

# Ian Johnson

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**EDUCATION:** Southern Methodist University President's Scholar  
Bobby B. Lyle School of Engineering  
Major: Computer Science  
Colorado State ACT Perfect 36 Award / AP Scholar with Distinction

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, Programming Languages, Computer Networks and Distributed Systems, Statistical Methods for Engineers

## 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 with S3 interface and submitted to CRAN

### **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:

### **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

### **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