

Brandon S. Richardson

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Current Address:

170 North Stanworth Drive
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Permanent Address:

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EDUCATION

Princeton University, Princeton, NJ 2012 – 2013
Master of Finance
Stanford University, Stanford, CA 2009 – 2012
Master of Science in Aeronautics and Astronautics; GPA: 3.45
• Concentration: Machine Learning, Convex Optimization, Data Mining
• Researched deep learning at the Stanford Artificial Intelligence Laboratory under Dr. Quoc Le for Dr. Andrew Ng
Cornell University, Ithaca, NY 2006 – 2009
Master of Engineering in Electrical Engineering; GPA: 3.79
Bachelor of Science in Applied Engineering Physics; GPA: 3.46
• Concentration: Plasma Physics, Computational Physics, GPS Algorithms, Analog Electronics
Colorado School of Mines, Golden, CO; GPA: 3.93 2004 – 2006

EMPLOYMENT HISTORY

Jet Propulsion Laboratory (NASA) 2009 – 2012
California Institute of Technology, Pasadena, CA
Electronics Engineer II; Lead Focal Plane Alignment Engineer; Lead FINESSE Test-bed Engineer
• *Fast Infrared Exoplanet Spectroscopy Survey Explorer (FINESSE)*; Led engineering design team to build optical instrument test-bed. Accomplished test-bed within schedule and under budget.
• *Next Generation Imaging Spectrometers (NGIS)*; Developed state-of-the-art infrared imaging results using HgCdTe material at 273°K (Published). Employed this new technology to build a real-time optical alignment system with custom Gaussian fitting algorithm, accelerated with NVIDIA GPU. Reduced optical alignment time from 2 months to 2 wks with an accuracy of 10x better than fiber optic sensors.
• *Airborne Visible/Infrared Imaging Spectrometer (AVIRIS)*; Developed Highly Parallelized Real-Time Hyper-Spectral Image Decomposition Algorithm (Presented poster at HypSIRI Conference). Accelerated algorithm to in-flight speeds using NVIDIA GPU Technology. Reduced decomposition time from 20mins to 100ms.
CUSat Nanosat-4 Satellite Team (P.I. Dr. Mason Peck) 2007 – 2009
Cornell University, Ithaca, NY
Project Manager 2009; Lead Electrical Systems Engineer 2008
• *Led CUSat Team as Project Manager*; Completed and delivered satellites to the Air Force Research Laboratory on schedule and under budget. Awaiting launch in 2013 aboard Space X Falcon 9 rocket.
• *Led CUSat Electrical Systems Team*; Designed, tested, and delivered the Flight Pulse Plasma Thruster Electronics. Satisfied requirements for achieving optimal timing for all eight Pulse Plasma Thrusters

PUBLICATIONS

Brandon S. Richardson, Michael L. Eastwood, Robert O. Green, “*Mercury-cadmium telluride focal plane array performance under non-standard operating conditions*,” 2011 IEEE Aerospace Conference, Pages 1-6, March 2011.
Brandon S. Richardson “*Imaging Spectroscopy Unmixing Algorithm using ADMM*,” HypSIRI Science Workshop Poster Session, Washington DC, September 2011.
C.F. Bruce Jr., W. Kim, Brandon S. Richardson, “*Interactions of Energetic Particle Radiation with a MCT ($x=0.48$) P on N Detector Array*,” IEEE Transactions on Nuclear Science, Vol. 59 Issue 2, Pages 456-461, April 2012.
J.B. Coles, Brandon S. Richardson, “*Spectrally and radiometrically stable wide-band on-board calibration source for in-flight data validation in imaging spectroscopy applications*,” 2011 IEEE Aerospace Conference, Pages 1-8 March 2011.

TECHNICAL SKILLS

Computational Analysis: Developed fully automated hourly FX trading system using Metatrader with Matlab
Programming Ability: Windows, OSX, Linux • Matlab • AccelerEyes Jacket • C++ • OrCAD • InControl L3
• Solid Works • Satellite Tool Kit (STK) • Basic Knowledge of R, Verilog, LaTeX, CUDA toolkits

ARTISTIC ENDERVORS

Computer Animation & Film: 3ds Max • Maya • Produced 3 Short Films and 2 Computer Animations
Awards: *Dolphin Award*, Moondance International Film Festival • *Special Mention*, Aspen Short Film Festival
Carpentry: Custom French cabinets • French grandfather clocks • French pool tables • 17ft wooden drift boat

HONORS/ AWARDS

NVIDIA Petaflop Super-computer Competition Winner, NVIDIA 2012; Palo Alto, CA
JPL Team Award, Carnegie Airborne Observatory 2011
NASA Team Achievement Award, MaRS 2011
Eagle Scout, Boy Scouts of America Troop 244