
DATE January 30, 2020

NAME Steven F. Barrett, Ph.D., P.E.

CURRENT POSITION

Associate Dean for Academic Programs, College of Engineering and Applied Science
Professor, Electrical and Computer Engineering
University of Wyoming

ADDRESS College of Engineering and Applied Science
Department 3295, 1000 E. University Ave, Laramie WY 82071
(307) 766-6181, steveb@uwyo.edu
Cell: (719) 640-2203

LICENSURE Wyoming, Colorado – Professional Engineer - Electrical Engineering

EDUCATION

- Ph.D. Electrical Engineering, The University of Texas at Austin, 1993
Dissertation: "Digital Tracking and Control of Retinal Images," advisor: Dr. A.J. Welch
Major areas: Biomedical engineering, image processing, instrumentation, and system programming
Minor area: optics, laser-tissue interactions
- M.E. Electrical Engineering, The University of Idaho at Moscow, 1986
Major area: digital design
- B.S. Electronic Engineering Technology, The University of Nebraska Lincoln (Omaha campus), 1979
Major area: digital design

EMPLOYMENT

2010 – Present: Associate Dean of Academic Programs, Professor of Electrical and Computer Engineering, College of Engineering and Applied Science, University of Wyoming, Laramie, WY. Coordinate and strengthen the College's ten baccalaureate programs. Leads College's continuous improvement of baccalaureate-degree programs, ABET accreditation efforts, and Engineering Science Program (resident and distance education). Guide development and disbursement of the College's portfolio of undergraduate scholarships. Directs College's Center for Student Success. Teach courses from freshmen to graduate level in engineering science, embedded system design, circuits, microcontrollers, hardware descriptive language, biomedical engineering, industrial control, programmable logic controllers (PLCs), and senior capstone design. Conducts research in assistive technology, embedded controller applications, biologically inspired machine vision, analog/digital image processing and detection of critical material with passive muon imaging. Co-coordinator and instructor Veteran's Transition Course. Serves as Acting Dean in Dean's absence. Supervise two faculty members, ten staff members. Special projects: Maker Space Development, Computer Engineering Technology degree development, online distance education engineering science courses.

2005 – 2010: Tenured Associate Professor of Electrical and Computer Engineering, Assistant Department Chair, Department of Electrical and Computer Engineering, University of Wyoming, Laramie, WY. Teach courses in embedded system design, circuits, microcontrollers, hardware descriptive language, biomedical engineering,

and senior design. Conducts research in assistive technology, embedded controller applications, biologically inspired machine vision, and analog image processing. Chairs college academic programs committee and serves on teaching improvement committee. Department ABET representative. Assistant department chair (2007 – 2010 term). Faculty participant in graduate Neuroscience Program.

2000 – present: WYCO Embedded Systems, LLC, owner and manager, provides consulting services for proprietary, custom, Underwriter Laboratory (UL) approved embedded solutions for industrial control applications worldwide.

1999 – 2005: Assistant Professor of Electrical and Computer Engineering, Department of Electrical and Computer Engineering, University of Wyoming, Laramie, WY. Teach courses in digital design, circuits, image processing, microprocessors, computer architecture, and biomedical engineering. Conducts research in assistive technology, computer-assisted medical systems, digital image processing, embedded controller applications, and analog image processing. Served on university committee to establish computer engineering major, the engineering committee for EC2000 ABET accreditation, the teaching evaluation committee, and the academic programs committee. Prepared ABET self-study for Electrical and Computer Engineering.

1998 – 1999: Professor of Electrical Engineering, Deputy (Associate) Department Head of Electrical Engineering, USAF Academy, CO. Provided leadership, direction, and administration of the electrical engineering department in absence of the Department Head. Responsible for department's advising program. Consults on all changes to electrical engineering program. Manages military, fiscal, administrative, and academic issues involving 18 officers and 9 civilians. Led team of 10 faculty members to develop computer engineering major at USAFA. Provided key senior leadership in development of department's self-assessment program. Managed Visiting Professor, Civilian Faculty, and student awards and scholarship programs. Teach and direct courses in digital design, circuits, embedded controllers, and power systems. Conducted research in automated surgical laser systems. Extensive programming in "C". Military Rank: Lt Colonel

1997 – 1998: Professor of Electrical Engineering, Deputy for Operations, Department of Electrical Engineering, USAF Academy, CO. Responsible for 20 officers, 6 civilians, 25 courses, and daily operation of three department divisions. Responsible for short and long-range department scheduling and planning. Taught and directed courses in digital design, power systems, introduction to engineering, instrumentation, and senior capstone design course. Conducted research in automated surgical laser systems. Extensive programming in "C". Military Rank: Lt Colonel

1996 – 2002: Adjunct Professor, Colorado Technical University, Colorado Springs, CO. Taught courses in introductory and advanced digital design, embedded controllers, and undergraduate and graduate computer architecture.

1994 – 1997: Associate Professor of Electrical Engineering, Computer Engineering Division Chief, USAF Academy, CO. Responsible for five officers, two civilians, five courses, and daily operation of computer engineering division. Led two-year effort to design and build 30 computer trainers. Implemented multiple program and course improvements. Taught and directed courses in image processing, digital design, power systems, circuits, instrumentation, senior electronics lab, and senior capstone design. Conducted research in automated surgical laser systems. Extensive programming in "C," Pascal, and MATLAB. Military Rank: Major, Lt Colonel

1993 – 1994: Assistant Professor of Electrical Engineering, Computer Engineering Division Chief, USAF Academy, CO. Responsible for five officers, two civilians, five courses, and daily operation of computer engineering division. Taught courses in power systems, senior electronics lab, and senior design. Conducted research in automated surgical laser systems. Extensive programming in "C," Pascal, and MATLAB. Military Rank: Major

1990 – 1993: Ph.D. Candidate, The University of Texas at Austin. Conducted inter-disciplinary research in automated laser surgery. Maintained 4.0 GPA. Maintained optical research laboratory and UNIX laboratory computer system. Extensive programming in "C," Pascal, and FORTRAN. Awarded Ph.D. May 1993.

1988 – 1990: Instructor of Electrical Engineering, Personnel Officer, USAF Academy, CO. Maintained department manning at 100%. Taught undergraduate courses in biomedical engineering, communication signals and systems, and electronics. Military Rank: Captain

1986: Adjunct Instructor of Electronic Engineering, The University of Nebraska (Omaha campus), Nebraska. Course taught: electronic devices. Responsibilities: course directorship, administration, and teaching.

1985 – 1988: Missile Staff Officer, Headquarters Strategic Air Command, United States Air Force, Offutt Air Force Base, Nebraska. Program Manager for Peacekeeper missile. Rank: Military Captain

1983 – 1985: Missile Operations Instructor, 4315th Combat Crew Training Squadron, United States Air Force, Vandenberg Air Force Base, California. Military Rank: Captain

1979 – 1983: Missile Combat Crew Member, Senior Instructor Crew, 341st Strategic Missile Wing, United States Air Force, Malmstrom Air Force Base, Montana. Military Rank: 2 Lt - Captain

1975 – 1979: Alpha Omega Applied Electronics, Bellevue, NE. Varied positions within electronics distribution, engineering firm.

HONORS AND AWARDS

National Council of Examiners for Engineering and Surveying (NCEES) Distinguished Service Award - 2020, nominated by the Wyoming Board of Professional Engineers and Professional Land Surveyors, **pending**

University of Wyoming Veterans Service Center Outstanding Staff Recognition Award Sep 28, 2019

American Society for Engineering Education, Computers in Education Division Service Award, 2019, "In appreciation for your many years of dedication and devotion to the ASEE Computers in Education Division"

Honorary Marshal, University of Wyoming, December 2017 Winter Commencement and May 2019 Commencement, "In recognition of exemplary service to the mission of the University of Wyoming"

UW Outstanding Service and Dedication Award, 2016 – presented by the University of Wyoming Cap and Gown Chapter of Mortarboard. "The Service and Dedication Award is presented to a member of the university community who has exhibited exceptional dedication to the students and service to the university for a number of years."

Electrical and Computer Engineering Department IEEE Student's Choice Award, 2004, 2007, 2010, 2013

- Presented by UW's Institute of Electrical and Electronics Engineers (IEEE) student branch

"Top Prof" Award by the University of Wyoming Mortar Board Society

- 2000, 2001, 2002, 2003, 2007, 2009, 2011, 2016

Honorary Member of Golden Key International Honour Society, University of Wyoming, 2010

- Key note speaker, new member recognition event and reception, Nov 2010

National Society Professional Engineers (NSPE)/Professional Engineers in Higher Education, Engineering Education Excellence Award, 2008 (1 awarded nationally per year)

President's Award, Rocky Mountain Bioengineering Symposium, Incorporated, 2007 (1 awarded per year)

Carnegie Foundation for the Advancement of Teaching, Wyoming Professor of the Year, 2004

John P. Ellbogen Meritorious Classroom Teaching Award, University of Wyoming, 2004

American Society for Engineering Educators (ASEE) Rocky Mountain Section Outstanding Teaching Award, 2004, section includes Colorado, Wyoming, and Utah engineering schools and the west half of South Dakota

Outstanding Recognized Student Organization (RSO) Advisor Honorable Mention, UW, 2004.

Mortar Board Outstanding Academic Advisor at the University of Wyoming 2003

United States Air Force (USAF) Research and Development Award (1 awarded annually USAF-wide) 1997

Frank J. Seiler Award for Research Excellence (1 awarded annually at USAF Academy) 1996

Gen R.E. Thomas Award at the USAF Academy for outstanding classroom education 1990, 1989

CURRENT UW JOB DESCRIPTION

Associate Dean of Academic Programs, College of Engineering and Applied Science, University of Wyoming, Laramie, WY. Coordinate and strengthen the College's ten baccalaureate programs. Leads continuous improvement of baccalaureate-degree programs and Engineering Science Program (resident and outreach). Guide development and disbursement of the College's portfolio of undergraduate scholarships. Directs College's Center for Student Services. Teach courses from freshmen to graduate level in engineering science, embedded system design, circuits, microcontrollers, hardware descriptive language, biomedical engineering, and senior design. Conducts research in assistive technology, embedded controller applications, biologically inspired machine vision, and digital/analog image processing.

