

# Gabriel Gonzalez

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**OBJECTIVE** I am seeking a software engineering position where I can make a positive contribution to the technology industry by applying my knowledge of programming, mathematics, and astrophysics.

**COMPUTER SKILLS** **Languages:** C, C++, Java, Python, Bash, IDL, LaTeX, Assembly  
**Software:** Git, SVN, GNU Debugger (GDB), Valgrind  
**Operating systems:** Linux, Windows, OS X

**EDUCATION** **Boston University** **May 2015**  
*Bachelor of Arts: Astronomy and Physics*

**WORK EXPERIENCE** **NASA Goddard Space Flight Center** **Greenbelt, MD**  
*Software Engineer* *June 2015 – August 2015*  
– Designed, implemented, and tested an API to enable hardware-in-the-loop testing for future CubeSat missions, by integrating an attitude and orbit simulation program with flight software.

**Boston University Computer Science Department** **Boston, MA**  
*Software Engineer* *January 2015 – May 2015*  
– Implemented a programmable interval timer (PIT) clock for the kernel of the Elastic Building block Runtime (EbbRT) research project.  
– Completed the EbbRT clock initialization algorithm which chooses the correct clock (PIT or paravirtualized clock) to initialize, depending on the device's hardware.

**Boston University Satellite for Applications and Training** **Boston, MA**  
*Software Engineer* *September 2014 – May 2015*  
– Created a simplified day-in-the-life simulation for the command and data handling subsystem.  
– Developed the communications algorithm between the main ANDESITE nanosatellite and eight picosatellites.  
– Implemented the sensory data collection algorithm for eight picosatellites.

**Boston University Center for Space Physics** **Boston, MA**  
*Lab Assistant* *May 2014 – February 2015*  
– Developed an algorithm to express the wavelength of light as a function of pixel location on the Venus Spectral Rocket (VeSpR) imager CCD.  
– Created a model of the expected spectra (1000 – 2500 Å) for Venus and Altair.  
– Created a model for the payload quantum efficiency, reflectivity, and prism efficiency.

**Boston University Center for Space Physics** **Boston, MA**  
*Research Assistant* *September 2014 – October 2014*  
– Developed an algorithm to automatically remove scattered background light in images taken by the Imaging Ultraviolet Spectrograph (IUVS) on the Mars Atmosphere and Volatile Evolution (MAVEN) space probe.

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|--------------------|--|--------------------------------------|
| WORK<br>EXPERIENCE | <b>Boston University Center for Space Physics</b>  | <b>Boston, MA</b>                    |
|                    | <i>Lab Assistant</i>   | <i>June 2014 – August 2014</i>       |
|                    | <ul style="list-style-type: none"> <li>– Developed software for a microcontroller that controls the inner housing inside a vacuum chamber.</li> </ul>  |                                      |
|                    | <b>Boston University Center for Space Physics</b>  | <b>Boston, MA</b>                    |
|                    | <i>Lab Assistant</i>   | <i>June 2014 – August 2014</i>       |
|                    | <ul style="list-style-type: none"> <li>– Created a CAD model of a vacuum chamber’s switchboard.</li> <li>– Tested the operating state of a damaged vacuum chamber.</li> <li>– Replaced defective vacuum chamber equipment.</li> </ul>  |                                      |
|                    | <b>Boston University Center for Space Physics</b>  | <b>Boston, MA</b>                    |
|                    | <i>Research Assistant</i>  | <i>February 2012 – December 2013</i> |
|                    | <ul style="list-style-type: none"> <li>– Developed an algorithm to analyze the response of the Mars ionosphere to solar flares, utilizing radio occultation measurements made by the Mars Global Surveyor (MGS).</li> <li>– Categorized solar flare intensities based on the Flare Irradiance Spectral Model’s (FISM) flare strength and the electron density enhancement in the M2 region of the ionosphere.</li> <li>– Analyzed the relationship between solar flare intensity and Earth-Sun-Moon angle, as well as solar flare intensity and solar zenith angle.</li> <li>– Created a map of the electron density in the Venus upper ionosphere using Pioneer Venus Orbiter (PVO) Ion Mass Spectrometer (OIMS) data.</li> <li>– Compared the OIMS data to the Orbiter Electron Temperature Probe and Orbiter Retarding Potential Analyzer (ORPA) ionospheric data.</li> <li>– Determined the potential invalidity of the PVO data set due to its skewed results when compared to VIRI and VEX.</li> </ul> |                                      |
| PROJECTS           | <b>Elysia</b>  |                                      |
|                    | <i>Login Manager</i>   |                                      |
|                    | A GTK+ based login manager written entirely in C that is designed to be customizable to the user’s preference and have completely open source code.  |                                      |
|                    | <b>Atlas</b>   |                                      |
|                    | <i>Status Bar</i>  |                                      |
|                    | A gtkmm based C++ status bar designed to be a replacement for the dwm text status bar. It is an improvement to the default dwm status bar in that it allows for both text and images to be displayed anywhere on the status bar, and additionally allows for the status bar itself to be placed in any orientation and location on the X server.   |                                      |
|                    | <b>Aria</b>  |                                      |
|                    | <i>Notification Bubble</i>   |                                      |
|                    | A gtkmm based C++ notification bubble that is designed to be highly configurable, with the user able to customize the location it is displayed, font, text size, background color, foreground color, and more.   |                                      |