

# CURRICULUM VITAE

**Brian G. Williams, Ph.D., P.E.**

## Campus

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## EDUCATION

***Ph.D. in Mechanical Engineering (1997)***, Utah State University, Logan, UT.

Dissertation title: “Integrating a Triple-Point Phase Change Substance with Mechanical Cryocoolers”. Advisor: Dr. J. Clair Batty

***M.S. in Mechanical Engineering (1991)***, Utah State University, Logan, UT.

Thesis title: “Extended Life Cryogenic Cooler”. Advisor: Dr. J. Clair Batty

***B.S. in Mechanical Engineering (1990)***, Brigham Young University, Provo, UT.

## ACADEMIC EXPERIENCE

**Associate Professor, Mechanical Engineering**, College of Engineering, Idaho State University, Pocatello, Idaho (*August 2006 to present*).

**Coordinator of Mechanical Engineering Program**, College of Engineering, Idaho State University, Pocatello, Idaho (*June 2004 to February 2005*).

**Assistant Professor, Mechanical Engineering**, College of Engineering, Idaho State University, Pocatello, Idaho (*August 2001 to July 2006*).

**Staff Lecturer**, Engineering Department, California State University – Hayward (CSU-H), Hayward, California. (*Fall 1999 & Spring 2000 Terms*)

- Taught *Mechanics of Materials* (Fall) and *Engineering Dynamics* (Spring).

## PROFESSIONAL EXPERIENCE

**Licensed Professional Engineer**, State of Idaho (since May 2003)

**Principal Thermal Analysis Engineer**, General Dynamics Ordnance and Tactical Systems, Space Operations, Redmond, Washington (*February 2001 to August 2001*)

- Member of the Engineering Services Group, tasked with providing thermal, thermodynamic, and fluid analysis for GD-OTS’s unique monopropellant thrusters.
- Extensive use of CAE tools, including I-DEAS, TMG, Display (a meshing program), and SINDA/G.
- Programs have included the Theater High-Altitude Air Defense (THAAD) warm gas pressurization system and a Viking-like lander motor for a Mars mission.
- Research areas included natural and forced convection effects of a reacting, phase-changing fluid flowing through a particle bed.

**Sr. Mechanical Engineer, CryoFuel Systems, Monroe, Washington (August 2000 to February 2001)**

- Project engineer overseeing the development of a low-pressure mixed refrigerant cascade (LPMRC) natural gas liquefier. Responsible for the testing of an existing configuration, the design and construction of a re-worked version, modeling with HISYS, cost tracking, test plans, and data analysis.
- Mechanical Engineer on CryoFuel's first deliverable landfill gas (LFG) processing plant. Responsibilities included the super insulation of cryogenic components inside the vacuum space, foam insulation of exposed piping and vessels, thermal and structural analysis of various components using COSMOS/Works for Solid Works, refrigerant charging procedure, and startup operations.

**Mechanical Engineer Specialist, Lockheed Martin Missiles & Space Company, Palo Alto, California (August 1996 to August 2000)**

- Member of the Mechanical & Thermal Technologies group at the Advanced Technology Center.
- Extensive use of CAE tools, including SINDA/G, SINDA-FLUINT, I-DEAS, and TMG.
- Project Manager and Lead Engineer on the Warfighter MWIR cooler system project (approximate project cost of \$500,000) that integrates a mechanical cryocooler with a triple-point phase-change thermal storage unit as part of an orbital multispectral imager. Responsibilities included overseeing the design, fabrication, building, and acceptance testing of the cooler system. Also responsible for program management tasks such as maintaining schedule and cost, interfacing with the customer, and overseeing subcontractors and vendors to ensure the acquisition and timely delivery of components.
- Systems Engineer for the DARPA/HTS Technology Demonstration program in which a pulse tube cryocooler is used to cool spacecraft communication hardware employing high temperature superconducting technology. Responsibilities include spacecraft and system level engineering trade studies; design, analysis, building, and testing of the cryo-package; integration studies of the coolers to the cryo-package as well as to the spacecraft; compliance of the program to ISO 9001 standards; and the laboratory setup and testing of a high-capacity (10 W at 77 K) pulse tube cryocooler. Also involved in the development and testing of a novel thermal disconnect RF coax cable.
- Other programs have included the etalon sensor on Lockheed's Next Generation Space Telescope (NGST) project, the Defense Meteorological Satellite Platform (DMSP), and the anti-missile Air Born Laser's (ABL) inertial reference transfer unit (IRTU).
- Research areas included triple point thermal storage units for nitrogen and ethane, cryocooler integration to packages and spacecraft, and thermal distortions in non-isentropic property mirrors undergoing large temperature changes.

