JULIAN ANTHONY BRACKINS

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Education
South Dakota School of Mines & Technology, Rapid City, SD
B.S. Computer Science, 3.20 GPA, Expected May 2015
SDSM&T Orchestra 2nd Violin Section Leader
KTEQ Campus Radio Assistant Station Engineer
NASA Student Ambassador
National Science Foundation Funded Undergraduate Researcher

Employment Experience
Undergraduate Student Researcher June 2014 - Present
Security Printing & Anti-Counterfeiting Technology, Rapid City, SD
NSF-funded Research Experience for Undergraduates (Grant#EEC-1263343)

Research Field 1: Smartphone Application Development for Reading Nanoparticle-Based Inks
Developed an Android-based smartphone application for reading covert barcodes as a method of product authentication. Software features include QR code capture, QR image manipulation, and QR code data storage in a database. Application controls a near-infrared laser remotely in order to upconvert invisible QR codes, making the codes visible for scanning. Will be presenting a prototype reader demo with the rest of the development team at the South Dakota Legislature Poster Session in March of 2015.

Research Field 2: Mass Spectrometry Analysis for the detection of counterfeit Pharmaceuticals
Ongoing research into developing a simulation environment for isotope behavior and abundances.

Developing a Python script and user interface to determine the authenticity of pharmaceutical drugs by comparing natural isotope abundances found in authentic products with the abundances found in counterfeit versions.

Undergraduate Student Researcher January 2013 - April 2013
NASA Johnson Space Center, Houston, TX
Undergraduate Student Research Program (USRP)
Involved with two projects in the Spacecraft Software Engineering Branch:

Member of the Cabin Flight Software Team responsible for designing and developing the Core Flight Software (CFS) system that controls the 2B version of the Multi-Mission Space Exploration Vehicle (MMSEV) cabin. Developed a ground display for monitoring MMSEV Thruster firing activity. Developed a CFS application for interfacing with the MMSEV Potable Water System (PWS) through a Web Relay connection. Assembled and tested the initial On-Board Display Hardware configuration that supports the software test environment.

Member of the Active Debris Removal (ADR) Software Team designing and developing the software system that controls and integrates the components of a prototype vehicle designed to identify and capture orbital debris. Modified the existing software load (C code) to increase efficiency of IMU and pressure transducer processing. Wrote software to cyclically log time-tagged test data for post-test analysis.

Programming Language Experience
C, C++, Python, Java, Visual Basic, Lisp, Assembly Language, PHP

Computer Science Experience
Experience in coding both in Linux & Windows, Computer Graphics (OpenGL), Graphical User Interfaces (C++ with Qt, Java), Robotic Operating System (ROS), Android Mobile Development (Android Studio, Eclipse), Parallel Computing (Pthreads, OMP, OpenMPI), performance analysis (gprof), debugging (gdb), Software Version Control (SVN, Git), NASA Integrated Test and Operations Systems (ITOS), NASA Core Flight Software system (CFS), Technical Writing Skills (Technical Communications I & II, REU Research Paper).

Other Experience
Violinist September 2008 - Present
Black Hills Symphony Orchestra, Rapid City, SD
2nd Violinist. Attend weekly rehearsals for five symphony concerts each year.

References available on request.