

Brian W. Duff

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SUMMARY	Motivated software engineer and dedicated team member seeking to solve complex problems using self-reliance, versatility, and research experience developed over 4 years at a startup.	
EDUCATION	Carnegie Mellon University , Pittsburgh, Pennsylvania	Aug 2009 – Dec 2012
	<ul style="list-style-type: none">▪ B.S. in Electrical and Computer Engineering<ul style="list-style-type: none">• Cumulative GPA: 3.6 / 4.0	
EXPERIENCE	Senior Software Engineer, SpiralGen, Inc.	Jan 2013 – Jun 2017
	Researched, developed, and commercialized the high-performance code-generation tool Spiral.	
	<ul style="list-style-type: none">▪ DARPA HACMS (High-Assurance Cyber Military Systems)<ul style="list-style-type: none">• Researched and developed formally-verified software components for cyber-physical systems.• Worked with air and ground, manual and autonomous robots and virtual robots.• Released a commercial version of Spiral at IEEE High Performance Extreme Computing Conference.▪ Code generation toolbox for ADAS (Advanced Driver-Assistance Systems)<ul style="list-style-type: none">• Developed a prototype Matlab/Simulink toolbox interface for ADAS control code generation.▪ DARPA BRASS (Building Resource Adaptive Software Systems)<ul style="list-style-type: none">• Developed software which can autonomously adapt to changes in hardware or libraries.• Tested resource adaptation with synthetic apperture radar (SAR) test case.▪ High Performance FFT library for Argonne National Laboratory (ANL)<ul style="list-style-type: none">• Created, using Spiral, a library of high-performance threaded batch FFTs for use on a supercomputer.▪ Spiral Cloud Interface<ul style="list-style-type: none">• Developed an online code-generation system using Codebox, Amazon Web Services, and Docker.	
	Summer Intern, General Motors Fuel Cell Activities	Summers 2011, 2012
	<ul style="list-style-type: none">▪ Operated as interim software build manager with software design team using Simulink code generation.▪ Researched and applied signal processing techniques to hydrogen fuel cells, scripted analysis in Matlab/Simulink.	
PUBLICATIONS	B. Duff, D. Popovici, T. M. Low, J. Larkin, M. Franusich, F. Franchetti, “Quantifying Performance Improvements of Ported Software Using Spiral,” <i>2017 IEEE High Performance Extreme Computing Conference Proceedings</i>	
	DOE SBIR Phase I Proposal (awarded) coauthor, “Security Hardened Cyber Components for Nuclear Power Plants”	
PRESENTATIONS	B. Duff (speaker), J. Larkin, M. Franusich, F. Franchetti, “Automatic Generation of 3D FFTs,” <i>2014 Oil & Gas HPC Workshop</i>	
	Demonstration of CMU team DARPA HACMS capabilities to Pentagon officials, <i>DARPA I2O Demo Day 2014</i>	
LANGUAGES	C, C++, Java, Python, Matlab, Simulink, JavaScript, GAP	
TECHNICAL SKILLS	Embedded Systems, High Performance Computing (HPC), Git, Subversion, Linux, Windows, Technical Writing, Controls, Signal Processing, Eclipse RCP, Make, NSIS	