David **Skudra**

Software Engineer · Computer Science Undergraduate

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The best way to predict the future is to invent it - Alan Kay

Education

University of Waterloo
Waterloo, Ontario

Bachelor's Degree, Computer Science
Sept. 2014 - Expected May 2019

- CS Major GPA: 3.21/4.00

Experience

NASA Ames Research Center
Mountain View, California

Software Engineering Intern
Jan. 2018 - April 2018

- Parallelized a C++ lithium-ion battery prognostic model using OpenMP and CUDA
- Executed battery prognostic model on the NASA Pleiades supercomputer, yielding a 1218.27% performance increase with OpenMP and a 905.46% performance increase with CUDA
- Improved Monte Carlo prediction performance in teams' C++ prognostic framework using OpenMP
- Monte Carlo predictor saw a performance increase of 234.2% on a NVIDIA Jetson, 221.9% on a Raspberry Pi
- Published a technical memorandum on GPU/CPU hybrid programming strategies (see below)

Ciena
Ottawa, Ontario

Software Design Intern
Sept. 2016 - Aug. 2017

- Developed the Automation Framework for Ciena Licensing software using TCL, Python and Atlassian Bamboo
- Led a presentation for the Licensing team on how to continue development on the Automation Framework; presentation was recorded and shared company-wide as an example on how to use Ciena's automation stack
- Set up a proxy service to allow simulated network elements on workstations to reach external license servers
- Eliminated a max 98 second delay from a high priority VxWorks task in C, caused by lengthy application callbacks

Publications & Research

Resource Intelligent Compilation for GPU Enabled Apps.
NASA STI

David J. Skudra, George E. Gorospe
June 2018

- Described a set of design strategies for NASA engineers to utilize in future GPU/CPU enabled applications
- Defined methods to dynamically generate code at compile time, based on availability of GPU hardware
- Created Resource Intelligent Compilation paradigm compliant sample code using CUDA & C++

Skills

Languages C++, Python, C, CUDA, OpenMP, TCL, Scheme, Bash, SQL
Tools JIRA, Bamboo, Insight, GDB, CMake, Git, Perforce
Platforms RHEL, Ubuntu, macOS

Projects

Pious Academic
GitHub Repository

343 Industries Public Library
Nov. 2015

- Created a public library in Python for usage with the Halo 5 Application Program Interface (API)
- Designed functions for parsing JSON output for user information from API endpoints, using GET requests
- Implemented a rate limiting class using a double-ended queue to stop API keys from getting blacklisted
- Repository available @ https://github.com/David4Danger/16807-Pious-Academic