47.5% Administration 37.5% Teaching 15% Research, Scholarship, Advising, and Service

1. TEACHING

1.1 Courses Taught (past five years)

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enroll</u>	<u>Credit Total/Comments</u>
2015	Spring	ES1060 Introduction to Problem Solving	3	72	216
		EE4820 Senior Design I	2	10	20
		ES1002 (team teach with Mr. Len Lutz)	0.5	35	
2015	Fall	ES1060 Introduction to Problem Solving	3	43	129
		EE4830 Senior Design II	2	11	22
		ES1101 First Year Seminar	3	24	72
		ES1002 (team teach with Mr. Len Lutz)	0.5	31	
		ME4474 Do-it-yourself (DIY) Prosthetics	3	1	3
		EE2210 Electrical Circuit Analysis (outreach)	3	1	3

2016	Spring	ES1060 Introduction to Problem Solving	3	65	195
		EE4820 Senior Design I	2	10	20
		UWYO1600 Veterans Transition Course - Team teach Dr. C.H.G. Wright	3	14	21 (50%)
2016	Summer	EE4590/5590 Real Time Embedded Systems	3	12	36
2016	Fall	EE4830 Senior Design II	2	10	20
2017	Spring	ES1060 Introduction to Problem Solving	3	32	96
		UWYO1600 Veterans Transition Course • USP 2015, COM2 course • Team teach Dr. C.H.G. Wright	3	10	15 (50%)
		ES1101 First Year Seminar	3	20	60
2017	Fall	ES1060 Introduction to Problem Solving	3	60	180
		COSC2150 Computer Organization (co-teach)	3	30	45 (50%)
2018	Spring	UWYO1600 Veterans Transition Course • USP 2015, COM2 course • Team teach Dr. C.H.G. Wright	3	7	10.5 (50%)
		EE4390 Microprocessors (co-teach)	3	41	61.5 (50%)
		ES1060 Introduction to Problem Solving (did not receive compensation – counted toward AY18/19 load)	3	10	30
2018	Fall	COSC2150 Computer Organization	3	60	180
		EE4820 Senior Design I	2	42	84
2019	Spring	EE4830 Senior Design II	2	21	42
		EE4830 Senior Design II	2	21	42
2019	Fall	COSC2150 Computer Organization	3	75	225
		ES1101 First Year Seminar	3	24	72
2020	Spring	ES1060 Introduction to Problem Solving	3		
		UWYO1600 Veterans Transition Course • USP 2015, COM2 course • Team teach with Dr. C.H.G. Wright, T.K. Stoudt	3		

Summer courses (past five years)

2004 – Present	High School Institute (High School Juniors)	~12/session
2004 – 2018	Engineering Summer Program (High School Seniors)	~10/session

1.2 Sabbaticals and Professional Development (last five years)

- National Council of Examiners for Engineering and Surveying Annual Meeting, Washington, D.C., 2019.
- ABET Commission Conference, Baltimore, MD, July 2019
- Ellbogen Developing Critical Thinking Throughout Your Curriculum Workshop, 2019
- Higher Learning Commission Annual Conference, April 5-9, 2019, Chicago, IL
- ABET Annual Conference, April 10-13, 2019, Dallas, TX
- Council on Licensure, Enforcement, and Regulation (CLEAR) Learning, Communication Skills and the Art of Persuasion/Interviewing Techniques, NCEES Annual Meeting, August 2018
- ABET Training, Bridging Cultures Building Understanding: Education Abroad Programs in the Arab World, webinar, July 2018
- ABET Team Chair Training and National Meeting, Baltimore, MD, July 2018
- Tracking and Engaging the Future: US Air Force Research in 2030, May 2018
- ABET Symposium, latest developments on engineering and computer science accreditation, 14 PDH, 2018
- Ellbogen 21st Century Teaching Workshop, May 2017
- University of Wyoming, Department Heads Workshop, September 2016, 2017
- Applied Suicide Intervention Skills Training, 2 day workshop, August 2016
- Veteran's Green Zone Training, Camp Guernsey, WY, July 22, 2015
- UW LEAD Leadership Development Program, AY14/15

2. SERVICE

2.1 Professional Service

National Council of Examiners for Engineering and Surveying (NCEES)

- ABET Commissioner, NCEES representative, 2018 – present
 - o Serve on national ABET commission, serve as onsite visit team chair
 - o ABET visits: Team Chair (2), co-Team Chair (1)
- Chair, NCEES Electrical and Computer Exam (ECE) PE Exam Development, 2015 – 2019
 - o Lead team of 36 professional engineers in professional licensure examination development
- Vice Chair, NCEES Electrical and Computer Exam (ECE) PE Exam Development, 2012 -- 2014
- Chair, Professional Engineer (PE) Computer Engineering Examination Subcommittee, 2008 – 2014
 - o Lead team of 10 professional engineers in professional licensure examination development
- Member, Electrical and Computer Examination Committee, 2002 – present
 - o Writes, edits national professional electrical and computer engineering examination for professional registration, 2000 – present
- Education Committee, member, 2018 - present

Institute Electrical and Electronic Engineers (IEEE) – Senior Member

- Chair, IEEE-USA National Licensure and Registration Committee, 2014– 2015
- IEEE-USA National Licensure and Registration Committee, member, 2003– present
- IEEE EAC ABET Program Evaluator (PEV), 2007 – present
 - o U.S. PEV visits (8), international PEV visit (2 – Northern Cyprus, India)
- Computing in Science and Engineering, IEEE Computer Society, 2007 – 2015, Co-editor for Education, Associate Editor

American Society for Engineering Education (ASEE)

- Chair-elect, 2018 – present (8 year commitment)

- Member, Computers in Education Division, 2004 – present
- Chair, Computers in Education Division, 2008 – 2010

Rocky Mountain Bioengineering Symposium (RMBS), Incorporated

- Co-treasurer, 2018 - present
- Board of Directors, 1994 – present
- President, three terms, 1998 – 1999, 2000 – 2002, 2002 - 2004
- Program co-Chairman, 1998, 2008, 2010 (at UW), 2013 (50th anniversary at USAF Academy), 2016, 2020 (at UW)

Wyoming Engineering Society (WES)

- Member, 2007 – present

2.2 Wyoming State Service

- Gubernatorial appointment to the Wyoming State Board of Registration for Professional Engineers and Professional Land Surveyors, June 1, 2016 – June 1, 2020, nominated for second term beginning July1, 2020 – pending approval by Governor Gordon
- Board Secretary-Treasurer, 2019 - present

2.3 University Service (past five years)

- Chair, UW University Course Committee, 2019 – present; long time committee member; previous chair
- Member, University Studies Program committee, long time committee member
- Chair, search committee, Associate Dean of the Honors College, 2019
- Member, Common Course Numbering System Committee, 2019 -- present
- Instructor, Fulbright Visiting Scholar Program, Iraq – Engineering, July – August, 2019
- Member, Higher Learning Commission, Operations Working Group, 2018 - 2019
- Computer Engineering Technology program development, 2017 – present
- Member, search committee Associate Vice President and Dean of Students, 2018
- Chair, search committee, Dean of the Honors College, 2017
- Member, search committee VP Student Affairs, member, 2016 – 2017
- Chair, Student/Library Innovation Center (Maker Space) development committee, 2016 - 2018
- Honors College Committee, member, Fall 2016
- Wyoming INBRE Statewide Steering Committee, member, 2015 - present
- Articulation Team, Northwest Community College, April 2015.
- Chair, University Studies Review Task Force – Stage 3: Implementation, 2013 – 2014.
 - o Received service recognition from Academic Affairs, Nov 2014.

2.4 College Service (past five years)

- Chair, search committee, Program Coordinator, Senior – Recruiting, 2019 - present
- Search committee, Computer Support Specialist Executive, 2018
- Chair, search committee, Student Innovation Center Coordinator, 2017
- Search committee, Director, Business Operations, 2014-2015
- Co-developed First Year Seminar ES1101: Intro to Engineering Study for University Studies Program 2015
- Chair, ABET Working Group, 2013 – present, prepared for Fall 2015 onsite accreditation visit, preparing for 2021 onsite visit

- American Council of Engineering Companies of Wyoming (Wyoming ACEC) Scholarship Committee, 2011 – present
- New Faculty Orientation Program Coordinator, 2008 -- present
- Tau Beta Pi, the Engineering Honor Society, chief faculty advisor, 2003 – present.
 - o Student chapter chief faculty advisor, 2003 – present
 - o Chapter received R.C. Matthews Award for the best TBP chapter in the nation, 2004
 - o Chapter recognized as the University of Wyoming Outstanding RSO Honorable Mention, 2004
- Joint Engineering Council, faculty advisor, 2010 – present.

2.5 Department Service

- Assistant Department Chair 2007 - 2010
- Acting Department Chair, Summer 2006, 2007, 2008, 2009
- Organized ECE Department Advisory Board Visit, April 2007, October 2008, April 2009
- Search committee, senior technician, 2018.

3. STUDENT ADVISING/GRADUATE SUPERVISION

3.1 Undergraduate Students *(list the # of advisees each year)*

2005 - present:

- Co-Project Advisor, EPSCoR/INBRE Research Fellowship – Carter Schultz, Project: Autonomous Wheelchair, Fall 2012, Spring 2013
- Co-Project Advisor, Wyoming INBRE – Dana Schultz, Project: Autonomous Wheelchair, Summer Research Program, 2011.
- Co-Project Advisor, NUSE2 – Kathleen Shea, Project: Autonomous Wheelchair, Summer Research Program, 2011.
- Co-Project Advisor, Wyoming Undergraduate EPSCoR – Dana Schultz, Project: Bio-inspired Sensor Development, Summer Research Program, 2010.
- Co-Project Advisor, Wyoming Undergraduate EPSCoR – Robert Streeter, Project: Bio-inspired Sensor Development, Summer Research Program, 2010.
- Co-Project Advisor, Wyoming Undergraduate EPSCoR – Morgan Allen, Project: Bio-inspired Sensor Development, Summer Research Program, 2010.

3.2 Graduate Students Completed *(list name, degree attained, MS Plan)*

- Committee chair: Jeff Anderson, PhD, Dissertation: “A Seed Based Semi-Automatic Segmentation Method for Serial Section Images,” University of Wyoming, graduation August 2004, funded by NAWC Research Grant, NSF/EPSCoR Ph.D. supplement, and NIH COBRE grant.
- Committee chair, Reed Thompson, MS/MBA (coursework based), University of Wyoming, May 2019.
- Committee chair, Brad Orr, MS/MBA (coursework based), University of Wyoming, December 2018.
- Committee chair, Adrian Palmer, MS (coursework based), University of Wyoming, May 2013.
- Committee chair: Caleb Cresswell, BS/MS (Plan B), University of Wyoming, May 2012.
- Committee chair: Kim Creaser, MSEE (Plan A), University of Wyoming, Dec 2010.
- Committee chair: Amos Purdy, BS/MS (Plan B), University of Wyoming, Dec 2010.
- Committee chair: Kari Fuller, MSEE (Plan A), University of Wyoming, December 2009.
- Committee chair: Chad Hager, MSEE (Plan B), University of Wyoming, May 2009.
- Committee chair: Jeff White, MSEE (Plan B), University of Wyoming, December 2007.
- Committee chair: Matthew Jespersen, MSEE (Plan B), University of Wyoming, August 2007.

- Committee chair: Matthew Geu, MSEE (Plan A), University of Wyoming, May 2007.
- Committee chair: Austin Griffith, MSEE (Plan B), University of Wyoming, August 2006.
- Committee chair: Jeremy Long, MSEE (Plan B), University of Wyoming, December 2006.
- Committee chair: Robert Madsen, MSEE (Plan A), University of Wyoming, August 2005.
- Committee chair: William Harman, MSEE (Plan A), University of Wyoming, August 2005.
 - o Won top honors as the University of Wyoming Thesis of the Year, AY05-06 (1 of 5 awarded)
- Committee chair: John Benson, MSEE (Plan B), University of Wyoming, August 2005.
- Committee chair: Pamela Beavis, MSEE (Plan B), University of Wyoming, May 2005.
- Committee co-chair: Seetharanaraju Srivatsavaye (Plan B), MSEE, University of Wyoming, May 2005.
- Committee chair: John Davis, MSEE (Plan A), University of Wyoming, December 2004.
- Committee chair: Eric Tomberlin, MSEE (Plan A), University of Wyoming, August 2004.
- Committee chair: Dylan Riley, MSEE (Plan A), University of Wyoming, August 2004.
- Committee chair: Jeremiah Hansen, MSEE (Plan A), University of Wyoming, August 2004.
- Committee chair: Thor Hallingbye, MSEE (Plan B), University of Wyoming, May 2004.
- Committee chair: Mahbub Sardar, MSEE (Plan B), University of Wyoming, May 2004.
- Committee chair: Eric Tastad, MSEE (Plan B), University of Wyoming, December 2003.
- Committee chair: Yi Shi, MSEE (Plan A), University of Wyoming, August 2003.
- Committee chair: Jennie Newton, MSEE (Plan A), University of Wyoming, May 2002.
- Committee chair: Tim Olson, MSEE (Plan A), University of Wyoming, May 2001.
- Committee co-chair: Espen Naess, MSEE (Plan A), University of Wyoming, December 2000.
- Committee co-chair: Torstein Molvik, MSEE (Plan A), University of Wyoming, December 2000.
- Committee co-chair: Erland Hval, MSEE (Plan A), University of Wyoming, December 2000.

