Sheng **Zhong** (Johnson)

EDUCATION

University of Toronto
Engineering Science Robotics
Class of 2017
GPA: 3.87/4.00

LANGUAGES

C++   ▲▲▲▲▲▲

Python   ▲▲▲

C   ▲▲▲▲▲

Java   ▲▲▲

Javascript ▲▲▲

SKILLS

Algorithm Design   ▲▲▲▲▲▲

Optimization   ▲▲▲▲

Communication   ▲▲▲▲

Debugging   ▲▲▲▲

UX Design   ▲▲▲

Embedded programming   ▲▲▲▲

CONTACT

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⌨ github.com/lemonpi

FPGA CAD Routing Optimization   Aug 2015

Summer research with USRA NSERC 5k grant – more at johnsonzhong.me/projects/vpr
- Routing component of VPR under the Verilog-to-routing toolchain
- Developed route tree pruning algorithm for incremental rerouting, speeding up routing by up to **3x speedup** on difficult benchmarks
- Designed targeted rerouting algorithm for critical yet suboptimal connections, producing up to **30% faster (Fmax) circuits**
- Benchmarked over realistic circuits, with speedup scaling with difficulty
- Won 2nd place in category at UnERD 2015 (undergraduate research conference)

Autonomous Cooperating Robots   Apr 2015

AER201 Design Course Project in a team of three– more at johnsonzhong.me/projects/robot
- Mobile robots cooperatively playing real time connect-4 competitively
- Targeted randomly placed high-reward ball dispensers to obtain the **fastest ball retrieval time** (3 ball/min 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

Personal project – 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

Personal project – 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

Programming Contests   2013 - now

Team based problem solving
- Google Cloud Platform prize ($1000 in credit) for ForenShips (relationship forensics) web application for Hack the North 2015 devpost
- Context.io API prize ($500) for Snowball (calendar updates from emails) web application for PennApps Winter 2015 devpost
- 52/unknown (**8th in Canada**) in IEEEXTreme 8.0 placement
- 43/7500 (**6th in Canada**) in IEEEXTreme 7.0 placement