Sankarshan Mudkavi

2A Mathematical Physics
20496312
515E Sunnydale Place
Waterloo, ON, Canada N2L 4S9

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

Summary of Qualifications

- ***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 **LaTeX**: Functional use and familiarity
- ***Databases***
  - **MySQL, PostegresQL**: 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

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
  - Path Generation With Target And Boundary Coverage Problems Employing Evolutionary Algorithms In Mobile Vision Sensor Networks

Personal Projects

- **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 basic database management system with SQL-like functionality in C++
- **Quacker**: A 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
- Solved over 50 problems on Project Euler with python implementations

Education

Candidate for Bachelor of Science **Sept 2012 - Present**

- Honours Mathematical Physics, University of Waterloo

Independent and Applicable 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)
- CS 221: Introduction to artificial Intelligence (Udacity) - In progress
- CS 215: Algorithms (Udacity) - In progress
- PHYS 236: Computational Physics - In progress

Awards

- 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**

- Performing Finite Element Analysis to construct rollcage to protect equipment
- Used machining tools to construct disk brakes for the autonomous vehicle
- Soldered wires and constructed mounts for the autonomous vehicle

Extracurricular

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

Interests and Hobbies

- 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