

# Sankarshan Mudkavi

515E Sunnydale Place  
Waterloo, ON, Canada N2L 4S9

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www.smudkavi.com

smudkavi@uwaterloo.ca

(226) 600-6809

I'm a physics major at uWaterloo who's curious about how the universe works; I like to contribute to Open Source, and hack on projects that are fun to build and help me understand the world around me. I also like to play chess, write poetry and hit people with sticks while practicing kendo. (No, I'm not a violent psychopath, it's a martial art, really!)

## Summary of Qualifications

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- **Languages**

- **C++**: Workplace experience, personal projects, high school coursework
- **Python**: Workplace experience, personal projects, coursework
- **Ruby**: Personal projects, independent coursework
- **MATLAB**: Workplace experience
- **Java, JavaScript, HTML, CSS** and **L<sup>A</sup>T<sub>E</sub>X**: Functional use and familiarity

- **Databases**

- **MySQL, PostgresQL**: Used in local development and testing of various personal projects
- **NoSQL, Excel**: Functional use and familiarity

- **Operating Systems and Web Frameworks**

- **OSX, Linux, Windows**: Programmed heavily in UNIX environments
- **Ruby on Rails, Google AppEngine**: Used to deploy live web applications

## Work Experience

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**Associate Security Consultant (Intern), Security Compass, Toronto**

**Jan 2014 - Present**

- Pentested various client applications on web and mobile platforms using BurpSuite, wireshark, metasploit.
- Conducted research on security content for web and mobile applications

**Research Intern, Syracuse University, NY**

**May - Aug 2013**

- Researched evolutionary algorithms with applications to multi-objective optimization in wireless sensors
- Modeled mobility and tracking of targets within wireless sensor clusters
- Applied existing evolutionary algorithms to sensor deployment based on problem specifications
- Analysed behavioral patterns to detect deviations by training sensor networks using obtained data
- **Research Papers (under preparation)**
  - Modified Energy Aware Path Predictive Target Tracking In Embedded Sensor Vision Networks

## Projects

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- **NumPy**: Currently working on enhancing the NumPy datetime module.
- **Ballstorm**: An interactive graphical game with a physics engine using the C++ allegro library
- **CloG**: A basic web blog using Google AppEngine as a back-end framework as part of CS 253
- **DuckDuckShogi**: A rudimentary functional search engine as part of CS 101
- **PrQL**: A really basic database management system with SQL-like functionality in C++
- **Quacker**: A semi-functional twitter clone website built through the use of the Ruby On Rails tutorial book
- Built basic code that implemented algorithms used in robotic vehicles as part of CS 373

## Education

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### **Candidate for Bachelor of Science**

**Sept 2012 - Present**

- Honours Mathematical Physics, University of Waterloo

### **Coursework**

- CS 101: Introduction to Computer Science (Udacity)
- CS 373: Programming a Robotic Car (Udacity)
- CS 253: Web Application Engineering (Udacity)
- CS 212: Design of computer programs (Udacity)
- CS 191x: Quantum Computation (Berkeley, edX)
- PHYS 236: Computational Physics

### **Awards**

- University of Waterloo President's scholarship 2012
- Indian National Mathematics Olympiad Scholar 2011

## Volunteer Experience

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### **Formula Motorsports, University of Waterloo**

**Sept - Dec 2012**

- Experience with shaping and constructing sheet metal parts
- Gained knowledge of differentials, aerodynamic packages, carbon fibre structures

### **Wave Robotics, University of Waterloo**

**2012 - Present**

- Used machining tools to construct disk brakes for the autonomous vehicle
- Soldered wires and constructed mounts for the autonomous vehicle

## Extracurricular

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### **Science Orientation Leader, University of Waterloo**

**2013**

- Responsible for overnight safety as well as event set up and tear down

### **Undergraduate Physics Club, University of Waterloo**

**2012 - Present**

- First year representative: Fall, Winter 2012
- Information officer: Fall 2013

## Miscellaneous

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### **Interests and Hobbies**

- Contributes to numpy (Open Source library) by fixing bugs
- Enjoys reading manga, solving rubik's cubes, doing physics and writing code
- Likes practicing kendo, playing chess and writing poetry
- Certified for CPR and First Aid