**PAPER REVIEWER**

- ASME Journal of Dynamic Systems
- ASME Journal of Fluids Engineering
- ASME Journal of Heat Transfer
- ASME Journal of Solar Energy
- Nuclear Engineering and Design

**SERVICE**

***Professional***

- Member of the K-18 Low Temperature Heat Transfer Technical Committee
  - *Topic Organizer* for the K-18 sessions of the 2005 IMECE
  - *Topic Organizer* for the K-18 sessions of the 2006 ASME Summer Heat Transfer Conference
- Idaho Society of Professional Engineers – SE Idaho Chapter
  - Treasurer, 2003-2004
  - President elect, 2004-2005

- President, 2005-2006

### *Academic at ISU*

- University Faculty Senate, *August 2006 – December 2006*
- University Curriculum Council, *August 2003 – May 2006*
- University Distinguished Public Service Selection Committee, *2002 – 2004*
- University Research Coordinating Council, *2002 – 2003*
- University Search Committees:
  - Vice President of Research, *Fall 2006 – February 2008*
  - Dean of College of Engineering, *Fall 2005 – Spring 2006*
- College Promotion and Tenure Review Committee (PTRC), *August 2006 – present*
- College Search Committees:
  - Chair of Nuclear Engineering Department, *Fall 2006 – Spring 2007*
  - Mechanical Engineering Faculty Member, *Spring 2004*

## **PUBLICATIONS**

### *Journal Papers*

Paladugu, Lalitha, Ebenezer Seisie-Amoasi, Marco P. Schoen, and **Brian G. Williams**, 2006, “*Intelligent Star Pattern Recognition for Attitude Determination: The ‘Lost in Space’ Problem*,” *AIAA Journal of Aerospace Computing, Information, and Communication*: Vol. 3 (November), 538-49.

Guillen, Donna Post, and **Brian G. Williams**, 2006, “*In-Flight Oxidation of Aluminum in the Twin-Wire Electric Arc Process*,” *Journal of Thermal Spray Technology*: March 15(1): 63-71.

Mansour, R. R., Ye Shen, B. Jolley, G. Thomson, S. F. Peik, T. Romano, Tang Wai-Cheung, C. M. Kudsia, T. Nast, **B. Williams**, D. Frank, D. Enlow, G. Silverman, J. Soroga, C. Wilker, J. Warner, S. Khanna, G. Seguin, and G. Brassaed, 2000, “*A 60-Channel Superconductive Input Multiplexer Integrated with Pulse-Tube Cryocoolers*,” Invited paper, *IEEE Transactions on Microwave Theory and Techniques*: 48(7) pt. 2: 1171-80.

**Williams, Brian**, Scott Jensen, Mark Chadek, and J. Clair Batty, 1996, “*Solderless Flexible Thermal Links*,” *Cryogenics*: Vol. 36, No. 10: 867-9.

### *Conferences*

Hiral Kadakia, **Brian Williams**, and Richard R. Schultz, 2008, “*Experiments to Investigate Flow Regime Transition from Stratified Flow to Slug Flow for Countercurrent Flow of Steam and Subcooled Water Separated by Saturated Layer in Horizontal Pipe*,” to be presented at the International Conference on Nuclear Engineering (ICONE16), May 11-15, Orlando, FL.