3.3 Graduate students Current

- Committee chair: none

3.4 Member of Graduate Committees: 43

4. POSTDOCTORAL STUDENTS/RESEARCH ASSOCIATES

- Dr. Jeff Anderson was funded in a post-doctorate position during AY 2004-2005 via funding from NIH COBRE and as a Research Associate 2006-2009

5. PUBLISHED & SUBMITTED WORKS

5.1 Books/Textbooks/Monographs/Chapters in Books

Books

- S.F. Barrett and D. Pack, "Microchip AVR Microcontroller Primer: Programming and Interfacing," Morgan-Claypool Publishers, third edition, 379 pages, 2019, ISBN: Paper: 9781681732046, eBook: 9781681732053, DOI: 10.2200/S00803ED3V01Y201709DCS053.
- S.F. Barrett and D.J. Pack, "Microcontroller Programming and Interfacing with Texas Instruments MSP430430FR2433 and MSP430FR5994," Morgan-Claypool Publishers, 583 pages, second edition, 2019. ISBN: 9781681736242 paperback, DOI 10.2200/S00936ED2V01Y201907DCS055.
- D. Dang, D. Pack, and S.F. Barrett, "Microcontroller Programming and Interfacing: Texas Instruments MSP432," Morgan-Claypool Publishers, 570 pages, 2017, ISBN: 9781627054959.

- S.F. Barrett and J. Kridner, "Bad to the Bone: Crafting Electronic Systems with BeagleBone Black," (BeagleBone ARM processor and Linux operating system), Morgan-Claypool Publishers, 417 pages, 2ed edition, 2016, ISBN: 9781627055116.
- S.F. Barrett, "Arduino Microcontroller – Processing for Everyone" Morgan-Claypool Publishers, 515 pages, third edition, 2013, ISBN: 978162705253.
- S.F. Barrett and Jason Kridner, "Bad to the Bone: Crafting Electronic Systems with BeagleBone and BeagleBone Black," (BeagleBone -- ARM processor and Linux operating system), Morgan-Claypool Publishers, 430 pages, 2013, ISBN: 9781627051378.
- S.F. Barrett and D. Pack, "Atmel AVR Microcontroller Primer: Programming and Interfacing," Morgan-Claypool Publishers, 244 pages, 2012, second edition, ISBN: 9781608458615.
- S.F. Barrett, "Arduino Microcontroller – Processing for Everyone" Morgan-Claypool Publishers, second edition, 373 pages, 2012, ISBN: 9781608454372.
- S. F. Barrett, "A Little Book on Teaching: A Beginner's Guide for Educators of Engineering and Applied Science," Morgan-Claypool Publishers, 107 pages, 2012, ISBN: 9781608458684.
- S.F. Barrett and D.J. Pack, "Microcontroller Programming and Interfacing: Texas Instruments MSP430," Morgan-Claypool Publishers, 408 pages, 2011, ISBN: 9781608457137.
- S.F. Barrett, "Arduino Microcontroller – Processing for Everyone!" Morgan-Claypool Publishers, 324 pages, 2010, ISBN: 9781608454372320.
- S.F. Barrett, "Embedded Systems Design with the Atmel AVR," Morgan-Claypool Publishers, 319 pages, 2010, ISBN: 9781608451272.
- D. Pack and S.F. Barrett, "Microcontroller Theory and Application: HC12 and S12," Pearson Prentice Hall, Inc, second edition, 650 pages and accompanying instructor manual, 2008, ISBN: 0136152058.
- S.F. Barrett and D. Pack, "Atmel AVR Microcontroller Primer: Programming and Interfacing," Morgan-Claypool Publishers, 180 pages, 2008, ISBN: 1598295411.
- S. F. Barrett and D. J. Pack, "Microcontroller Fundamentals for Engineers and Scientists," Morgan-Claypool Publishers, 120 pages, 2006, ISBN: 1598290584.
- S.F. Barrett and D. Pack, "Embedded Systems Design and Applications with the 68HC12 and HCS12," Prentice Hall, Inc, 650 pages and accompanying 150 page instructor manual, 2005, ISBN 0-13-140141-6.
 - Chinese edition, ISBN 7-121-02238-9, 2006.
 - India, Bangladesh, Bhutan, Pakistan, Nepal, Sri Lanka, and Maldives edition, ISBN 978-81-317-2023-3, 2008.
 - Russian edition, ISBN 5970600342, DMK Press, 2010.
- D. Pack and S.F. Barrett, "68HC12 Microcontroller: Theory and Application," Prentice Hall, Inc, 528 pages, 2002, ISBN 0-13-033776-5 and accompanying 140 page instructor manual.

Books in Progress

- J. Kretzschmar, J. Anderson, S.F. Barrett, "Texas Instruments MSP-EXP430G2ET LaunchPad Exploring the Essential Peripheral Modules with 9 Working Projects and Associated Code Listings," Morgan-Claypool Publishers, in progress.
- Three book series:
 - "Arduino I: Getting Started," 200 pages, Morgan-Claypool Publishers, in press, available 2020
 - "Arduino II: Systems," 200 pages, Morgan-Claypool Publishers, in progress
 - "Arduino III: Internet of Things," 200 pages, Morgan-Claypool Publishers

Book Chapters

- C.H.G. Wright and S.F. Barrett, Invited Chapter – Biomimetic Vision Sensors, “Engineered Biomimicry: Bioinspiration, Biomimetics, and Bioreplication,” edited by Akhlesh Lakhtakia and Raul J. Martin-Palma, Elsevier, 2013, pgs 1-32, ISBN 978-0-12-415995-2.
- S.F. Barrett, D.J. Pack, Invited Chapter - Microcontrollers, “Handbook of Networked and Embedded Control Systems,” edited by D. Hristu-Varsakelis and W.S. Levine, Birkhauser Publishing, 2005, pgs. 295-322, ISBN: 0-8176-3239-5.
- K. Laurin, S.F. Barrett, K. Colling, K. Cowie, Invited Chapter - Chapter 5: Connecting Students with Persons Who Have Disabilities, “National Science Foundation 2002 Engineering Senior Design Projects to Aid Persons with Disabilities,” edited by J.D. Enderle and B. Hallowell, Creative Learning Press, Mansfield, CT, 2004, pgs. 33-39, ISBN: 1-931280-00-2.
- S.F. Barrett, C.H.G. Wright, A.J. Welch, Invited Chapter - Chapter 3: Lasers in Ophthalmology, “Medical Applications of Lasers,” Kluwer Academic Publishers, Boston, USA., 2002, pgs. 59-89, ISBN: 0-7923-7662-5
- C.H.G. Wright, S.F. Barrett, A.J. Welch, Invited Chapter - Chapter 2: Laser-Tissue Interactions, “Medical Applications of Lasers,” Kluwer Academic Publishers, Boston, USA., 2002, pgs. 21-58, ISBN: 0-7923-7662-5
- A.J. Welch, R. Richards-Kortum, H.G. Rylander III, S. Barrett, N. Ramanujam, I. Cilesiz, E. Chan, Chapter: Automation of Diagnostic and Therapeutic Systems for Medical Applications of Lasers, “Biomedical Optical Instrumentation and Laser-Assisted Biotechnology,” edited by: A. Scheggi, S. Martellucci, A.N. Chester, and R. Pratesi. Kluwer Academic Publishers, Dordrecht, The Netherlands, 1996, ISBN: 0792341724

5.2 Journal Articles (bold print indicates student co-author)

- S. Barrett, T. Dousay, T. Kerr, L. Schmidt, B. Gellis, J. Ballard, “Library and Student Innovation Center: Makerspace!” American Society for Engineering Educators, *Computers in Education Journal*, Vol. 10, No.2 (Apr-Jun 2019), pp. 1-10.
- **M. Keener**, M. Critchley, J. Layer, E. Johnson, S. Barrett, B. Dai, “The Effect of Stirrup Length on Impact Attenuation and its Association with Muscle Strength,” *Journal of Strength and Conditioning Research*, in press.
- **J. S. Layer**, C. Grenz, T. J. Hinshaw, D. T. Smith, S. F. Barrett, and B. Dai, “Kinetic Analysis of Isometric Back Squats and Belt Squats,” *Journal of Strength and Conditioning Research*, in press.
- **M. Love**, J. Anderson, and S. Barrett, “Robots! - Introduction to Engineering and Computer Science,” *Computers in Education Journal*, Vol. 7 No. 3, July – Sep 2016, pp 23-32.
- **B. K. Dean**, C.H.G. Wright, and S.F. Barrett, “Biomimetic Signal Conditioning and Light Adaptation for Compound Vision Sensors,” *IEEE Sensors Journal*, Vol. 15, No. 1, January 2015.
- **I. Wambeke** and S.F. Barrett, “Service Learning: Industrial Embedded Systems Course,” *Computers in Education Journal*, Vol 4. No. 4, Oct-Dec 2013, pp 89-99.
- **J. Catchpole**, S.F. Barrett, C.H.G. Wright, “For Students By Students: Labware and Courseware Development,” *Computers in Education Journal*, Volume 3, Number 3, Jul – Sep 2012 , 91-98.
- **G. P. Luke**, C. H. G. Wright, and S. F. Barrett, “A Multi-Aperture Bio-Inspired Sensor with Hyperacuity,” Invited Paper, *IEEE Sensors Journal* special issue on Biomimetic Sensors, vol. 12, no. 2. pp. 308–314, February 2012. (Invited paper).
- **R. S. Prabhakara**, C. H. G. Wright, and Steven F. Barrett, “Motion Detection: a Biomimetic Vision Sensor versus a CCD Camera Sensor,” Invited Paper, *IEEE Sensors Journal* special issue on Biomimetic Sensors, vol. 12, no. 2. pp. 298–307, February 2012. (Invited paper).

