# TYLER BUGBEE

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## PROFESSIONAL SUMMARY

Motivated computer science student eager to begin a career in software engineering. Passionate about building solutions, autonomy, and exploring the nature of things using data.

## EDUCATION

**University of Georgia** – Athens, GA — Expected Graduation: December 2017
Bachelor of Science, Computer Science — GPA: 3.34

**Georgia State University** – Atlanta, GA — June 2014 – May 2015
Honors College — GPA: 3.74
Bachelor of Science, Computer Science

## EXPERIENCE

**University of Georgia Small Satellite Research Laboratory –** Athens, GA — February 2017 – Present
Electronics Team - Research and Payload Integration Engineer

- I operate as an undergraduate researcher in the Small Satellite Research Lab on two missions funded by NASA and the Air Force Research Laboratory in collaboration with the University of Georgia
- I integrate software and hardware components with existing systems:
  - Interfacing complex software infrastructures with existing libraries
  - Evaluating payload requirements and determining methods of integration
- I am currently developing the driver-level communication methods for each subsystem of the MOCI satellite mission using an array of hardware description languages and system-level languages such as C and C++
  - Many different protocols are required such as SPI, I2C, UART/RS-422 and CAN
- Software libraries are written in C++ and include NVIDIA CUDA workloads focused on image processing and mesh layer generation
- Satellite payloads include imaging sensors, GPUs, and FPGAs

**Broadspire** – Atlanta, GA — June 2015 – Present
Junior Software Engineer

- I operate as a key team member of the IT business unit dedicated to establishing a Robotic Process Automation COE
- I am utilizing the Agile framework to manage and execute the PoC and Pilot phases of the project
- My work crosses over multiple disciplines including Software Engineering, Project Management, and Research and Development
- Conducted machine learning research and model creation
  - I implemented the Vowpal Wabbit algorithm using python to make predictions over a large dataset
  - I fine-tuned key parameters of the core algorithm to arrive at an accurate model
- Participated in a focus group tasked with conceptualizing and managing the implementation of a mobile app
- Developed, executed, and managed multiple marketing projects involving extensive logistics and corporate communication

## SKILLS

C/C++ – Proficient with emphasis in several advanced topics such as multithreading and synchronization techniques

- Additional exposure to networking functions using C++ such as network IPC

Java – Extensive problem-solving experience, work with the JDBC driver

Python – Intermediate to advanced program design

- Advanced topics such as lambda functions applied to list comprehension

SQL – Large dataset application with levels of aggregation

- Additional personal experience with more advanced SQL functions such as joined tables

JavaScript – Exposure to the node.js and angularJS frameworks

## TOOLS

Linux – Proficient in Linux systems and various kernels

- Knowledge of Linux (bash) shell commands
- Personal study of the LPI Introductory Program

Git – Experience with using repositories and Git shell functions

- GitHub: https://github.com/tbarc

APIs – Knowledge of end to end implementation and authentication

- Experience with implementing OAuth and OAuth 2 authentication methods
- Experience with JSON and XML

## PROJECTS

POSIX Thread Implementation –

- C project using pthreads to create a multithreaded web server using safety operations such as semaphores and mutexes

UVC Camera Control –

- C project using the V4L2 library to command a CMOS sensor over USB protocol
- Includes compression algorithm to convert raw images into a digestible format

Binary Search Tree implementation and analysis –

- C++ object-oriented project focused on implementing a true binary tree with extensive member functions

Search Algorithm implementation and analysis –

- C++ project focused on efficiency comparisons between search algorithms on large datasets
- Conducted efficiency analysis including runtime/space complexity

## EXTRACURRICULAR ACTIVITIES

**Marching/ Concert Band** 2010 – 2014

Percussion Section Leader

- BOA Super Regional Championships – 2010, 2011, 2012, 2013 – Atlanta, GA - Finalists
- BOA Grand National Championships – Indianapolis, IN – 2012 – Finalist

Percussion Ensemble Member

Quartet Leader/Participant

Symphony Orchestra Percussionist (One of 5 selected)

- Music for All Midwest Clinic – Chicago, IL – 2012

**Accomplished Concert Pianist**

- Extensive classical training since ~2000
- Continued private study

## ACCOMPLISHMENTS

- AP Scholar with Distinction
- University of Georgia Dean's List 2017
- Georgia State University President's List 2014