Neil Dickson

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http://www.neildickson.com/

EDUCATION

Bachelor of Computer Science, Software and Computing Stream, Minor in Mathematics, Co-op Option

Carleton University 2004-Present

- 4th-year, 11.97 of 12.00 CGPA, Corresponding letter grade: A^+
- Nortel Networks Scholarship ($6,000 × 4 years), Tracey and Siva Ananmalay Scholarship in Computer Science ($1,100), John R. Pugh Scholarship ($1,150), Derek Rymerson Memorial Scholarship ($1,500)
- Graduation Date: April 2009

HIGHLIGHTS OF QUALITIES

- Enthusiastic, creative, and hard-working for difficult challenges and projects
- Experience with Assembly Language (mostly x86), Java, C/C++, PHP, Perl, XML, etc.
- Experience with IDE development, operating system programming, speed optimization, NP-hard problem solving, reverse-engineering, documentation and specifications, 3D rasterization and ray-tracing, web development, game programming

WORK EXPERIENCE

Software Development Engineer May-Jul. 2008
Microsoft, Redmond, Washington

- Developing a conversion library from Works Database format to Excel format

Embedded Systems Software Developer Jan.-Apr. 2008
Research In Motion, Waterloo, Ontario

- Created a system to inject profiling code into the Bluetooth library source to gain detailed timing information
- Performed Bluetooth throughput testing on BlackBerry devices

Quantum Application Designer (official title: Software Co-op Student) May-Aug. 2007
D-Wave Systems Inc., Burnaby, British Columbia

- Designed a wide variety of potential applications that could make use of a quantum computer that can find approximate solutions to NP-hard problems
- Partly implemented one such potential application
- Worked for the C.T.O. on several small projects, most of an investigatory nature
- Details are currently confidential

Quantum Application Programmer (official title: Research Assistant) May-Dec. 2006
D-Wave Systems Inc., Burnaby, British Columbia

- Designed and implemented a molecular substructure comparison program that was one of the three applications in the world's first public demonstration (February 13th, 2007) of a quantum computer being used for practical purposes
- Designed and implemented, with a team, a Java & C software framework allowing problems of clients to be solved on quantum devices
- Designed and implemented algorithms for NP-hard combinatorial optimization problems, especially Maximum Independent Set (same as Max Clique & Min Vertex Cover) and Ising model energy minimization (same as Weighted Max-2-SAT & Binary Quadratic Programming)

CANDU Reactor Control Code Reverse-Engineer (official title: Student) May-Aug. 2005
Atomic Energy of Canada Limited, Chalk River, Ontario

- Created program specifications from Varian assembly source listings of 9 "Classic" Digital Control Computer (DCC) annunciation system programs, and partial specifications for 3 fuel handling system programs, totalling well over 20,000 lines of listing
- Wrote a plug-in on own time to configure an assembly language editor, greatly improving code readability for the DCC Replacement project; the free editor is now used on the project, replacing the previous editor that cost annually per person

APPLIED PROJECTS

Integrated Development Environment Programming (PwnIDE, pronounced "Own IDE")

- (see http://www.neildickson.com/ide/)
- Fully-integrated documentation as a key focus, to aid in PwnOS development
- Designed for the flexibility to support many languages, but current releases focus on x86 assembly language
- Supports auto-completion, refactoring, and error-detection

Operating System Programming (PwnOS, pronounced "Own OS")

- (see http://www.neildickson.com/os/)
- Boot process and kernel development and optimization
- Thread scheduling and memory management programming
- Device I/O management and configuration: ATA, APIC, ACPI, PS/2 mouse & keyboard
- Filesystem programming: NTFS, FAT
- Design of customizable user interfaces

EXTRA-CURRICULAR ACTIVITIES

Carleton Chamber Music Ensemble: Cellist and Horn Player 2006-Present

- Performed 5 pieces of small ensemble music from Baroque to 20th Century eras in April 2007 on both cello and French horn
- Performed 7 pieces on cello in April 2006

COURSES

Title	Code	Term	Grade
Operating Systems	COMP 3000	Fall 2007	6.0/6.0 (A^+)
Programming Paradigms	COMP 3007	Fall 2007	6.0/6.0 (A^+)
Mobile Robot Programming	COMP 4807	Fall 2007	6.0/6.0 (A^+)
Open Source Software Engineering	COMP 4900	Fall 2007	6.0/6.0 (A^+)
Classical Music History	MUSI 1001	Fall 2007	6.0/6.0 (A^+)
Object-Oriented Software Engineering	COMP 3004	Winter 2007	6.0/6.0 (A^+)
Database Management Systems	COMP 3005	Winter 2007	6.0/6.0 (A^+)
Design & Analysis of Algorithms I	COMP 3804	Winter 2007	6.0/6.0 (A^+)
Abstract Algebra I	MATH 2108	Winter 2007	6.0/6.0 (A^+)
Programming in C++	COMP 2404	Winter 2006	6.0/6.0 (A^+)
Computer Organization	COMP 2003	Winter 2006	6.0/6.0 (A^+)
Linear Algebra II	MATH 2107	Winter 2006	6.0/6.0 (A^+)
Probability Models	STAT 2605	Winter 2006	6.0/6.0 (A^+)
Theoretical Studies II	MUSI 1702	Winter 2006	6.0/6.0 (A^+)
Abstract Data Types and Algorithms	COMP 2402	Fall 2005	6.0/6.0 (A^+)
Discrete Structures II	COMP 2805	Fall 2005	6.0/6.0 (A^+)
Internet Application Programming	COMP 2405	Fall 2005	6.0/6.0 (A^+)
Calculus II	MATH 2007	Fall 2005	6.0/6.0 (A^+)
Theoretical Studies I	MUSI 1701	Fall 2005	6.0/6.0 (A^+)
Design and Implementation of Computer Apps	COMP 1406	Winter 2005	6.0/6.0 (A^+)
Introduction to Systems Programming	COMP 1402	Winter 2005	6.0/6.0 (A^+)
Linear Algebra I	MATH 1104	Winter 2005	6.0/6.0 (A^+)
Electromagnetism and Wave Motion	PHYS 1004	Winter 2005	6.0/6.0 (A^+)
Management Accounting	BUSI 1002	Winter 2005	5.5/6.0 (A)
Object-Oriented Programming	COMP 1405	Fall 2004	6.0/6.0 (A^+)
Discrete Structures I	COMP 1805	Fall 2004	6.0/6.0 (A^+)
Elementary Calculus I	MATH 1007	Fall 2004	6.0/6.0 (A^+)
Mechanics and Thermodynamics	PHYS 1003	Fall 2004	6.0/6.0 (A^+)
Financial Accounting	BUSI 1001	Fall 2004	6.0/6.0 (A^+)