- **A. Purdy**, S.F. Barrett and C.H.G. Wright, "Hands on Programmable Logic Controller (PLC) Laboratory for an Industrial Controls Course," *Computers in Education Journal*, Volume 2, Number 4, October – December 2011, pp. 28-36.
- S. Barrett, J. Anderson, C. Dolan , T.V. Edgar, P. Crips, "Robots in Education: Middle School to Grad School and Beyond!" *Computers in Education Journal*, Volume 2, Number 3, July- September 2011, pp. 57-69.
- **D. McCarthy**, C.H.G. Wright, S.F. Barrett, J. C. Hamann, "Student-Created Laboratory Exercises for a Digital Systems Design Course using HDL and PLDs," *Computers in Education Journal*, *Computers in Education Journal*, Vol. 2, No. 2, April-June 2011, 75-88.
- **C. Hager**, S. Barrett, C. Wright, J. Hamann, "HDL Based Design Problems for Computer Architecture," *Computers in Education Journal*, accepted for publication, new sequence, Vol I, No. 4, October – December 2010, pp. 54-69.
- **J. D. Davis**, S. F. Barrett, C. H. G. Wright, and M. Wilcox, "Bio-inspired Apposition Compound Eye Machine Vision Sensor System," *Bioinspiration & Biomimetics*, 4 (2009) .
- S.F. Barrett, J. Anderson, J. Pierre, S. Muknahallipatna, D. Whitman, C.H.G. Wright, and R. Kubichek, "Embedded Systems Design: Responding to the Challenge," *Computers in Education Journal*, Vol. XVIII No. 3 Jul – Sep 2009, pp. 80-98.
- J.W. Pierre, F.K. Tuffner, J.R. Anderson, D.L. Whitman, A.H.M.S. Ula, R.F. Kubichek, C.H.G. Wright, S.F. Barrett, J.J. Cupal, and J.C. Hamann, "A One-credit Hour Hands-On Introductory Course in Electrical and Computer Engineering using a Variety of Topic Modules," *IEEE Transactions on Education*, vol. 52, no., 2, May 2009.
- S. Barrett, **C. Hager**, **M. Yurkoski**, **R. Lewis**, **M. Jespersen**, **Z. Rubel**, "Undergraduate Engineers for Curriculum and Laboratory Equipment Development: A Freescale S12 Microcontroller Trainer," *Computers in Education Journal*, Vol XVIII, No. 4, October – December 2008, 22-32.
- **D. Riley**, **W. Harman**, S. Barrett, C.H.G. Wright, "*Musca domestica* Inspired Machine Vision Sensor with Hyperacuity," *Bioinspiration & Biomimetics*, 3 (2008) 026003.
- **A. Griffith**, S. F. Barrett, D. Pack, "Verilog HDL Controlled Robot For Teaching Complex Systems Design," *Computers in Education Journal*, Vol XVIII, No. 1, Jan – Mar 2008, 63-72.
- C.H.G. Wright, **D. Mares**, S.F. Barrett, T. Welch, "Digital Signal Processing and Bioinstrumentation Using Labview, the New ELVIS Benchtop Platform, and BIOPAC," *Computers in Education Journal*, Vol. XVII, No. 2, 104-112, Apr-Jun, 2007.
- S.F. Barrett, J. Hamann, D. Coon, P. Crips, J. Pierre, "Show them NAND Gates and They Will Come," *Computers in Education Journal*, Vol. XVII, No. 2, 26-36, Apr-Jun, 2007.
- S.F. Barrett and D.J. Pack, "Lions and Tigers and Testing...Oh My!," *Computers in Education Journal*, Volume XVII, No. 1, pp. 95-104, Jan-Mar, 2007.
- K. Meah, S. Ula, S.F. Barrett, "Solar photovoltaic water pumping opportunities and challenges," *Renewable and Sustainable Energy Reviews (2007)*, doi:10.1016/j.rser.2006.10.020, Elsevier Publications.
- **J.A. Anderson**, S.F. Barrett, M. Wilcox, "A segmentation method for 3D visualization of microscopic objects imaged with a confocal laser scanning microscope," *Journal of Electronic Imaging*, Oct -Dec 2006, Vol. 15, No. 4.
- C.H.G. Wright, S.F. Barrett, A.J. Welch, "Design and Development of Computer-Assisted Retinal Laser Surgery System," *Journal of Biomedical Optics*, Volume 11, Number 4, July/August 2006.
- S. F. Barrett, D.J. Pack, **P. Beavis**, **M. Sardar**, **A. Griffith**, L. Sircin, G. Janack, "Using Robots to Teach Complex Real Time Embedded Systems Concepts," *Computers in Education Journal*, Vol XVI, No.4, Oct-Dec, 2006.
- S. F. Barrett, D.J. Pack, **C. Straley**, L. Sircin, G. Janack, "Real-Time Operating Systems: A Visual Simulator," *Computers in Education Journal*, April – June 2005.
- **E.S. Hval**, S.F. Barrett, M. Wilcox, and T.A. Bailey, "An Improved Morris Water Maze Tracking Algorithm for Psychophysiological Studies," *Annals of Biomedical Engineering*, Volume 32, Number 8, August 2004, pp. 1143-1154.

- S.F. Barrett, **A. Wells, C. Hernandez, T. Dibble, Y. Shi, T. Schei, J. Werbelow**, J. Cupal, L. Sircin, G. Janack, "Undergraduate Engineers for Curriculum and Laboratory Equipment Development," *Computers in Education Journal*, Vol. XIII, No. 4, 2003, 46-58.
- **E. Naess, T. Molvik, D. Ludwig**, S. Barrett, S. Legowski, C. Wright, P. de Graaf, "Computer-Assisted Laser Photocoagulation of the Retina - A Hybrid Tracking Approach," *Journal of Biomedical Optics*, Vol. 7 No. 2, April 2002, pp. 1-11.
- S. F. Barrett, C. H. G. Wright, H. Zwick, M. Wilcox, B. A. Rockwell, **E. Naess**, "Efficiently Tracking a Moving Object in Two-Dimensional Image Space," *Journal of Electronic Imaging*, Vol. 10 No. 3, July 2001, pp 1-9.
- C.H.G. Wright, S.F. Barrett, R.D. Ferguson, H.G. Rylander III, and A.J. Welch, "Initial *In Vivo* Results of a Hybrid Retinal Photocoagulation System," *Journal of Biomedical Optics*, Volume 5, Number 1, 2000.
- S.F. Barrett, D.J. Pack, G.W.P. York, P.J. Neal, R.D. Fogg, E. Doskocz, S.A. Stefanov, P.C. Neal, C.H.G. Wright, A.R. Klayton, "Student-centered Educational Tools for the Digital Systems Curriculum," *Computers in Education Journal*, Vol. IX, No. 1, Jan-Mar 1999.
- C.H.G. Wright, R.D. Ferguson, H.G. Rylander III, A.J. Welch, S.F. Barrett, "A Hybrid Approach to Retinal Tracking and Laser Aiming for Photocoagulation," *Journal of Biomedical Optics*, Vol 2, No. 2, pp 195-203, 1997.
- S.F. Barrett, C.H.G. Wright, M.R. Jerath, **R. Stephen Lewis II, Bryan C. Dillard**, H.G. Rylander, and A.J. Welch, "Computer Aided Retinal Photocoagulating System," *Journal of Biomedical Optics*, Volume 1, Number 1, 1996.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Automated Lesion Placement in the Rabbit Eye," *Lasers in Surgery and Medicine*, Volume 17, pp 172-177, 1995.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Digital Tracking and Control of Retinal Images," *Optical Engineering*, Vol. 33 No. 1, pp 150 - 159, 1994.
- M.R. Jerath, R. Chundru, S.F. Barrett, H.G. Rylander, and A.J. Welch, "Preliminary Results on Reflectance Feedback Control of Photocoagulation *In Vivo*," *IEEE Transactions on Biomedical Engineering*, Volume 41, Number 2, February 1994.
- M.R. Jerath, R. Chudru, S.F. Barrett, H.G. Rylander, and A.J. Welch, "Reflectance Feedback Control of Photocoagulation *In Vivo*," *Archives of Ophthalmology*, April 1993, Vol. 111, pp 531- 534.

Proceedings/Transactions (**bold print indicates student co-author**)

- S. Barrett, T. Dousay, T. Kerr, L. Schmidt, B. Gellis, J. Ballard, "Library and Student Innovation Center: Makerspace!" American Society for Engineering Educators 2018 Annual Conference, June 2018.
- S. Barrett, C.H.G. Wright, and M. Martinez, "Veteran's Transition Course at the University of Wyoming," American Society for Engineering Educators 2017 Annual Conference, June 2017.
- S. Barrett and **C. Sundberg**, "Instrumentation Array for Biomechanical Reproducibility – Part II," 54th Rocky Mountain Bioengineering Symposium, Denver, CO, April 2017.
- **M. Love**, J. Anderson, and S. Barrett, "Robots! - Introduction to Engineering and Computer Science," American Society for Engineering Educators 2016 Annual Conference, June 2016.
- **G. Barrett , C. Brauchie, K. Hurley**, S. Morton, S. Barrett, "Wheelchair-mounted Robotic Arm Control System to Hold and Move a Communication Device – Part II," 52nd Rocky Mountain Bioengineering Symposium, Salt Lake City, UT, April 2015.
- S. Frost, C. H.G. Wright, **R. Streeter, M. A. Khan**, and S. Barrett, "Bio-mimetic optical sensor for structural deflection measurement," SPIE Smart Structures/NDE, in preparation.
- **C. Brauchie, K. Hurley, G. Barrett**, S. Morton, S. Barrett, "Wrist/Arm Support to Assist in Fine Motor Control for Essential Tremor Patients," 51st Rocky Mountain Bioengineering Symposium, April 2014.
- **K. Hurley, C. Brauchie, G. Barrett**, S. Morton, S. Barrett, "Wheelchair-Mounted Robotic Arm to Hold and Move Communication Device," 51st Rocky Mountain Bioengineering Symposium, April 2014.