Richard R. Schultz, Hiral Kadakia, **Brian Williams**, and Jim C. P. Liou, 2008, “*Modeling Flow Transition from Horizontally-Stratified Flow to Slug-Flow*,” to be presented at the International Conference on Nuclear Engineering (ICONE16), May 11-15, Orlando, FL.

Hiral Kadakia, **Brian Williams**, William Phoenix, and Richard R. Schultz, 2006, “*Advanced Reactor Passive Emergency Core Cooling System Stratified Flow Experiments and Characterization of Condensation Induced Water Hammer*, Project No: DE-FG07-03ID14500,” presented at the American Nuclear Society (ANS) 2006 Winter Meeting, November 12 – 16, Albuquerque, NM.

- Barathram Ramkumar, Marco P. Schoen, Feng Lin, and **Brian G. Williams**, 2006, "Hybrid Optimization Algorithm using Enhanced Continuous Tabu Search and Genetic Algorithm for Parameter Estimation," presented at the 2006 ASME International Mechanical Engineering Congress and Exposition (IMECE), November 5-10, Chicago, IL.
- Hiral Kadakia, **Brian Williams**, William Phoenix, and Richard R. Schultz, 2006, "Design and Calibration of Heated Concentric Low Flow Thermal Velocimeter for the Measurement of Single-Phase Flow," in Proceedings of the 9<sup>th</sup> AIAA/ASME Joint Thermophysics and Heat Transfer Conference, June 5-8, San Francisco, CA.
- Hiral Kadakia, **Brian Williams**, Richard R. Schultz, and Jim C. P. Liou, 2005, "Advanced Reactor Passive Emergency Core Cooling System Stratified Flow Experiments, Project No: DE-FG07-03ID14500," presented at the American Nuclear Society (ANS) 2005 Winter Meeting, November 15, Washington, D.C.
- Seisie-Amoasi, Ebenezer, **Brian G. Williams**, and Marco P. Schoen, 2005, "*Optimization of a Star Pattern Recognition Algorithm for Attitude Determination using a Multi-Objective Genetic Algorithm Approach*," in Proceedings of the 2005 ASME International Mechanical Engineering Congress and Exposition, November 5-11, Orlando, FL.
- Sekhri, Rahul, Marco P. Schoen, Feng Lin, and **Brian G. Williams**, 2005, "*Experimental Study of the Dynamics of Synthetic Jet Actuators with Different Orifice Sizes*," in Proceedings of the 2005 ASME International Mechanical Engineering Congress and Exposition, November 5-11, Orlando, FL.
- A. S. Siahpush, J. E. O'Brien, and **B. Williams**, 2005, "*Heat Transfer Performance of a Porous Metal Foam/Phase Change Material System, Part 1: Freezing*," In Proceedings of HT05: 2005 ASME Summer Heat Transfer Conference, July 17-22, San Francisco, CA.
- Liou, Jim C. P., Donald L. Parks, Richard R. Schultz, and **Brian G. Williams**, 2005, "*Stratified Flows in Horizontal Piping Systems of Passive Emergency Core Cooling Systems*," presented at the International Conference on Nuclear Engineering (ICONE13), May 16-20, Beijing, China.
- Guillen, Donna Post, and **Brian G. Williams**, 2005, "*Oxidation Behavior of In-Flight Molten Aluminum Droplets in the Twin-Wire Electric Arc Thermal Spray Process*," presented at the International Thermal Spray Conference and Exposition (ITSC 2005), May 2-4, Basel, Switzerland.
- Ellis, Mike, **Brian Williams**, Habib Sadid, Ken Bosworth, and Larry Stout, 2004, "*Math Usage by Practicing Engineers: What does it mean to Curriculum Planners?*" In Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition, June 20-23, Salt Lake City, UT.
- Paladugu, Lalitha, Marco P. Schoen, and **Brian G. Williams**, 2003, "*Intelligent Techniques for Star-Pattern Recognition*," In Proceedings of the IMECE 2003, November 16-21, Washington, D. C.
- Paladugu, Lalitha, **Brian G. Williams**, and Marco P. Schoen, 2003, "*Star Pattern Recognition for Attitude Determination Using Genetic Algorithms*," In Proceedings of the 17<sup>th</sup> Annual AIAA/USU Conference on Small Satellites, August 11-14, Logan, UT.
- Nast, T. C., **B. G. Williams**, V. Y. Kotsubo, J. R. Olson, and D. J. Frank, 2000, "*Development and Testing of a Cryogenic 60-Channel HTS Input Multiplexer*," In *Advances in Cryogenic Engineering*, Vol. 45, edited by Quan-Sheng Shu, Kluwer Academic Publishers: NY, NY, Presented at the Cryogenic Engineering Conference, 12-16 July, Montreal, Quebec, Canada.

