

Permanent Address:
4131 Michelle Drive
Torrance, CA 90503

Brian G. Coffee

bgcoffee@mit.edu
(424) 757-4814

Term Address:
58 Manchester Road
Brookline, MA 02446

Education

Massachusetts Institute of Technology

Candidate for B.S. in Aerospace Engineering – *Expected June 2013*
Major GPA: 4.8/5.0 Overall GPA: 4.6/5.0

Cambridge, MA
Sep 2009 - Present

Relevant coursework:

Current: Satellite Engineering, Principles of Autonomy & Decision Making, Feedback Control Systems

Past: Space Systems Development, Astrodynamics, Propulsion Systems, Computational Methods, Aerodynamics, Dynamics, Statistics & Probability

Experience

MIT Lincoln Laboratory

Lexington, MA

Undergraduate Researcher – Group 97: Sensor Technology & System Applications

Jun 2012 – Present

- Geolocation algorithm development and analysis for MicroMAS (Micro-sized Microwave Atmospheric Satellite); created error budget and performed Monte Carlo analysis for integrated examination of pointing errors
- Performed preliminary attitude determination and control system design for extension of MicroMAS to larger satellite mission with a constellation configuration

MIT Space Systems Lab

Cambridge, MA

TERSat Attitude Determination & Control Subsystem (ADCS) Lead

Jan 2012 – Present

- Conducted orbit analysis in STK for TERSat (Trapped Energetic Radiation Satellite, MIT's entry for the University Nanosatellite Program) to determine optimal orbit parameters for communication with USAF DSX satellite and effects on solar cell power output and power storage requirements
- Refined ADCS design, incorporated reaction wheel desaturation behavior into Simulink control model

Northrop Grumman Aerospace Systems

Redondo Beach, CA & Cambridge, MA

Intern, Chandra X-Ray Observatory Flight Operations Control Center

Jan 2012 – Mar 2012

- Used MATLAB and Mathematica to analyze the impacts of a reduced orbit perigee on the attitude control system, specifically those due to increased earthshine detected by the coarse sun sensors

Technical Intern, Advanced Concepts Division

Jun 2010 – Aug 2010

- Tailored unit environmental testing plans to be in accordance with NASA/DoD standards
- Performed Technology Readiness Assessments for satellite subsystem designs
- Compiled heritage evaluations & equipment information for submission in a NASA Discovery Mission Proposal

Intern, Systems Engineering Department

Jun 2008 – Aug 2008

- Audited system requirements documents for the James Webb Space Telescope, evaluating consistency across different subsystem interfaces
- Assisted in the closure of action items from design reviews, resulting in resolution of ~200 outstanding design issues

MIT Space Propulsion Laboratory

Cambridge, MA

Undergraduate Researcher

Sep 2011 – Dec 2011

- Photographed porous metal emitter samples using scanning electron microscope and used MATLAB image analysis tools to produce data and visualizations of pore size distribution
- Extended Fortran simulation of ion electrospray thruster to show interaction of multiple ion sources in emitter array

Hydra-Electric Company

Burbank, CA

Design Engineer Intern

Jun 2011 – Aug 2011

- Devised and carried out pressure switch temperature tests to verify electronics survivability and calibration consistency; wrote MATLAB scripts to perform stress and deformation analysis for prototype assembly

Skills & Activities

- **Programming:** MATLAB ♦ Java 6 ♦ some C/C++, Fortran, & Python
- **Software:** STK 9 ♦ Simulink ♦ SolidWorks ♦ Mathematica 8 ♦ Eclipse ♦ LaTeX
- **Machining:** trained in use of mill and lathe
- AIAA MIT Chapter (Executive Board member) ♦ A Cappella singing (MIT Chorallaries – President 2012, Winter Concert Chair 2011 & 2012, Secretary 2010) ♦ Orientation leader for MIT c/o 2016 ♦ Counselor for Discover Aerospace freshman pre-orientation program ♦ intramural soccer, basketball, and ultimate frisbee ♦ backpacking

Honors & Awards

Northrop Grumman National Merit Scholarship recipient ♦ National Honor Society ♦ American Invitational Mathematics Examination (AIME) qualifier (2008) ♦ Order of the Arrow Boy Scout Honor Society