- **R. Streeter, M.A. Khan**, S.F. Barrett, C.H.G. Wright, S. Frost, "Results of Target Tracking with a *Musca domestica* Inspired Sensor," 51st Rocky Mountain Bioengineering Symposium, April 2014.
- **M.A. Khan, R. Streeter**, C.H.G. Wright, S.F. Barrett, S. Frost, "Effect of Sensor-Target-Background Distance on Target Tracking using a Fly Eye Sensor," 51st Rocky Mountain Bioengineering Symposium, April 2014.
- **M.A. Khan, R. Streeter**, C.H.G. Wright, S.F. Barrett, S. Frost, "Localization of a Moving Target using a Fly Eye Sensor," 51st Rocky Mountain Bioengineering Symposium, April 2014.
- **A. Schofield** and S.F. Barrett, "Self Leveling Wheelchair," 51st Rocky Mountain Bioengineering Symposium, April 2014.
- **I. Wambeke** and S.F. Barrett, "Service Learning: Industrial Embedded Systems Course," American Society for Engineering Educators 2013 Annual Conference, June 2013.
- **R. Streeter**, S.F. Barrett, C.H.G. Wright, "Changes, Adaptations, and Applications of a Bio-inspired Machine Vision Sensor," 50th Rocky Mountain Bioengineering Symposium, April 2013.
- **J. Catchpole**, S.F. Barrett, C.H.G. Wright, "For Students By Students: Labware and Courseware Development," American Society for Engineering Educators 2012 Annual Conference, June 2012.
- S.F. Barrett, J.R. Anderson, S.A. Morton, S. Root-Elledge, "Service Learning: Assistive Technology Undergraduate Design Projects," American Society for Engineering Educators 2012 Annual Conference, June 2012.
- **Kathleen M. Shea, Dana L. Schultz**, Steven F. Barrett, "Development of an Alternative to mechanical Shaft Encoders for a "Smart" Wheelchair, 49th Rocky Mountain Bioengineering Symposium, April 2012.
- **Dana L. Schultz, Kathleen M. Shea**, Steven F. Barrett, "Mapping and Navigational Control for a "Smart" Wheelchair," 49th Rocky Mountain Bioengineering Symposium, April 2012.
- **N. Borrego, K. Bilan, T.J. Gebes**, S.F. Barrett, S.A. Morton, "Undergraduate Design Projects for Assistive Technology Needs: Assisted Fishing," 49th Rocky Mountain Bioengineering Symposium, April 2012.
- **D. Schultz, M. Allen**, S. F. Barrett, "Equipping an Automated Wheelchair with an Infrared Encoder Wheel Odometer," 48th Rocky Mountain Bioengineering Symposium, April 2011.
- **R. Streeter, B. Dean**, S. F. Barrett, C.H.G. Wright, "Signal Artifacts in a Light-Adapted, *Musca domestica*-based Sensor System," 48th Rocky Mountain Bioengineering Symposium, April 2011.
- J. A. Anderson, S.F. Barrett, C.H.G. Wright, "Fly Eye Based Sensor Model and Animation Using MATLAB," 48th Rocky Mountain Bioengineering Symposium, April 2011.
- **B. Dean**, C.H.G. Wright, S.F. Barrett, "Outdoor Light Adaptation of a Fly Inspired Visual Sensor: A Biomimetic Solution," 48th Rocky Mountain Bioengineering Symposium, April 2011.
- S.F. Barrett and **R. Streeter**, "Toward an Autonomous Wheelchair," 48th Rocky Mountain Bioengineering Symposium, April 2011.
- S.F. Barrett and C.H.G. Wright, "Bioinspired vision sensors with hyperacuity," Bioinspiration, Biomimetics, and Bioreplication, SS11 SPIE Smart Structures and Materials, San Diego, CA, March 2011.
- **A. Purdy** and S.F. Barrett, "Hands on Programmable Logic Controller (PLC) Laboratory for an Industrial Controls Course," *American Society for Engineering Educators 2010 Annual Conference*.
- **D. McCarthy**, C.H.G. Wright, S.F. Barrett, J. C. Hamann, "Student-Created Laboratory Exercises for a Digital Systems Design Course using HDL and PLDs," *American Society for Engineering Educators 2010 Annual Conference*, June 2010.
- **C. Hager**, S. Barrett, C. Wright, J. Hamann, "HDL Based Design Problems for Computer Architecture," *American Society for Engineering Educators 2010 Annual Conference*, June 2010.
- S. Barrett, M. Bundle, "Instrumentation Array for Biomechanical Reproducibility," *47th Rocky Mountain Bioengineering Symposium*, April 2010.
- J. Anderson, S. Barrett, "Three-dimensional rendering on an object using MATLAB," *47th Rocky Mountain Bioengineering Symposium*, April 2010.
- **R.W. Streeter**, S.F. Barrett, C.H.G. Wright, "*Musca domestica* Based Machine Vision Sensor: a Continuing Project," *47th Rocky Mountain Bioengineering Symposium*, April 2010.
- **B. Dean**, C.H.G. Wright, S.F. Barrett, "Advances in Sensor Adaptation to Changes in Ambient Light:

- A Bio-inspired solution," *47th Rocky Mountain Bioengineering Symposium*, April 2010.
- S.F. Barrett, D. Whitman, R. Kubichek, J. Pierre, S. Muknahallipatna, C.H.G. Wright, "Embedded Systems Design: Responding to the Challenge," *American Society for Engineering Educators 2009 Annual Conference*, June 2009.
- **B. Dean**, C. H. G. Wright, S. F. Barrett, "The design of an analog module for sensor adaptation to changes in ambient light," *46th Rocky Mountain Bioengineering Symposium*, April 2009.
- J. Anderson, S.F. Barrett, "Graphical User Interface to optimize parameters used in a double threshold segmentation method," *46th Rocky Mountain Bioengineering Symposium*, April 2009.
- **G. P. Luke**, C. H. G. Wright, and S. F. Barrett, "Software Model of Improved Bio-Inspired Sensor," *46th Rocky Mountain Bioengineering Symposium*, April 2009.
- S. Barrett and C.H.G. Wright, "Computer-Assisted Laser Tattoo Removal: Identifying the Ideal Laser Source," *46th Rocky Mountain Bioengineering Symposium*, April 2009.
- **J. Benson, G. Luke**, Cameron Wright, Steven Barrett, "Pre-Blurred Spatial Sampling Can Lead to Hyperacuity," 2009 DSP Workshop Technical, Jan 2009.
- J.A. Anderson and S.F. Barrett, "A Confocal Laser Scanning Microscope Segmentation Method Applied to Magnetic Resonance Images," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 22-28.
- **B. G. Kilty**, C.H.G. Wright, J.M. Calkins, S.F. Barrett, "Automation of Non-invasive Cardiac Output from Respiratory Gases and Flow," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 386-391.
- **M. Stephens**, S. F. Barrett, "Personal Graphical Communicator," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 519-524.
- **G. Philips**, C.H.G. Wright, S.F. Barrett, "Expanding Smart Wheelchair Technology for Users with Severe Disabilities," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 47-52.
 - o **Student won 2nd place in written paper contest**
- **L. A. Benson**, S.F. Barrett, C. H. G. Wright, "Characterization of selected elementary motion detector cells to image primitives," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 410-416.
- **J. B. Benson**, S. F. Barrett, C. H.G. Wright, "Redesign and Construction of an Artificial Compound Eye Visual Sensor," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 367-372.
 - o **Student won 3rd place in poster contest**
- **J. D. Hansen**, S.F. Barrett, C.H.G. Wright, M. Wilcox, "Autonomous Vehicle Navigation Utilizing Fuzzy Controls: Future Concepts for Next Generation Wheelchair," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 69-75.
- S. F. Barrett, **J. B. Benson**, C.H.G. Wright, "Information processing from a One-Dimensional Bio-inspired Analog Sensor," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 63-68.
- **J. D. Davis**, S.F. Barrett, C.H.G. Wright, M. Wilcox, "Bio-inspired Minimal Machine Multi-Aperture Apposition Vision System," *45th Rocky Mountain Bioengineering Symposium*, April 2008, 373-379.
- S. Barrett, **C. Hager, M. Yurkoski, R. Lewis, M. Jespersen, Z. Rubel**, "Undergraduate Engineers for Curriculum and Laboratory Equipment Development: A Freescale S12 Microcontroller Trainer," *American Society for Engineering Educators 2008 Annual Conference*, June 2008.
- P. M. Crips, W. Parker, S.F. Barrett, J. C. Hamann, "Discovery Project – Improving Seventh Grade Critical Thinking Skills," *American Society for Engineering Educators 2008 Annual Conference*, June 2008.
- K. Meah, S. Fletcher, S. Ula, S. Barrett, "Integrating Wind and Solar Electric Energy into Power System Teaching," *American Society for Engineering Educators 2007 Annual Conference*, June 2007.
- **A. Griffith**, S. F. Barrett, D. Pack, "Verilog HDL Controlled Robot For Teaching Complex Systems Design," *American Society for Engineering Educators 2007 Annual Conference*, June 2007.
- S.F. Barrett, S.A. Morton, S. Root-Elledge, "Undergraduate Design Projects to Aid Persons with Disabilities: Reflections," in *Proceedings of the 44th Rocky Mountain Bioengineering Symposium*, (Denver, CO), Apr. 2007. Also available in *ISA Biomedical Sciences Instrumentation*, vol. 43. , pp. 296-301.
- **J. B. Benson**, C. H. G. Wright, and S. F. Barrett, "Line Width Determination Using a Biomimetic Fly Eye Vision System," in *Proceedings of the 44th Rocky Mountain Bioengineering Symposium*, (Denver, CO), Apr. 2007. Also available in *ISA Biomedical Sciences Instrumentation*, vol. 43. , 224-229.

- **T. M. Anderson, J. B. Benson**, C. H. G. Wright, and S. F. Barrett, "Biomimetic Motion Detection based on Overlapping Gaussian Profiles," in *Proceedings of the 44th Rocky Mountain Bioengineering Symposium*, (Denver, CO), Apr. 2007. Also available in *ISA Biomedical Sciences Instrumentation*, vol. 43., 372-377.
- **B. Kilty**, C. H. G. Wright, S. F. Barrett, and J. M. Caulkins "Design of a Smart Hemodynamic Monitoring System Simulation," in *Proceedings of the 44th Rocky Mountain Bioengineering Symposium*, (Denver, CO), Apr. 2007. Also available in *ISA Biomedical Sciences Instrumentation*, vol. 43., pp. 236-241.
- **L. A. Popp**, S. F. Barrett, and C. H. G. Wright, "*Musca domestica* Lamina Monopolar Cell Response to Visual Stimuli and their Contribution to Early Motion Detection," in *Proceedings of the 44th Rocky Mountain Bioengineering Symposium*, (Denver, CO), Apr. 2007. Also available in *ISA Biomedical Sciences Instrumentation*, vol. 43., pp. 134-139.
- **G. R. Philips**, S. F. Barrett, and C. H. G. Wright, "Electrooculogram Wheelchair Control," in *Proceedings of the 44th Rocky Mountain Bioengineering Symposium*, (Denver, CO), Apr. 2007. Also available in *ISA Biomedical Sciences Instrumentation*, vol. 43., pp. 164-169.
- **D. Mares**, C.H.G. Wright, S.F. Barrett, T. Welch, "Digital Signal Processing and Bioinstrumentation Using Labview, the New ELVIS Benchtop Platform, and BIOPAC," *American Society for Engineering Educators 2006 Annual Conference*, June 2006.
- S.F. Barrett and D.J. Pack, "Lions and Tigers and Testing...Oh My!," *American Society for Engineering Educators 2006 Annual Conference*, June 2006.
- S.F. Barrett, J. Hamann, D. Coon, P. Crips, J. Pierre, "Show them NAND Gates and They Will Come," *American Society for Engineering Educators 2006 Annual Conference*, June 2006.
- **M. Geu, R. Madsen, E. Weber, M. Burnett**, S. Barrett, "Further Safety Enhancement of a Specialized Power Assisted Tricycle for a Child with Osteogenesis Imperfecta Type III and Design of an Adjustable Hand Power Tricycle," *43rd Annual Rocky Mountain Bioengineering Symposium 2006*, Instrument Society of America, April 2006.
- **M. Stephens, E. Weber**, S. F. Barrett, "Personal Communicator," *43rd Annual Rocky Mountain Bioengineering Symposium 2006*, Instrument Society of America, April 2006.
- **R. Prabhakara**, C. H. G. Wright, S.F. Barrett, W. Harman, "Quantitative and Qualitative Performance Comparison of a Biomimetic Vision Sensor with Commercial CCD Camera Sensors," *SPIE 17th International Symposium on Electronic Imaging Science and Technology*, January 2006.
- S. F. Barrett, D.J. Pack, **P. Beavis, M. Sardar, A. Griffith**, L. Sircin, G. Janack, "Using Robots to Teach Complex Real Time Embedded Systems Concepts," *American Society for Engineering Educators 2005 Annual Conference*, June 2005.
- C.H.G. Wright, S.F. Barrett, and D.J. Pack, "Using Parallel Evolutionary Development for a Biologically-Inspired Computer Vision System for Mobile Robots," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005.
- S.F. Barrett and J.R. Gray, "University of Wyoming College of Engineering Undergraduate Design Projects to Aid Wyoming Persons with Disabilities A Mid-Program Review," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005.
- **R.O. Madsen**, S. F. Barrett, M. Wilcox, "Software Model of a Machine Vision System Based on the Common Housefly," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005. **Student won first place poster.**
- **J. Benson** and S.F. Barrett, "Next Generation Autonomous Wheelchair," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005.
- **W. M. Harman**, S.F. Barrett, C.H.G. Wright, M. Wilcox, "Biomimetic Machine Vision System," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005. **Student won third place presentation.**
- **J.R. Anderson**, S.F. Barrett, M. J. Wilcox, "The Segmentation and Visualization of a Neuron in the Housefly's Visual System," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005.