- Williams, B. G.** and I. E. Spradley, 1998, "*Test Results of a 63 K Triple-Point Nitrogen Thermal Storage Unit,*" In Proceedings of the 10th International Cryocooler Conference, edited by R. G. Ross, Jr., 26-27 May, Monterey, California.
- Nast, T. C., P. Champagne, J. R. Olson, V. Kotsubo, **B. Williams**, and R. Clapier, 1998, "*Developments of Pulse Tube Cryocoolers for HTS Satellite Communications,*" In Proceedings of the 10th International Cryocooler Conference, edited by R. G. Ross, Jr., 26-27 May, Monterey, California.
- Williams, Brian**, Richard Robinson, and J. Clair Batty, 1996, "*Test Results of an Integrated Triple Point Phase Change Cooler/Cryogenic Refrigerator System,*" In Proceedings of Cryogenic Optical Systems and Instruments VII, 8-9 August, Denver, Colorado: 176-86.
- Williams, Brian**, Scott Jensen, and J. Clair Batty, 1996, "*An Advanced Solderless Flexible Thermal Link,*" In Proceedings of the 9th International Cryocooler Conference, edited by R. G. Ross, Jr, 25-27 June, Waterville Valley, New Hampshire.
- Williams, Brian G.** and J. Clair Batty, 1995, "*Cool Things in Space,*" In Proceedings of the Rocky Mountain NASA Space Grant Consortium Symposium, 14 June, Salt Lake City, Utah.
- Williams, Brian**, Paul Neilson, Jeff Gessaman, Kent Anderson, and Casey Hatch, 1995, "*Unity IV Recovery System,*" In Proceedings of the 13th AIAA Aerodynamic Decelerator Systems Technology Conference, 15-18 May, Clearwater Beach, Florida, Presented during the Plenary Session.
- Williams, Brian G.** and J. Clair Batty, 1994, "*ICE (Integrated Cooler Experiment) for COOLSAT,*" In Proceedings of the 8th International Cryocooler Conference, edited by R. G. Ross, Jr, 28-30 June, Vail, Colorado.
- Mueller, Paul, **Brian Williams**, and J. C. Batty, 1994, "*Long-Term Hydrogen Storage for Bimodal Space Power and Propulsion Systems,*" In Proceedings of the 30th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, 27-29 June, Indianapolis, Indiana.
- Batty, J. Clair, **Brian G. Williams**, William W. Burt, and William A. Roettker, 1994, "*Cooling SABER: interface, performance, and design issues,*" In Proceedings of the SPIE Cryogenic Optical Systems and Instruments VI Conference, 5-8 April, Orlando, Florida.
- Williams, Brian G.** and J. Clair Batty, 1994, "*Development of a Mechanical Refrigerator/Phase-Change Cooler for Space-Based Sensor Applications,*" In Proceedings of the SPIE Cryogenic Optical Systems and Instruments VI Conference, 5-8 April, Orlando, Florida.
- Mueller, Paul, **Brian Williams**, and J. C. Batty, 1993, "*Long Term Hydrogen Storage for Bimodal Space Power and Propulsion Systems,*" Presented at the 1993 Space Cryogenics Workshop, 20-21 July, San Jose, California.
- Williams, Brian G.** and J. Clair Batty, 1992, "*Incorporating a Mechanical Refrigerator with a Refreezable Cryogen in Space Applications,*" In Proceedings of the 7th International Cryocooler Conference, 17-19 November, Santa Fe, New Mexico.
- Williams, Brian G.** and Ali Siahpush, 1992, "*Application of Thermal-Driven Heat Pumps to the Storage of Cryogenic Hydrogen Propellant for Nuclear Rockets,*" In Proceedings of the ASME Winter Annual Meeting; Symposium on Heat Pump Design, Analysis and Application; 8-13 November, Anaheim, California.

