Sheng (Johnson) Zhong

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EDUCATION

University of Toronto 2013 - Present
Engineering Science (Robotics specialization) class of 2017
GPA: 3.87/4.0

SKILLS

- **Programming** | C++ | Python | C | Lisp || Git | SVN | Mercurial
- **Web development** | Django | HTML | CSS | Jekyll | Javascript
- **Visual Design** | Inkscape | Photoshop | SolidWorks

EXPERIENCE

FPGA CAD Routing Optimization Aug 2015
Summer research – more at johnsonzhong.me/projects/vpr

- Routing component of VPR under the Verilog-to-routing toolchain
- Developed route tree pruning algorithm to enable incremental rerouting, resulting in up to **3x speedup** on difficult benchmarks
- Developed targeted rerouting algorithm for critical yet suboptimal connections, resulting in up to **30% faster (Fmax) circuits** produced
- Benchmarked over realistic circuits, with speedup scaling positively with difficulty

Autonomous Interacting Robot Apr 2015
Team of three – more at johnsonzhong.me/projects/robot

- Interacting mobile robots playing connect-4 on a randomized gamefield
- Targeted randomly placed high-reward ball dispensers to obtain the fastest ball retrieval time (3 vs average 0.5 ball/min)
- Designed and programmed subsumption architecture, stack-based targeting, and obstacle avoidance behaviour on Arduino microcontroller

SAL - Algorithms and Data structures library Jan 2015
Solo – more at johnsonzhong.me/sal/

- Header only C++ template library with an interactive tester
- Implemented efficient algorithms with a focus on generality and readability
- Implemented Set and Map with Treaps for 4x insertion and 2x read time improvement over the standard library

Language Interpreter (Lisp) Aug 2014
Solo – more at johnsonzhong.me/projects/clisp

- Small and fast at around 550 lines of C++
- Implemented lexical scoping, first class functions, and tail recursion optimization
- Automated garbage collection with RAII

IEEEXtreme Programming Contest Oct 2013|2014
Team of three – Virtual Vagrants placement

- Solved algorithm-related programming challenges within 24 hours
- Placed **43**/7500 (6th in Canada) in 7.0 | **52**/unknown (8th in Canada) in 8.0

INTERESTS

| Robotics localization and navigation | Algorithms | Chess | Wushu |