- **M. Stephens** and S. Barrett, "Two Assistive Technology Devices For Children: An Adjustable Reacher and A Lunch Room Chair," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005.
- **M.J. Geu, F.F. Tuffner, R.O. Madsen, W.M. Harman, S.F. Barrett**, "Safety Enhancement of a Specialized Power Assisted Tricycle for a Child with Osteogenesis Imperfecta Type III," *42nd Annual Rocky Mountain Bioengineering Symposium 2005*, Instrument Society of America, April 2005. **Student won third place poster.**
- **D.T. Riley, W. H. Harman, E. Tomberlin, S.F. Barrett, M. Wilcox, C.H.G. Wright**, "*Musca domestica* Inspired Machine Vision System with Hyperacuity," *SPIE – The International Society for Optical Engineering*, Smart Sensor Technology and Measurement Systems Conference, Smart Structures and Materials Symposium, March 2005, San Diego, CA.
- **J.R. Anderson, S.F. Barrett, M.J. Wilcox**, "A Segmentation Method for 3D Visualization of Neurons Imaged with a CLSM," *SPIE – The International Society for Optical Engineering*, Physiology, Function, and Structure from Medical Image Conference, Medical Imaging Symposium, February 2005, San Diego, CA.
- S. Barrett, D. Pack, **C. Straley**, L. Sircin, G. Janack, "Real Time Operating Systems: A Visual Simulator," *American Society for Engineering Educators 2004 Annual Conference*, June 2004.
- **J. R. Barnes, R. Amin, S. F. Barrett**, "University of Wyoming, College of Engineering, Undergraduate Senior Design Project: The Talking Hand," *41stth Annual Rocky Mountain Bioengineering Symposium 2004*, Instrument Society of America, Volume 449, pp 447 - 452, April 2004. **Students won second place for undergraduate poster presentation.**
- S. Barrett, M. Wilcox, C. Wright, "Edge Encoding Mechanisms in *Musca domestica*," *41stth Annual Rocky Mountain Bioengineering Symposium 2004*, Instrument Society of America, Volume 449, pp 447-452, 401-406, April 2004.
- C. Wright, S. Barrett, D. Pack, **T. Schei, J. Anderson, M. Wilcox**, "Computational Image Processing for a Computer Vision System using Biomimetic Sensors and Eigenspace Object Models," *SPIE – The International Society for Optical Engineering, Annual Conference*, San Jose, CA, Jan 2004.
- S.F. Barrett, **A. Wells, C. Hernandez, T. Dibble, Y. Shi, T. Schei, J. Werbelow**, J. Cupal, L. Sircin, G. Janack, "Undergraduate Engineers for Curriculum and Laboratory Equipment Development," *American Society for Engineering Educators 2003 Annual Conference*, Nashville, TN, June 2003.
- **T. Schei, S. F. Barrett, D. Jones, J. Anderson, W. Krupski, M. Fitzpatrick**, "Abdominal Aortic Aneurysm Segmentation," " *Proceedings of the 40th Annual Rocky Mountain Bioengineering Symposium 2003*, Instrument Society of America, Volume 437, pp 53-28, 2003.
- **S. Popp, J. Barnes, S.F. Barrett, K. Laurin, J. Childester Bloom**, "Life is a Switch – Experiences in NSF Undergraduate Design Projects," *Proceedings of the 40th Annual Rocky Mountain Bioengineering Symposium 2003*, Instrument Society of America, Volume 437, pp 585-590, 2003.
- **J. Barnes, S. Popp, S.F. Barrett, K. Laurin, J. Childester Bloom**, "Starwriter – Experiences in NSF Undergraduate Design Projects," *Proceedings of the 40th Annual Rocky Mountain Bioengineering Symposium 2003*, Instrument Society of America, Volume 437, pp 591-596, 2003. **Student won the Anthony Sances Award for Merit for her oral presentation.**
- S.F. Barrett, K. Laurin, J. Chidester Bloom, "Undergraduate Design Projects to Aid Wyoming Persons with Disabilities," *Proceedings of the 40th Annual Rocky Mountain Bioengineering Symposium 2003*, Instrument Society of America, Volume 437, pp 597-602, 2003.
- **J. Anderson, P. Wade, S. Barrett, M. Wilcox**, "Segmentation and 3D Reconstruction of Biological Cells," *Proceedings of the 40th Annual Rocky Mountain Bioengineering Symposium 2003*, Instrument Society of America, Volume 437, pp 117-122, 2003. **Student won 1st place in the Ph.D. student category for written and 2nd place in the oral presentation.**
- S. Barrett, M. Wilcox, "Edge Encoding Mechanisms in the Parallel L4 Neuron Array of the Fly (*Musca domestica*)," *Proceedings of the 40th Annual Rocky Mountain Bioengineering Symposium 2003*, Instrument Society of America, Volume 437, pp 111-116, 2003.
- S. F. Barrett, D. Pack, "Textbooks 101 - A Primer on Writing Your First Book," *American Society for Engineering Educators 2002 Annual Conference*, Montreal, Quebec, June 2002.

- S.F. Barrett, H.S. Zwick, "Automated PRL Measuring Using a Confocal Laser Ophthalmoscope," *Photonics West BiOS 2001, The International Society for Optical Engineering*, January 2001.
- **E. Naess, T. Molvik**, S.F. Barrett, C.H.G. Wright, P.W. de Graaf, "Irradiation Control Parameters for Computer Assisted Laser Photocoagulation of the Retina," *Photonics West BiOS 2001*, January 2001, Vol 4245, pp 18-29.
- S.F. Barrett, C.H.G. Wright, P.W. de Graaf, "Hybrid Digital/Analog Tracking System," *BiOS 2000 Biomedical Optics, SPIE - The International Society for Optical Engineering*, Annual Conference, San Jose, CA, Jan 2000.
- C.H.G. Wright, P.W. de Graaf, S.F. Barrett, and R.D. Ferguson, "Signal Processing for Robotically Assisted Laser Photocoagulation of the Retina," *Signal and Data Processing of Small Targets, SPIE - The International Society for Optical Engineering*, Annual Conference, Denver, CO, Aug 1999.
- S.F. Barrett, D. Pack, C.H.G. Wright, S. Stefanov, P. Neal, A. Klayton, "Innovative, Student-Centered Educational Tools for the Computer Engineering Curriculum," *American Society for Engineering Educators 1998 Annual Conference*, Seattle, WA, June 1998.
- S.F. Barrett, C.H.G. Wright, **E.D. Oberg**, P. de Graaf, "Hybrid Tracking and Photocoagulation System," *BiOS '98 International Biomedical Optics Symposium, Ophthalmic Technologies VIII, The International Society for Optical Engineering*, San Jose, CA, Feb 1998.
- S. F. Barrett, **E.D. Oberg**, C. H. G. Wright, B.A. Rockwell, C. Cain, H.G. Rylander III, A.J. Welch, "Digital Imaging-based Retinal Photocoagulation System," *BiOS '97 International Biomedical Optics Symposium, Ophthalmic Technologies VII, The International Society for Optical Engineering*, San Jose, CA, Feb 97.
- C.H.G. Wright, R.D. Ferguson, S.F. Barrett, H.G. Rylander III, A.J. Welch, "Hybrid Retinal Photocoagulation System," *BiOS '97 International Biomedical Optics Symposium, Ophthalmic Technologies VII, The International Society for Optical Engineering*, San Jose, CA, Feb 1997.
- S.D. Pinski, J.N. Berry, S.F. Barrett, D.G. Leupp, "Competition in Senior Design Projects," *1996 Annual American Society of Engineering Educators Conference*, Washington D.C., Jun 1996.
- S.F. Barrett, C.H.G. Wright, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Integrated Computer Aided Retinal Photocoagulating System," *International Biomedical Optics Symposium, SPIE BiOS '96, The International Society for Optical Engineering*, Jan 1996.
- R.D. Ferguson, C.H.G. Wright, H.G. Rylander III, A.J. Welch, and S.F. Barrett, "Hybrid Tracking and Control System for Computer Aided Retinal Surgery," *SPIE OE/LASE '96, The International Society for Optical Engineering*, Feb 96.
- A.J. Welch, R. Richards-Kortum, H.G. Rylander III, S. Barrett, N. Ramanujam, I. Cilesiz, E. Chan, "Automation of Diagnostic and Therapeutic Systems for Medical Applications of Lasers," *NATO Advanced Studies Institute on Biomedical, Optical Instrumentation, and Laser Assisted Biotechnology*, Erica, Italy, Nov 1995.
- S.F. Barrett, C.H.G. Wright, M.R. Jerath, **R.S. Lewis II, B.C. Dillard**, H.G. Rylander III, and A.J. Welch, "Automated Placement of Retinal Laser Lesions In Vivo," *SPIE 2374, Photonics West*, Feb 1995.
- S.F. Barrett, C.H.G. Wright, M.R. Jerath, **R.S. Lewis II, B.C. Dillard**, H.G. Rylander III, and A.J. Welch, "Automated Retinal Robotic Laser System Instrumentation," *Invited Paper, SPIE 2396, Photonics West, The International Society for Optical Engineering*, Feb 1995.
- S.F. Barrett, H.G. Rylander, and A.J. Welch, "Automated Lesion Data Base Building for the Treatment of Retinal Disorders," *First Annual IEEE International Conference on Image Processing, Proceedings ICIP-94, Volume 1*, pp 426 - 430, Nov 1994.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Digital Tracking and Control of Retinal Images," *Proc SPIE 1877, The International Society for Optical Engineering* 272-, 93.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Instrumentation for Feedback Controlled Retinal Photocoagulation," *The International Society for Optical Engineering Proc SPIE 1892*, 76-85, 1993.
- M.R. Jerath, R. Chudru, S.F. Barrett, H.G. Rylander, and A.J. Welch, "Reflectance Feedback Control of Photocoagulation In Vivo," *Proc SPIE 1877*, 254-261, 1993.
- S.F. Barrett, J.B. McCormack, H.F. Bare, "Maintainability in the Electrical Engineering Curriculum at the USAF Academy," *1990 ASEE Annual Conference Proceedings*, May 1990.