Christensen, Craig B., Andrew L. Shumway, **Brian G. Williams**, Frank J. Redd, and James N. Cantrell, 1990, "Snakerope Studies for the Mars 1994 Mission," Presented at the Case for Mars IV conference on 6 June, Boulder, Colorado.

### **Technical Reports (While at ISU)**

**Brian G. Williams**, Richard R. Shultz, Bill Phoenix, Hiral Kadakia, and Jim C. P. Liou, 2007, Final Report for "LWR Passive Safety – Providing the Basis for Innovative Improvements in Advanced LWR Reactor Passive Systems Design: An Educational R&D Project," For period July 16, 2003 – July 15, 2006, Department of Energy (DOE) Nuclear Engineering Education Research (NEER) Program Award Number DE-FG07-03ID14500.

**Brian Williams** and John Crepeau, 2006, Final Report for "Gas Test Loop Booster Fuel Hydraulic Test." Prepared for the Idaho National Laboratory (INL) in response to contract work performed under SOW-2958.

**Brian G. Williams**, Richard R. Shultz, Bill Phoenix, Hiral Kadakia, and Jim C. P. Liou, 2005, Yearly Progress Report for "LWR Passive Safety – Providing the Basis for Innovative Improvements in Advanced LWR Reactor Passive Systems Design: An Educational R&D Project," For period July 16, 2004 – July 15, 2005, Department of Energy (DOE) Nuclear Engineering Education Research (NEER) Program Award Number DE-FG07-03ID14500.

**Brian G. Williams**, Richard R. Shultz, Bill Phoenix, Hiral Kadakia, and Jim C. P. Liou, 2004, Yearly Progress Report for "LWR Passive Safety – Providing the Basis for Innovative Improvements in Advanced LWR Reactor Passive Systems Design: An Educational R&D Project," For period July 16, 2003 – July 15, 2004, Department of Energy (DOE) Nuclear Engineering Education Research (NEER) Program Award Number DE-FG07-03ID14500.

**Brian G. Williams**, 2004, *Final Report: "Feasibility Study of Hybrid Propulsion for Attitude Control" for the period of October 1, 2003 through August 31, 2004*, NASA Idaho EPSCoR Program Collaboration Grant.

Marco P. Schoen and **Brian G. Williams**, 2004, *Final Report: "Star Pattern Recognition Using Intelligent Systems for Attitude Determination and Control"*, NASA Idaho EPSCoR Program Collaboration Grant.

Marco P. Schoen and **Brian G. Williams**, 2003, *Final Report: "Multi-Star Identification for Attitude Determination and Control"*, ISU Infrastructure Funds.

### **Other Publications**

**B. Williams**, J. C. P. Liou, H. Kadakia, and R. Schultz, 2005, "Advanced Reactor Passive Emergency Core Cooling System Stratified Flow Experiments," presented at the IAEA's Second Research Coordination Meeting on the CRP on Natural Circulation Phenomena, Modeling, and Reliability of Passive Safety Systems that Utilize Natural Circulation, August 29 – September 2, Oregon State University, Corvallis, OR.

**Williams, Brian G.**, 1997, "Integrating a Triple-Point Phase Change Substance with Mechanical Cryocoolers," Ph.D. dissertation, Department of Mechanical & Aerospace Engineering, Utah State University.

