

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

**RELEVANT COURSES:** Data Structures, Assembly Language and Machine Organization, Discrete Computational Structures, Database Concepts, Programming Languages, Computer Networks and Distributed Systems, Statistical Methods for Engineers

## **EXPERIENCE / MAJOR PROJECTS:**

- Southwest Airlines Maintenance Logs Data Mining / Research** 12/2015 - Present
- Working at the Intelligent Data Analysis lab at SMU to build a machine learning / data mining system to automatically encode airplane maintenance logs into ATA codes for future predictive analysis research and improved airplane health monitoring/logging
- Network Topology Optimization Research** 01/2015 – Present
- Designed and implemented wireless LAN modelling environment which renders geographic network topology and calculates interference metrics for given topologies
  - Implemented and tested various greedy algorithms for topology generation for both randomized and geographically clustered networks
- Teaching Assistant for SMU Data Structures Course** 01/2016 – Present
- Assist in the lab sections for CSE2341 at SMU by guiding students with their lab assignments and grading students' lab submissions
- Class Scheduling Resource Allocation Software** 03/2014 - 08/2015
- Designed and implemented a proprietary depth-first-search based machine learning algorithm for student, teacher, and class scheduling for a high school of 3,600 students
  - Implemented a modular GUI and end-user app for school administrators to use to schedule classes based on student, teacher, and facilities constraints
  - Marketed software to Cherry Creek School District in Greenwood Village, Colorado and used software to generate a schedule for the 2015/2016 school year which showed a ten-fold improvement in teacher and student conflict counts
- Physics Word Problem Solver and Linux SMS I/O Project** 10/2014 – 8/2015
- Designed and implemented a natural linguistics-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** 8/2015 – 12/2015
- Led multidisciplinary team which designed and built autonomous robot to traverse a 20'x20' playing field and use custom-built sensors to monitor wind speed and conductivity/water content in a soil sample
  - Won first place in a final competition of 16 teams
- Automatic Anti-Texting-and-Driving System** 04/2015 - 08/2015
- Built a comprehensive Arduino / Android system which automatically 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