5.4 Other

- S. F. Barrett, "Engineering Ethics," Undergraduate Research Symposium, July 2014.
- D. Schwellenbach, W. Dreesen, J. A. Green, D. Aberle, A. Tibbitts, G. Schotik, K. Borozdin, J. Bacon, H. Miyadera, C. Milner, C. Morris, J. Perry, S. Barrett, K. Perry, A. Davis, and C. Wright, "Muon Tracking to Detect Special Nuclear Materials." (classified) Conference on Nuclear Nonproliferation Methods, Office of Nonproliferation Research and Development (NA-22), National Nuclear Security Administration, U.S. Department of Energy, (Washington, D.C. (USA)), April 2013.
- S. F. Barrett, "Book writing: not for the faint hearted" Education Column, IEEE Computer Society's Computing in Science and Engineering, 2012.
- S. F. Barrett and C.H.G. Wright, "For Students By Students," *Computing Now* (<http://computingnow.computer.org>), February 2011.
- S. F. Barrett, "Mentoring: Making a Difference – What can one person do?" Education Column, IEEE Computer Society's *Computing in Science and Engineering*, Jan/Feb 2011.
- S. F. Barrett "Consulting 101," IEEE-USA Today's Engineer, Nov/Dec 2010.
- S. F. Barrett and C.H.G. Wright, "For Students By Students," Education Column, IEEE Computer Society's *Computing in Science and Engineering*, Nov/Dec 2010.
- M. A. Thornton, S. F. Barrett and D. L. Whitman, "Potential Change Slated for PE Educational Requirements," IEEE-USA Today's Engineer, June/July 2010.
- S.F. Barrett and M.A. Thornton, "To P.E. or not to P.E...the Sequel," Education Column, IEEE Computer Society's *Computing in Science and Engineering*, Jul/Aug 2010 (adapted and updated from *IEEE-USA's Today's Engineer*, July 2006).
- S.F. Barrett, J. Anderson, J. Pierre, S. Muknahallipatna, D. Whitman, C.H.G. Wright, and R. Kubichek, "Embedded Systems Design: Responding to the Challenge," *IEEE-USA Today's Engineer*, Apr/May 2010 (adapted and updated from a *Computers in Education Journal*, Vol. XVIII No. 3 Jul – Sep 2009, pp. 80-98.)
- S.F. Barrett, D.J. Pack, "Textbooks 101: A primer on writing your first textbook," Education Column, IEEE Computer Society's *Computing in Science and Engineering*, Feb/Mar 2010 (adapted and updated from an ASEE CoED paper authored by Barrett and Pack from 2002).
- S.F. Barrett, "Wanted: PE Exam Item Writers," *IEEE-USA Today's Engineer*, December 2009 – on line (revised and reprinted from June 2008 edition)
- S.F. Barrett, "To P.E. or not to P.E...that is the question," *IEEE-USA Today's Engineer*, July 2009 – on line (revised and reprinted from July 2006 edition)
- S.F. Barrett, "Wanted: PE Exam Item Writers," *IEEE-USA Today's Engineer*, June 2008 – on line.
- M. Dennin, S.F. Barrett, Department Co-editor for Education column, "Turning Over a New Leaf," IEEE Computer Society's *Computing in Science and Engineering*, Nov/Dec 2007.
- S.F. Barrett, "NCEES Model Law Changes Eligibility Requirements to Take the PE Exam," *IEEE-USA Today's Engineer*, Nov 2006 – on line, several co-authors
- S.F. Barrett, "To P.E. or not to P.E...that is the question" -- A Personal Testimony, *IEEE-USA Today's Engineer*, July 2006 – on line.
- C. H.G. Wright, R. S. Prabhakara, S. F. Barrett, "Fly-eye Sensor Vies With Commercial CCDs," *Laser Focus World*, March 2006.

6. PRESENTED PAPERS/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS (Not included in previous sections)

- S. Barrett, "New PE Electrical and Computer Exam Specification," IEEE-USA InSight, February 2018.
- S. Barrett, "Technical Writing 101" and "Engineering Ethics," UW Undergraduate Research Symposium, July 31, 2015, July 11, 2016.

- S. Barrett and D. Whitman, "Professional Licensure – Advancement of Careers and the Profession," invited presentation for the 2014 IEEE-USA Annual Meeting, May 2014, Providence, RI.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), for the ABET Annual Conference, April 2014, Pittsburg, PA.
- S. Barrett, M. Yoder, J. Kridner, "BeagleBone" Workshop, ASEE Annual Conference, Atlanta, GA, June 2013.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), American Society for Engineering Educators 2013 Annual Conference, June 2013, Atlanta, GA.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the ABET Annual Conference, April 2013, Portland, OR.
- S. Barrett, "Teaching Tips," Graduate Student Teaching & Learning Seminar Series, Fall 2012, Ellbogen Center for Teaching and Learning, Oct 1, 2012.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), American Society for Engineering Educators 2012 Annual Conference, June 2012, San Antonio, TX.
- S.F. Barrett and C.H.G. Wright, "Rural Patient Monitoring and Diagnostics in Wyoming in the 21st Century," Wyoming INBRE Mobile Technology and Rural Health Workshop, May 11, 2012.
- S.F. Barrett and C.H.G. Wright, "Veterans Transition Course," UW Higher Education Mental Health, Substance Abuse Summit, March 29, 2012, Casper, WY
- S.F. Barrett, "Bioinspired vision sensors with hyperacuity," UW ECE IEEE Student Chapter Meeting, November 10, 2011.
- Ellbogen Center for Teaching and Learning, panel discussion, "*Assessing and Promoting Student Learning*," Sep 29, 2011.
- S.F. Barrett, "Bioinspired vision sensors with hyperacuity," UW Neuroscience Program, September 1, 2011.
- C.H.G. Wright and S.F. Barrett, "Bioinspired vision sensors with hyperacuity," Department of Electrical and Computer Engineering, United States Air Force Academy, Colorado, August 12, 2011.
- S.F. Barrett and D.J. Pack, Texas Instruments MSP430 Microcontroller, workshop, American Society for Engineering Educators 2011 Annual Conference, June 2011, Vancouver, BC, Canada.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), American Society for Engineering Educators 2011 Annual Conference, June 2011, Vancouver, BC, Canada.
- C.H.G. Wright and S.F. Barrett, "Accessible Wyoming, Linking Assistive Technology Needs to UW Senior Design Students," Wyoming Medical Society, Laramie, WY., June 10, 2011
- S.F. Barrett, "Accessible Wyoming, Linking Assistive Technology Needs to UW Senior Design Students," Wyoming Engineering Society, 91st Annual Convention, Cheyenne, WY., February 4, 2011
- S.F. Barrett, **A. Purdy**, B. Pivic, "Industrial Control: Courseware and Labware Development," Laramie Engineers Club, May 21, 2010.
- S.F. Barrett, **A. Purdy**, B. Pivic, "Industrial Control: Courseware and Labware Development," High-Plains IEEE Section Meeting, May 5, 2010.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), *American Society for Engineering Educators 2010 Annual Conference*, June 2010, accepted.

- D. Whitman and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), ABET Symposium (formally *Best Assessment Processes*), Las Vegas, April 16-17, 2010, accepted
- S.F. Barrett and C.H.G. Wright, "Textbooks 101 – A Primer on Writing Your First Textbook," workshop session, 47th Annual Rocky Mountain Bioengineering Symposium, April 2010.
- S. Barrett, "IEEE-USA Report to the NCEES Participating Organizations Liaison Council," invited representative for IEEE-USA Licensure and Registration Committee, National Council of Examiners for Engineering and Surveying (NCEES), Participating Organizations Liaison Council (POLC), Atlanta, GA, March 12, 2010.
- "University of Wyoming Neuroscience Center for Biomedical Research Excellence (COBRE)," Western Region COBRE-INBRE Scientific Conference, Big Sky, MT, Sep 2009.
- **K. L. Creaser, L. A. Benson, E. S. Tomberlin, S. F. Barrett, and C.H.G. Wright**, "Electrophysiology of Early Vision in *Musca domestica*," Western Region COBRE-INBRE Scientific Conference, Big Sky, MT, Sep 2009.
- J. Steadman, D. Whitman, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), *American Society for Engineering Educators 2009 Annual Conference*, June 2009.
- S. Barrett, "IEEE-USA Report to the NCEES Participating Organizations Liaison Council," invited representative for IEEE-USA Licensure and Registration Committee, National Council of Examiners for Engineering and Surveying (NCEES), Participating Organizations Liaison Council (POLC), Atlanta, GA, March 14, 2009.
- J. Steadman, D. McDowell, and S. F. Barrett, "Effective and Efficient Use of the Fundamentals of Engineering Outcomes Assessment," invited representative for the National Council of Examiners for Engineering and Surveying (NCEES), ABET Best Assessment Processes Symposium, Indianapolis, IN, April 3-4, 2009
- S.F. Barrett, "*Musca domestica* Inspired Machine Vision," Guest lecturer, COSC4560 Modern Robots, course, The University of Wyoming, Feb 21, 2008.
- C.H.G. Wright, S.F. Barrett, A.J. Welch, "*Computer-Assisted Retinal Laser Surgery System*," Symposium to Honor A.J. Welch, The University of Texas at Austin, Jan 2008.
- S.F. Barrett, "*Using Bloom's Taxonomy*," Teaching and Learning Seminar Series for graduate students, John P. "Jack" Ellbogen Center for Teaching and Learning, University of Wyoming, September 2007.
- S.F. Barrett and C.H.G. Wright, "*Musca domestica* Inspired Machine Vision with Hyperacuity," Feb 9, 2007, Institute for Computational Engineering and Sciences, The University of Texas at Austin, Austin, TX.
- S.F. Barrett and C.H.G. Wright, "*Musca domestica* Inspired Machine Vision with Hyperacuity," Feb 7, 2007, Department of Computer Science and Engineering, Southern Methodist University, Dallas, TX.
- S.F. Barrett and C.H.G. Wright, "*Musca domestica* Inspired Machine Vision with Hyperacuity," Jan 18, 2007, United States Air Force Academy, Colorado—attended by representatives from Intelligent Payload Systems, Inc. and Aqueous Biomedical.
- **J. B. Benson, C. H. G. Wright, and S. F. Barrett**, "Modeling Spatial Sampling for a Biomimetic Vision Sensor," ICASSP, 2007.
- Wrote side-bar for article written by Michael Manore, P.E., "Visualization Education and Training – Harnessing the Visual Phenomenon," *TR News*, a bimonthly magazine published by the Transportation Research Board of the National Academy of Sciences, October 2007.
- S.F. Barrett and C.H.G. Wright, "*Musca domestica* Inspired Machine Vision with Hyperacuity," Nov 16-18, 2006, The Institute of Optics, University of Rochester, Rochester, NY
- **J. B. Benson, C. H. G. Wright, and S. F. Barrett**, "Spatial Sampling Variations for Biomimetic Computer Vision," in Proceedings of the 12th IEEE Digital Signal Processing Workshop, 2006.
- S.F. Barrett, "*Musca domestica* Inspired Machine Vision," UW Physiology Club Seminar, The University of Wyoming, September 21, 2006.

