JOSEPH GIBSON

COMPUTER ENGINEER

EDUCATION

Grand Valley State University
B.S.E, Computer Engineering
Grand Rapids, MI ***2015***

GPA: 3.957 *Magna Cum Laude*
ASEE CEED National Co-op Student of the Year 2014
Academic Excellence Award in Computer Engineering
Outstanding Co-op Student 2015
Outstanding Senior in Computer Engineering 2015
FIRST Robotics Engineering Scholarship
Award for Excellence Scholarship
Faculty Award of Distinction Scholarship

Tau Beta Pi Engineering Honor Society
President of Spanish Club
President and Founder of Brewing Science and Technology Club
Vice President of Hardware, Computer Science Club

SKILLS

C
C++
Python
Bash
VHDL

Git version control
Unix Terminal (gdb, make, etc.)
LaTeX
Machine vision algorithms
Algorithm optimization (C/C++)
Hybrid computing systems
Adobe Illustrator
ARM assembly language
Perl, Awk, Sed
HTML, CSS, PHP, JavaScript
Operating Systems
Cryptography
Network Security

FPGAs (VHDL)
Electrical schematic and PCB-design (Altium, Eagle, KiCad)
Oscilloscopes and mutimeters
Circuit Analysis
Space Systems Engineering
Space-Grade Processors
Avionics Systems
Embedded System Design
Robotics
Astrophysics and Cosmology
Electromagnetic Physics
Particle Physics

LANGUAGES

English
Spanish
French
Russian

EXPERIENCE

NASA **Washington, D.C.**
Goddard Space Flight Center
Sr. Flight Software Engineer, SAIC ***Jan 2016 - Present***
Code 480: Satellite Servicing Projects Division
Rendezvous and Proximity Operations Flight Software Lead

- Restore-L robotic servicing mission
- Hybrid Flight Computing Systems Team
- Develop critical flight software in C/C++ on MicroBlaze, PowerPC e500v2, and x86-64 architectures
- Optimize and implement image processing and machine vision algorithms (edge detection, circle tracing, segmentation, 3D point cloud, filters, etc.) for autonomous spacecraft rendezvous, robot arm grapple, and GNC
- Accelerate algorithms using FPGAs, including hardware double precision floating point unit and software interface
- Develop flight applications for VxWorks using CFE/CFS and OSAL
- Develop drivers to interface with FPGAs (Xilinx Virtex-5) via PCIe and sRIO
- Experience with VxWorks, FreeRTOS, and embedded Linux
- Develop ground tools in Python for data analysis, image conversion, etc.
- Lead Security and Reliability Group (SRG) in charge of code review, static analysis tool (CodeSonar), and secure embedded coding
- Develop mission-level C/C++ Flight Coding Standards
- Flight system emulation in QEMU
- Write documentation in LaTeX and Doxygen
- Present technical information to board at critical reviews (PDR, CDR, etc.)
- NASA Foundations of Aerospace and Sys Admin certification
- Teach Git version control to multiple teams at NASA

RFCx **San Francisco, CA (Remote)**
Rainforest Connection
Senior Technical Advisor ***Jan 2015 - Jan 2017***

- Combat illegal deforestation in Brazil and other rainforests with repurposed solar-powered Android phones mounted to trees
- Remote detection of chainsaws, engines, and gunshots
- Embedded software in C
- Solar power control circuitry (MPPT)
- PCB design in KiCad and Altium

CERN **Geneva, Switzerland**
European Center for Nuclear Research
Research Assistant, ATLAS Experiment ***Aug 2014 - Jan 2015***

- Research in quantum chromodynamics at the Large Hadron Collider (ATLAS Experiment)
- Developed *Spectrum*, a proton-proton cross-section analysis software in C++, ROOT, and Python
- Designed spectrum.web.cern.ch website in Python, PHP, and JavaScript

www.gibsjose.com
www.github.com/gibsjose
gibsjose@mail.gvsu.edu
+1 616 293 0250

EXPERIENCE

NASA **Washington, D.C.**

Goddard Space Flight Center

Computer Engineering Co-op, BETTII Project ***Jan - May 2014***

Code 665: Astrophysics, Observational Cosmology Laboratory

- BETTII Project: http://asd.gsfc.nasa.gov/bettii/
- Balloon telescope for infrared interferometry
- Interfaced with stellar image processing software in C and C++
- Developed StarTracker software for star cameras
- Created an RS-422 communication network on an FPGA

L-3 Communications **Grand Rapids, MI**

Avionics Systems

Computer Engineering Co-op ***May - Sep 2013***

- Designed software to configure and test avionics instruments
- Developed GUIs in C using LabWindows/CVI
- Tested units under environmental conditions and analyzed data

Custom Electronics, Inc. **Grand Rapids, MI**

Engineering Consulting

Computer Engineering Co-op ***Nov 2011 - May 2013***

- Programmed 8-bit Microchip microcontrollers in C using MPLAB X
- Wrote software for scientific instrumentation buoys
- Designed a series of eight electric guitar effect pedals
- Designed electrical schematics and PCBs in Altium Designer

INTERESTS

Languages, travel, culture, machine vision, cryptography, computer security, backpacking, hiking, brewing, physics

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