

Nickolai D. Belakovski

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Education

Purdue University, West Lafayette, IN
Bachelors degree in Aeronautical & Astronautical Engineering
Bachelors degree in Mathematics

Graduated December 2011

Overall GPA: 3.67/4.00
Aero GPA: 3.81/4.00
Math GPA: 3.59/4.00

Programming skills: C/C++, MATLAB, Python, Javascript, shell scripting, *nix environments, Git, SVN, SQL, SCons

Publications

"The little-known Soviet mission to rescue a dead space station", ArsTechnica, Sept 2014. 450,000+ hits. bit.ly/ZvjyR0

Work Experience

Simulation/Firmware Engineer - Tesla Motors Inc - Advanced Driver Assistance Systems - May 2015 to present

- Developed a Python regression testing framework on top of an existing C++ Software-In-Loop (SiL) system and integrated it with Jenkins and Stash (similar to Github) in order to provide immediate results to developers
- Developed reference implementations for the regression testing framework and worked with developers to help them understand how they could use the tools to speed up their iteration process
- Improved existing torque-based hands-on-wheel detection by diving down into the data, developing on-the-fly calibration algorithms in C, and doing statistical analysis of those algorithms from fleet data before deployment
- Re-architected the core C++ simulation tools in order to remove dependencies on Driver Assistance and make the tools more available to other groups. This involves code refactoring and reorganization, and reworking build scripts
- Supported bringup of a new hardware platform by writing the integration layer between the new platform's firmware and our existing simulator. This involved working with various IPCs like POSIX messages queues and shared memory
- Integrated an OpenGrok instance to index our main repositories and provide a fast and convenient way of searching through code. This involved learning about OpenGrok's setup as well as some shell scripting and cron jobs

Financial Software Developer - Bloomberg LP - Municipal Bonds - June 2012 to April 2015

- Developed, implemented, and deployed new storage system and retrieval APIs for municipal bond credit ratings using SQL databases, multithreaded C++ applications, SVN and Git repositories, and Python and Unix shell scripting
- Furthered the development of Bloomberg 2 by upgrading existing, high visibility, Javascript-based "web pages" to the new standard and documenting problems with the functionality to be resolved before ultimately releasing to clients
- Led the machine selection and layout of the Bloomberg Robotics Workshop - a fabrication facility for teaching students about manufacturing and mechanical design as well as providing tools for them to work on their FIRST robots

Mentor - FIRST Robotics Competition - Team 1660 Harlem Knights - Jan 2014 to April 2014 and Oct 2014 to March 2015

- Taught high school students to use CAD, 3D printers, CNC, various hand tools, and various manufacturing and assembly techniques for building competition-ready robots
- Created a high fidelity trajectory model in MATLAB to demonstrate a possible break-the-game strategy

Personal Projects

Hacker - American Museum of Natural History Hackathon - November 7-8 2014

- Worked with a team of 6 people to create visualization of 2000 Milky Way stars using Visual Python bit.ly/1xhfRtZ

Coder/Builder/Tester - Project HAL - Personal Project - October 2010 to May 2012

- Led a project to launch a high power rocket from a high altitude balloon to gain hands on experience and take amazing photos
- Coded all the flight software in Processing (similar to C/C++) and performed extensive testing to ensure high reliability
- Successfully demonstrated high reliability via the automatic operation of a backup system upon loss of radio contact
- Modified and manufactured PCB designs for special high altitude GPS units in order to integrate them with Arduino
- Manufactured a custom electronics bay for testing electronics in the high acceleration environment of a model rocket
- SUCCESSFULLY LAUNCHED AND RETRIEVED 2 BALLOONS - story and pictures at www.nickolai.me/flights.html

Hobbies: Amateur rocketry, CAD modelling, 3D printing, piano, history of spaceflight, alpine skiing