**Williams, Brian**, 1993, "Cryogenic Refrigerators," Section 6.3.3 of The Infrared and Electro-Optical Handbook,

**Williams, Brian G.**, 1991, "*Extended Life Refreezable Solid Cryogenic Cooler*," Master's thesis, Department of Mechanical & Aerospace Engineering, Utah State University.

## **GRANTS**

### ***Externally Funded Projects at ISU (total: \$772,586)***

- NASA Idaho Space Grant Consortium, **\$14,494**, Characterization of Micro Liquid Lens Optics for Spacecraft-Borne Imaging Systems, *September 2007 – March 2008*.
- Idaho National Laboratory/BEA, **\$109,107**, (includes original funding of \$14,408 plus proposal modification of \$94,699) Advanced Test Reactor (ATR) Hydraulic Shuttle Irradiation System (HSIS) Hardware Demonstration Station Support, *August 2007 – December 2008*.
- Jefferson National Laboratory/Jefferson Science Associates, LLC, **\$64,545**, Mechanical Engineering Design of the Region 3 Drift Chambers for the Hall B 12 GeV Upgrade, (Co-P.I. with Tony Forest, ISU Dept. of Physics), *May 2007 – September 2008*.
- Idaho National Laboratory/BEA, **\$5,652**, Hydraulic Testing to Support Irradiation Testing in the Advanced Test Reactor, *January 2007 – April 2007*
- Idaho National Laboratory/BEA, **\$34,997**, Particle Tracking Velocimeter Calibration Project, *February 2006 – December 2007*.
- Idaho National Laboratory/BEA, **\$200,931** (including subsequent proposal modifications) Gas Test Loop Booster Fuel Hydraulic Test (Co-P.I. with John Crepeau, University of Idaho), *September 2005 – December 2006*.
- NASA Idaho Space Grant Consortium, **\$29,732**, FIRST Program Augmentation (Co-P.I. with Mike Ellis), *January 2005*.
- U.S. Department of Energy (DOE), Nuclear Engineering and Education Research (NEER) Program, **\$288,547**, Providing the Basis for Innovative Improvements in Advanced LWR Reactor Passive Safety System Design: An Educational R&D Project, *July 2003 – July 2006*. This project's original P.I. was Al Stephens; I became P.I. upon his retirement in August 2004. Of the total funding, \$184,976 has been under my control as well as the responsibility for writing all yearly reports (to date), requests for continuing funding, and ensuring that the project meets all objectives and satisfies the DOE.
- NASA Idaho Space Grant Consortium, **\$4,000**, Star Pattern Recognition Using Intelligent Systems for Attitude Determination and Control (Co-P.I. with Marco Schoen), *December 2003*.
- NASA Idaho Space Grant Consortium, **\$3,987**, Feasibility Study of Hybrid Propulsion for Attitude Control, *October 2003*.
- NASA Idaho Space Grant Consortium, **\$9,996**, Investigation of a Liquid/Vapor Interface Sensor for Low Gravity Applications, *August 2002*.
- Idaho/NSF EPSCoR, **\$6,598**, New Faculty Startup Funding to purchase research equipment, *October 2001*.

### ***Internally Funded Projects at ISU (total: \$13,003)***

- ISU Faculty Research Committee Grant, **\$4,500**, Development and Testing of a Small Star Sensor for Spacecraft Attitude Determination, *December 2003*.
- ISU Undergraduate Research Committee, **\$943**, Investigation of Techniques to Determine the Location of a Liquid/Vapor Interface with Low Gravity Applications (Co-P.I., P.I. was Tom Burnham), *November 2002*.
- ISU Infrastructure Research Funds, **\$7,560**, Multi-Star Identification for Attitude Determination and Control (Co-P.I. with Marco Schoen), *August 2002*.

