

Ian Johnson

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EDUCATION: Southern Methodist University President's Scholar
Bobby B. Lyle School of Engineering
Major: Computer Science

Dallas, Texas
Expected Graduation: May 2019
GPA: 4.00

TECHNICAL EXPERTISE:

Primary Languages: C/C++, Java, Python
Other Languages: R, ARM Assembly, LaTeX, Swift, PHP, HTML/CSS, Objective-C, MatLab
Tools / Environments: Unix/Linux (Bash), Git, Apache, MySQL, GCC, GNU Make, Vim, Valgrind

RELEVANT COURSES: Data Structures, Assembly Language, Database Concepts, Data Mining, Computer Networks and Distributed Systems, Statistical Methods for Engineers, Machine Learning

PROJECT EXPERIENCE:

R Package for Association Rule-Based Classification 03/2016 – Present

- Implemented CBA (Classification Based on Association rules) algorithm (see Liu, et al., 1998) in R with performance critical data structures and algorithms implemented in C
- Packaged algorithm and published alongside a paper on CRAN (Comprehensive R Archive Network)

Network Topology Optimization Research 01/2016 – Present

- Designed and implemented wireless LAN modelling environment to render geographic network topologies and calculate interference metrics for given topologies
- Implemented and analyzed performance of various greedy algorithms for topology generation

RESTful Database API for iOS Application 01/2016 – 05/2016

- Designed backend SQL database for iOS pickup-sports social network, architected and maintained PHP-based API for the database, and acted as system administrator for staging and production servers
- Worked alongside a team of UI designers to design and build full-stack iOS social network

SMS-Based Virtual Unix Shell and Physics Word Problem Solver 10/2014 – 02/2016

- Designed and implemented NLP-based physics word problem solver which can receive problems over SMS, analyze them for provided parameters and queries, and send answers via SMS
- Created an SSH-over-SMS system at HackRice 2016 which allows users to run a virtualized Unix shell over text message and send/receive shell commands and replies using a two-factor authenticated system

Autonomous Arduino-Based Robot 08/2015 – 12/2015

- Led multidisciplinary team which designed and built an autonomous mars rover-style robot which one first place in a competition of 16 teams
- Architected and maintained main-control, navigation, and sensor reading libraries for robot

Class Scheduling Resource Allocation Software 03/2013 – 08/2015

- Designed and implemented depth-first-search based machine learning algorithm for student, teacher, and class scheduling for Cherry Creek School District in Greenwood Village, CO
- Used algorithm to generate a schedule for the 2015/2016 school year which showed a ten-fold improvement in teacher and student conflict counts from past schedules

WORK EXPERIENCE:

Head Teaching Assistant for SMU C++ and Data Structures Courses 01/2016 – Present

- Assists in the lab sections for CSE1342 and 2341 at SMU by guiding students with their lab assignments and grading students' lab submissions
- Develops course lab material and manages a course with 7 teaching assistants and 90 students

Private Software Development Consulting 08/2014 – Present

- Built an Arduino / Android based anti-texting-and-driving system which detects phone usage by driver and triggers the car alarm on a Ford F-150 using a Bluetooth signal between Android and Arduino and an injected electrical signal on the F-150 entertainment circuit board

Private Tutoring 09/2011 – Present

- Tutor subjects including Java, C++, calculus, Spanish, and American Computer Science League