

Darrell Williams

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About

Graduated from the University of Waterloo's Systems Design Engineering program. Experience in Agile team environments, analytics, complex problem solving, client interaction and solutions. Experience in image and signal processing, circuits and microcontrollers, control systems, systems modelling, data structures, neural networks, and optimization. Skilled in web page development and the .Net framework in C#. Diverse corporate experience including government, banking, and technology in both team and independent work environments. Excelling in creative and client driven solutions, attention to detail, oral and written communications, and disciplined documentation. Fluent in English and in French. Recent development: simulating herding behaviour in C# (Unity3D), 3D modeling, and 3D printing.

Skills

- Programming Languages: C#, C++, C, Python, MATLAB, HTML, CSS, JS
- Libraries/Frameworks: .Net Core, ASP.NET, LINQ, Razer, numpy, matplotlib, nengo, Simulink, jQuery, Angular, Bootstrap, DataTables
- Other: Visual Studio, SVN, Jira, Git, Arduino, Keil uVision4, Softplan, Google Sketchup, SolidWorks, ArcGIS, eQuest, SharePoint, Unity

Co-op Experience

Software Developer, Office of the Auditor General of Canada, Ottawa, ON May - Aug. 2018 and
HTML, CSS, JS, jQuery, Bootstrap, DataTables, Angular, C#, ASP.NET, MVC Sept. - Dec. 2016

- Part of multiple Agile software development project teams creating web tools for office use
- Identified underlying issues to reported problems
- Communicated with other programmers and end users
- Modified server and front end code to improve efficiency
- Developed a number of web pages given a strict design and data

Software Developer, Nikon Metrology, Cambridge, ON June - Aug. 2015
Windows Forms Application in C#, DLLs, Multithreading, Atlassian JIRA, SVN

- Redesigned a critical legacy C# Windows Forms Application, used in production by a supplier
- Required deciphering poorly maintained code and converting to professional quality
- Back-and-forth interaction with end user
- Modified graphing tool with .Net 2D graphics (GDI+)
- Focus on writing more efficient, clean, readable code; developed good programming practices
- Reported progress and issues in weekly meetings and JIRA; worked with minimal supervision

IT Analyst, TD Bank Group, Mississauga, ON Sept. - Dec. 2014
HTML, CSS, Automation, SharePoint, InfoPath

- Managed intake requests and updated maintenance records
- Transferred intake request instructions over to wiki pages on the company's SharePoint site (in HTML/CSS) where it would be more easily accessible to employees
- Created a way for data to automatically populate from SharePoint lists to InfoPath forms and Excel documents using SharePoint features

- Created visual walk-through instruction manual for optimization applied

Technical Assistant, University of Waterloo Use-IT Lab, Waterloo, ON

Jan. - Apr. 2014

Ergonomics, C++, C#, WinForms, external libraries

- Proposed and implemented algorithm to improve resulting project quality and reduce steps
- Created a C# Windows Forms Application to interpret the output of a Java program
- Redeveloped above Java program in C# using an event-driven library
- Created visual instruction manuals for the tools developed

Education

University of Waterloo, Waterloo, ON

2013 - 2019

Bachelor of Applied Science (BASc) in Honours **Systems Design Engineering** Co-operative Program

Notable courses

- | | | |
|------------------------------|--------------------------|--------------------|
| ○ Software design | ○ Public speaking | ○ Control systems |
| ○ Image processing | ○ Operating systems | ○ System modelling |
| ○ Energy efficiency analysis | ○ Machine intelligence | ○ Neural networks |
| ○ Pattern recognition | ○ Numerical optimization | ○ Circuits |

University Projects

Flexible Recipe Search for Diets, Capstone

4A - 4B

- Application of iterative design process in the development of a solution (using Python)
- Usage of optimization as learned in prior classes
- Pulled data from USDA Food Composition Databases

House Energy Audit, Building Energy Analysis

4B

- Gathered recent house utility bill information over a 2-year period
- Estimated the energy usage of impactful devices
- Analysed and compared energy usage patterns over the year using a number of graphs

Working Memory Final Project, Simulating Neurobiological Systems

4A

- Simulated memory retention of a position in 2D space in Rhesus monkeys using a realistic model for neurons and interneuronal connections learned in class
- Experimented with variables (connections between neurons, nodes, quantities of neurons) to obtain a more desirable output

Noteworthy, Term Project

3B

- Created a software capable of converting a recording into notes on a music sheet as a group
- Drew music sheet and notes with an HTML SVG element and Javascript
- Used D3.js library to facilitate creation of SVG drawings
- Optimized detected notes with machine learning

Sound Frequency Measurement Summative, Digital Systems Lab

1B

- Constructed a circuit to light up different LEDs to match notes played in a song
- Using the output from an audio jack, split the song's AC signal into 3 ranges of frequency using second-order low-pass, high-pass, and band-pass active filters
- Amplified filtered signals to light up the LEDs