Sankarshan Mudkavi

203, Albert Street
Waterloo, ON, Canada N2L 3W3

www.smudkavi.com | smudkavi@uwaterloo.ca | (226) 600-6809

I am a mathematical physics major at uWaterloo who is curious about how the universe works and have found code and math to be a great way to explore it; When I'm not on the macdev, math, physics and chromium IRCs trying to figure out a few tricky problems, I can usually be found playing chess or cooking.

Summary of Qualifications

- *Languages*
  - **C, C++**: Used for its speed and extensive stdlib
  - **Obj-C, Swift**: Used extensively for OSX
  - **Python**: Worshipped for its readability and awesome libraries
  - **Scala**: An amazing combination of functional and object oriented programming
  - **Java**: Picked up because C does not always cut it for the industry
  - **Javascript**: Admired for the amazing power of asynchronous callbacks
  - **Ruby**: Used in personal projects for the amazing scaffolding of the rails engine
  - **MATLAB, Mathematica**: Workplace experience
  - **HTML, CSS** and **LaTeX**: Functional use and familiarity

- *Tools*
  - **OSX, Linux, Windows**: Programmed heavily in UNIX environments
  - **Node.js, Ruby on Rails, Google AppEngine**: Used to deploy live web applications
  - **Apache Hadoop, Hive, Sqoop, Spark and Azkaban**: Used to handle massive amounts of data
  - **CDH and HDP**: Used both cloudera and hortonworks during my term at paytm labs
  - **Git, vim, sublime text**: Let the emacs vs. vim flame wars begin

- *Databases and Key Value Stores*
  - **MySQL, PostegresQL, MongoDB, Redis, HBase, HDFS**

Work Experience

Cofounder (CTO), Okeylabs Inc. Kitchener (Velocity Garage)   **Current**
- Extensively dealt with the kernel layer, sockets, encryption, syscalls, Cocoa and other Obj-C, C APIs
- Architected, engineered and built the feature complete OSX desktop application
- Set up and maintained backend servers and APIs (node.js and meteor) for the iOS, OSX apps and website
- Refactored, designed and built the backend for the iOS application
- We are a microproximity authentication company, incubated at UWaterloo's Velocity Garage

Data Scientist and Engineer, Paytm Labs, Toronto   **Aug 2014 - May 2015**
- Acted as a generalist software developer and devops, for both data science and engineering
- Built systems using java, javascript and scala and several apache tools to move terabytes of data everyday
- Prototyped ML algorithms in python and scaled them using scala and Apache Spark
- Performed resiliency and failure testing of the Akka (Scala) framework for handling millions of transactions
- Acted as liaison for the CEO to parent company in a managerial capacity involving overseas business trips

Associate Security Consultant (Intern), Security Compass, Toronto   **Jan - Apr 2014**
- Pentested various client applications on web and mobile platforms using BurpSuite, wireshark, metasploit.
- Reverse engineered apps on various mobile platforms and analyzed the source code for security flaws
- Wrote professional secure coding documents, attended CTFs, learnt about the SDLC and cryptography
- 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

Projects

- **NumPy**: Contributed bugfixes to past NumPy releases.
- **Atlasnav**: An optimal route planning web-app written in python (django) and javascript by a team of four
- **Ballstorm**: Interactive graphical game with a physics engine using the C++ allegro library
- **Improper time**: A sidescroller game with multiple levels written entirely in python using the pyglet library
- **CloG**: 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
- **Quacker**: Semi-functional twitter clone website built through the use of the Ruby On Rails tutorial book

Education

Candidate for Bachelor of Science   **Sept 2012 - Present**
- Honours Mathematical Physics, University of Waterloo

Applicable Coursework
- Computational Physics, Statistics, Numerical Differential equations, Analysis, General Relativity

Awards
- University of Waterloo E launch Award (An entrepenurship award)   2015
- University of Waterloo President's scholarship   2012
- Indian National Mathematics Olympiad Scholar   2011

Volunteer Experience

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

Undergraduate Physics Club, University of Waterloo   **2012 - Present**
- President: Fall 2014
    - Responsible for organization, delegation and smooth functioning of the club
    - Member of the board of the Science Society
- Vice President: Spring 2014
    - Responsible for delegationm coordination and smooth functioning of the club
- Information officer: Fall 2013
    - Responsible for the dissemination of the information about club to new students
- First year representative: Fall, Winter 2012
    - Reported freshman opinions of the club and physics department to the executive board

Science Orientation Leader, University of Waterloo   **2013**
- Responsible for overnight safety as well as event set up and tear down