Zach Dischner

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Summary

I am an enthusiastic problem solver who thrives in a multidisciplinary engineering environment. I wish to obtain a systems engineering position where I can apply my skills in software, electronics, GNC and attitude dynamics.

Education

Exp. May 2014 **Master of Aerospace Engineering**
The University of Colorado at Boulder
Focus: Aerospace Engineering
Systems and Control
GPA: 3.9

May 2012 **Bachelor of Aerospace Engineering Minor in Electrical and Computer Engineering**
The University of Colorado at Boulder
GPA: 3.3

Computer Skills

Languages	C/C++, MATLAB, Python, Bash, Csh, LaTeX, JavaScript, HTML, SQL, Ruby, IDL
Op. Systems	Linux, Unix, Mac OS X, Windows
Development	Git, SVN, RubyMine, PyCharm, Arduino, Altium, Solidworks, Circuit and PCB design Group-based coding workflow
Web Tools	Ruby on Rails, Heroku Deployment

Leadership and Communication

Teamwork and Management

- Interdicplinary lead rolls in multiple simultanious engineering teams
- Developed requirement-driven-designs for three projects
- Prepared and presented PDR, CDR, and design documents for projects

Conferences

- Winning paper and presentation at 2013 AAS Attitude and GNC conference
- Paper and presentation at 2013 IEEE Aerospace Conference
- Poster for the CU Aerospace Projects Symposium 2012

Academic

- Worked in dozens of groups on technical modeling and analysis for course labs
- Technical writing presentations independantly and in small groups throughout curriculum

Professional Experience

Aug 2011 - Present, Boulder, CO

Southwest Research Institute (SwRI)

DayStar-Lead Imaging/Electronics Engineer

- **2013 SpaceX Grand Prize Award** for a student paper and presentation in the field of GNC at the 2013 AAS Conference
- **1st Place Winner** of the 2012 AIAA Student Conference Region V
- **Winner** of Capstone Design Best Data Gathering and Analysis Method award
- Successful launch and validation of a diurnal star tracker for balloon-borne platforms in September 2012
- Requirement-driven ground up design and implementation of custom imaging system, built around a 5mp CMOS sensor operating at 30fps
- Derived camera flat-fielding and FFT-filtering algorithms for post processing
- Designed portable, production-based analysis architecture in Python, MySQL, and Git
- Thermal-vacuum analysis, modification, and testing of all flight hardware
- More information found at http://daystarengineering.wordpress.com/

Jan 2011 - Present, Boulder, CO

Laboratory for Atmospheric and Space Physics (LASP)

Data Processing Technician

- Maintain and update analysis software for AIM satellite
- Created SQL database plotter in Ruby-on-Rails https://github.com/ZachDischner/Rails-Plotter
- Developed new data products and analysis methods used in production

Jan 2013 - Present, Boulder, CO

Private Engineerging Consultant

Software and Electronics Engineer

- Prove feasibility of MIT-Lincoln Labs OTCCD as fine-motion compensator on high-altitude balloons
- Develop control system for camera based on sensed star centroids
- More information found at http://daystarengineering.wordpress.com/

Aug 2012 - Present, Boulder, CO

Hyperion (Grad Project Course)

Lead Electronics/Embedded Systems

- Develop power distribution and regulation system for hybrid-electric engine UAV
- Develop hybrid throttle control unit with an Arduino
- Hybrid-electric engine testing, integration and maintenance.
- Solidworks/CNC machining for mounting hardware

May 2011 - June 2012, Boulder, CO

University of Colorado

Aerospace Lab Assistant

- Maintain, test, and update hardware and software used in Aerospace lab experiments
- Matlab/Labview debugging and updating
- Electronics work with PCB layout, soldering, testing, and embedded programming on PIC
- Hardware work with motors, encoders, servos, microcontrollers, and NI hardware

Publications

1. N.Truesdale, M. Skeen, J. Diller, K. Dinkel, **Z. Dischner**, A. Holt, T. Murphy, S. Schuette, A. Zizzi. "DayStar: Modeling the Daytime Performance of a Star Tracker for High Altitude Balloons." *AIAA Region V Regional Student Paper Conference*. April 4, 2012 **(1st Place)**
2. N.Truesdale, J. Diller, K. Dinkel, **Z. Dischner** "DayStar: Modeling and Test Results of a Balloon-Borne Daytime Star Tracker." *2013 IEEE Aerospace Conference*. Jan 7, 2013
3. N.Truesdale, J. Diller, K. Dinkel, **Z. Dischner** "DayStar: Modeling and Testing a Daytime Star Tracker for High Altitude Balloon Observatories" *2013 AAS Attitude and GNC Conference*. Feb 2, 2013 **SpaceX Grand Prize for Student Paper/Presentation**