## SYNERGESTIC ACTIVITIES

- Chief Scientific Investigator on the International Atomic Energy Agency's (IAEA) Cooperative Research Project (CRP) on Natural Circulation Phenomena, Modeling, and Reliability of Passive Systems that Utilize Natural Circulation. Serving as the coordinator of Phenomena 9: Liquid Temperature Stratification. Attended the 2<sup>nd</sup> through 4<sup>th</sup> Annual Research Coordination Meeting (RCM) held at Oregon State University, Corvallis, OR, in September 2005; CEA-Cadarache, France, in September 2006; and IAEA Headquarters in Vienna, Austria, in September 2007.

## GRADUATE STUDENT SUPERVISION

### *Ph.D.*

- Donna Guillen, **May 2005** (advisor), "Oxidation Behavior of In-Flight Molten Aluminum Droplets in the Twin-Wire Electric Arc Thermal Spray Process," Ph.D. in Engineering and Applied Science, Idaho State University.
- Hiral Kadakia, (advisor), "Stratified Two-Phase Flow Experimentation for Innovative Improvements in Advanced LWR Passive Safety System Design," Ph.D. in Engineering and Applied Science, *in progress*.
- Richard Schultz (advisor), "Techniques to Model a Typical Condensation-Induced Water Hammer Event Measured at the Two-Phase Flow Test Facility (TPTF)," Ph.D. in Nuclear Science and Engineering, *in progress*.

### *M.S. as Advisor*

- Rama Krishna Garlapally, **December 2006** (advisor), "Correlation of Fluid Natural Convection to Fluid Conduction," M.S. in Mechanical Engineering, Idaho State University.
- Steve Chandler, **December 2006** (advisor), "Neutron and Photon Production Target Chamber at the Idaho Accelerator Center," M.S. in Mechanical Engineering, Idaho State University.
- Michael Miller, **May 2006** (advisor, co-advisor Marco Schoen), "Design and Fabrication of an Imaging System for a Star Tracker," M.S. in Measurement and Controls Engineering, Idaho State University.
- Hiral Kadakia, **May 2004** (advisor), "Characterization and Supercooling Investigation of an Ethane Triple Point Thermal Storage Unit," M.S. in Engineering Structures and Mechanics, Idaho State University.
- Jennifer Cannon, (advisor), "Liquid Lens", M.S. in Mechanical Engineering, Idaho State University, *in progress*.
- Kalyan Jinnuri, (advisor), "Mechanical Engineering Design of the JLab Region 3 Drift Chambers", M.S. in Mechanical Engineering, Idaho State University, *in progress*.
- Jon Web (advisor), "Radioisotope Heated Air-Breathing Engine Design for Flight on Tital", M.S. in Nuclear Engineering, Idaho State University, *in progress*.

### *M.S. as Co-Advisor*

- Gerald J. McNabb, **May 2007** (co-advisor, advisor Marco Schoen), "Star Tracker Algorithm Migration from MatLab to an Embedded System", M.S. in Measurement and Controls Engineering, Idaho State University.
- Ebenezer Seisie-Amoasi, **December 2004** (co-advisor, advisor Marco Schoen), "Optimization of a Star Pattern Recognition Genetic Algorithm for an Intelligent Star Tracker Using Multi-Objective Genetic Algorithm," M.S. in Measurement and Controls Engineering, Idaho State University.
- Lalitha Paladugu, **May 2004** (co-advisor, advisor Marco Schoen), "Intelligent Star Pattern Recognition Techniques for Attitude Determination," M.S. in Measurement and Controls Engineering, Idaho State University.

## **HONORS AND AWARDS**

- *Most Influential Professor* for the 2004 College of Engineering Outstanding Graduate, Christie Chatterley.
- LMMS Superior Performance Award as part of the pulse tube cryocooler team (*November 1997*).
- Outstanding Graduate Student of the Year for the Department of Mechanical & Aerospace Engineering, Utah State University (*1993-1994*).
- Rocky Mountain NASA Space Grant Consortium Fellowship for the period of *June 1992 to July 1996*.

## **SUCCESSFUL COMPLETION**

- SDRC course on I-DEAS solid modeling (*April 2001*)
- Lockheed Martin internal short-course on *Optics* (*1997*)