Resourceful

- Experience researching online resources such as StackOverflow and API documentation to solve problems and learn about languages, tools and cloud deployment services.

Efficient

- Experience writing lightweight, scalable network applications and committing functional code regularly, utilizing personal and online resources to solve problems efficiently

Communication

- Working with a small team of developers at a start-up company required regular communication between all developers and being able to ask for help from coworkers and superiors. This included tracking projects (using Pivotal Tracker and GitHub) and delivering progress reports at regular meetings to ensure projects stay on track.

Projects

sharedtapes http://sharedtapes.com

Real-time playlist creation and collaboration tool written in JavaScript with node.js, Backbone.js and PostgreSQL. Mixtapes uses the WebSocket protocol to synchronize listeners and uses the exfm public API to find playable audio streams.

Cloudpower http://github.com/cloudpower

Home power management and monitoring solution, allowing remote control and monitoring of connected appliances. The Cloudpower device implements a Raspberry Pi running a node.js server, connected via WebSocket to a remote API server running a PostgreSQL database.

Light Array and Virtual Light Array(ViLA) http://drewbharris.com/projects/lightarray

Electronic light installation built on an Arduino and a C++ desktop application synchronized with Ableton Live via serial over MIDI.
iPhone and iPad Light Array simulator, synchronizes with Ableton Live using UDP broadcast packets over a wireless network (written in C++ with openFrameworks).

Journal http://drewbharris.com/projects/journal

Collaborative photography and media blog project built with the Django Python framework

Germany Germany http://grmnygrmny.com

Independent electronic music project (five records released), toured Europe during July 2011.

Awards

Undergraduate Student Research Award 2010.09 to 2010.12

Natural Sciences and Engineering Research Council of Canada (NSERC)

Engineering Dean's Entrance Award 2008

University of Victoria

Publications

A.Charbonneau, , A. Agarwal, M. Anderson, P Armstrong, K Fransham, I Gable, D Harris, R Impey, C Leavett-Brown, M Paterson, D Penfold-Brown, W Podaima, R.J.Sobie, M Vliet. "**Data Intensive High Energy Physics Analysis in a Distributed Cloud**," in *Proceedings of the 2011 HPCS Conference*. June 2011.

M Vliet, A. Agarwal, M. Anderson, P Armstrong, A Charbonneau, K Fransham, I Gable, D Harris, R Impey, C Leavett-Brown, M Paterson, W Podaima. "**Repoman: A Simple RESTful X.509 Virtual Machine Image Repository**," in *Proceedings of the International Symposium on Grids & Clouds, Taipei*. March 2011.

References

Available upon request