- S.F. Barrett and C.H.G. Wright, “*Musca domestica* Inspired Machine Vision with Hyperacuity,” July 25, 2006, United States Air Force Academy, Colorado—attended by Small UAV Project Manager, Wright Patterson AFB, OH
- S.F. Barrett, “*Musca domestica* Inspired Machine Vision with Hyperacuity,” Mechanical Engineering Seminar, The University of Wyoming, September 17, 2004.
- **B. Mc Collough**, C.H.G. Wright, S.F. Barrett, J. Anderson, “Development and Instrumentation for Confocal Total Reflectance,” 12th Annual McNair Scholars Research Conference, University of Wyoming, August 2, 2004.
- S. Barrett, “Textbooks 101 – A Primer on Writing Your First Textbook,” IEEE Centennial Section Meeting, Fort Collins, CO, March 2004.
- S.F. Barrett, “Fundamentals of Image Processing,” Invited Short Course presentation, *Rocky Mountain Bioengineering Symposium 2003*, Gulfport, MS, Apr 2003.
- S.F. Barrett and C.H.G. Wright, “Retinal Photocoagulation System for the Clinical Treatment of Retinal Disorders,” Invited Presentation, *IEEE Centennial Section*, Fort Collins, CO, Oct 2002.
- S.F. Barrett, “Textbooks 101 - A Primer on Writing Your First Book,” Invited Short Course presentation, *Rocky Mountain Bioengineering Symposium 2002*, Copper MT, CO, Apr 2002.
- **J.O. Newton**, M.J. Wilcox, S.F. Barrett, “Biologically Based Machine Vision,” *Rocky Mountain Bioengineering Symposium 2002*, Biomedical Sciences Instrumentation, Volume 38, Copper MT, CO, Apr 2002.
- **J.R. Anderson**, M.J. Wilcox, S.F. Barrett, “Image Processing and 3D Reconstruction of Serial Section Micrographs from *Musca domestica*’s Biological Cells Responsible for Visual Processing,” *Rocky Mountain Bioengineering Symposium 2002*, Biomedical Sciences Instrumentation, Volume 38, Copper MT, CO, Apr 2002.
- S.F. Barrett, M.J. Wilcox, **T.E. Olson**, “Modeling a Parallel L4 Neuron Array of the Fly (*Musca domestica*) Vision System with a Sequential Processor,” *Rocky Mountain Bioengineering Symposium 2002*, Biomedical Sciences Instrumentation, Volume 38, Copper MT, CO, Apr 2002.
- S.F. Barrett, **E. Naess**, **T. Molvik**, “Employing the Hough Transform to Locate the Optic Disk,” *Rocky Mountain Bioengineering Symposium 2001*, Biomedical Sciences Instrumentation, Volume 37, Copper MT, CO, Apr 2001.
- **D. Ludwig**, S.F. Barrett, R. Kubichek, “Laser Control for Retinal Surgery,” *Rocky Mountain Bioengineering Symposium 2001*, Biomedical Sciences Instrumentation, Volume 37, Copper MT, CO, Apr 2001. **Student won third place in student paper competition.**
- **T. Olson**, M. Wilcox, S.F. Barrett, “Modeling the L4 Neuron of the Fly (*Musca Domestica*) Vision System,” *Rocky Mountain Bioengineering Symposium 2001*, Biomedical Sciences Instrumentation, Volume 37, Copper MT, CO, Apr 2001. **Student won first place in student paper competition.**
- C.H.G. Wright, S.F. Barrett, P.W. de Graaf, “Determining Laser Dosimetry for Consistent Retinal Photocoagulation,” *Rocky Mountain Bioengineering Symposium 2001*, Biomedical Sciences Instrumentation, Volume 37, Copper MT, CO, Apr 2001.
- **E. Hval**, S.F. Barrett, M. Wilcox, “An Improved Tracking Algorithm for the Morris Water Maze,” *Rocky Mountain Bioengineering Symposium 2001*, Biomedical Sciences Instrumentation, Volume 37, Copper MT, CO, Apr 2001.
- **J. Lujan**, S.F. Barrett, “Using the Electro-Oculogram to Sense Eye Position for Use in Retinal Laser Surgery,” The UW McNair Journal, University of Wyoming, Fall 2001.
- P.W. de Graaf, S.F. Barrett, C.H.G. Wright, “Deriving Irradiation Control Parameters for Laser Photocoagulation of the Retina,” *37th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 36, USAF Academy, CO, April 2000.
- S.F. Barrett, “Surviving a HHQ Assignment,” *Invited Presentation*, R&D Management, Embry-Riddle University, Francis E. Warren AFB, Cheyenne, Wyoming, July 2000, September 2000.
- S.F. Barrett and Mike Wilcox, “An Improved Morris Water Maze Tracking Algorithm for Psychophysiological Studies,” *37th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 36, USAF Academy, CO, April 2000.
- S.F. Barrett and Harry Zwick, “Measuring Visual Fixation with a Retinal Tracking Equipped Scanning Laser Ophthalmoscope,” *37th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 36, USAF Academy, CO, April 2000.

- S.F. Barrett, P.W. de Graaf, C.H.G. Wright, "Hybrid Tracking System for Retinal Photocoagulation -- Prototype II," *Rocky Mountain Bioengineering Symposium Annual Conference*, Biomedical Sciences Instrumentation, Volume 35, Copper Mt, CO, April 1999.
- P.W. de Graaf, S.F. Barrett, C.H.G. Wright, "Controlling Irradiation Parameters for Laser Photocoagulation on the Retina" *Rocky Mountain Bioengineering Symposium Annual Conference*, Biomedical Sciences Instrumentation, Volume 35, Copper Mt, CO, April 1999.
- S.F. Barrett, "Efficiently Tracking Moving Objects Using Two-Dimensional Image Processing," *The Colloquium Series of the Department of Computer Science*, University of Wyoming, Laramie, WY, Sep 1999.
- S.F. Barrett, "Efficiently Tracking Moving Objects Using Two-Dimensional Image Processing," *Invited Presentation*, IEEE Signal Processing Section Meeting, Colorado Springs, CO, August 1999.
- S.F. Barrett, C.H.G. Wright, "Computer-Assisted Laser Photocoagulation of the Retina," *Invited Presentation*, Department of Electrical Engineering, University of Wyoming, Laramie, WY, March 1999.
- P.W. deGraaf, S.F. Barrett, C.H.G. Wright, "A Method to Control Irradiation Time for Laser Photocoagulation on the Retina," *35th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 34, Copper Mountain, CO, April 1998.
- **E.D. Oberg**, S.F. Barrett, C.H.G. Wright, "The Development of a Hybrid Analog/Digital Retinal Surgical Laser System," *35th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 34, Copper Mountain, CO, April 1998.
- C.H.G. Wright, **E.D. Oberg**, S.F. Barrett, "Integration of Analog and Digital Retinal Tracking and Coagulation Subsystems," *35th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 34, Copper Mountain, CO, April 1998.
- S.F. Barrett, C.H.G. Wright, **E.D. Oberg**, B.A. Rockwell, C. Cain, H.G. Rylander III, A.J. Welch, "Digital Integrated Retinal Surgical Laser System," *34th Annual Rocky Mountain Bioengineering Symposium*, Dayton, Ohio, April 1997.
- S.F. Barrett, C.H.G. Wright, **E.D. Oberg**, B.A. Rockwell, C. Cain, H.G. Rylander III, A.J. Welch, "Automated Hybrid Retinal Surgical System for Laser Photocoagulation," *Invited Paper, Advanced Technology Applications to Combat Casualty Care (ATACCC) 97*, Fort Walton Beach, FL., May 1997.
- **E.D. Oberg**, S.F. Barrett, C.H.G. Wright, "Determining a Linear Relationship between a Lesion's Central Reflectance and the Depth into Retinal Tissue," *34th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 33, Dayton, Ohio, April 1997.
- C.H.G. Wright, R.D. Ferguson, H.G. Rylander III, A.J. Welch, S.F. Barrett, **E.D. Oberg**, "Hybrid Retinal Photocoagulation System Using Analog Tracking," *34th Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 33, Dayton, Ohio, April 1997.
- C.H.G. Wright, R.D. Ferguson, H.G. Rylander III, A.J. Welch, and S.F. Barrett, "Hybrid Eye Tracking for Computer Aided Retinal Surgery," *33rd Annual Rocky Mountain Bioengineering Symposium*, Volume 32, Apr 1996, pp. 225-236.
- S.F. Barrett, C.H.G. Wright, P.J. Neal, R.D. Ferguson, B.A. Rockwell, C. Cain, H.G. Rylander, and A.J. Welch, "Integrated Automated Retinal Surgical Laser System," *33rd Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 32, Apr 1996, pp. 215-224.
- S.F. Barrett, C.H.G. Wright, M.R. Jerath, R.S. Lewis II, B.C. Dillard, H.G. Rylander III, and A.J. Welch, "Automated Retinal Robotic Laser System," *32nd Annual Rocky Mountain Bioengineering Symposium*, Biomedical Sciences Instrumentation, Volume 31, Apr 1995.
- S.F. Barrett, "Curriculum de Ingenieria Electrica," *Simposio Curriculum Del Ingeniero Aeronautico*, Academia Politecnica Aeronautica, Invited Paper, Santiago, Chile, June 1995.
- S.F. Barrett, H.G. Rylander, and A.J. Welch, "Automated Laser Photocoagulation," *Gordon Conference, Lasers in Biology and Medicine*, Jul 1994.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Automated Laser Photocoagulation," *Future Directions for Lasers in Medicine and Surgery III Conference*, Feb 1993.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Automated Laser Photocoagulation," *Gordon Conference, Lasers in Surgery and Medicine*, Jun 1992.
- S.F. Barrett, M.R. Jerath, H.G. Rylander, and A.J. Welch, "Automated Laser Photocoagulation," *10th Annual Houston Conference on Biomedical Engineering*, Mar 1992.
- S.F. Barrett, "Digital Simulation of Cardiac Arrhythmias," *79th Nebraska Academy of Science*, May 1979.

7. CONTRACTS & GRANTS

7.1 Funded Projects

Principal Investigator, National Science Foundation, Biomedical Engineering Program and Research to Aid Persons with Disabilities Program, "University of Wyoming, College of Engineering, Undergraduate Design Projects to Aid Wyoming Persons with Disabilities," \$125,000, 2010 – 2016.

Co-principal investigator subproject, U.S. Department of Energy, National Nuclear Security Administration Office of Nonproliferation Research and Development (NA-22), PROPOSAL/PROJECT LIFECYCLE PLAN, Muon Tracking to Detect Special Nuclear Materials, David Schwellenbach (NSTec, 505-663-2017, schweldd@nv.doe.gov), May 2012, \$240,781.68.

Co-Principal Investigator (PI: Dr. Cameron Wright), University of Wyoming, Technology Requirements for National Unmanned Systems Experimental Environment (NUSE2) - Option, Biomimetic Vision Sensor, Congressional Award, Joint Robotics Program, \$299,994, 2007 – 2011. (DODAF41613BVSOP)

Co-Principal Investigator (PI: Dr. Cameron Wright), University of Wyoming, Technology Requirements for National Unmanned Systems Experimental Environment (NUSE2), Biomimetic Vision Sensor, Congressional Award, Joint Robotics Program, \$399,994, 2007 – 2011. (DODAF41613BVS)

Investigation and Application of Biologically Inspired Machine Vision , University of Wyoming Center of Biomedical Research Excellence (COBRE), Investigation and Application of Biologically Inspired Machine Vision, 2006-2010. \$229,178. (DHHSNIH 43945BRT, 43929BRT, 43936BRT)

- This project is part of the National Institutes of Health \$10.3 million, five year grant for neuroscience research at the University of Wyoming. Dr. Francis Flynn of Zoology and Physiology is the Primary Investigator for the overall grant.

Co-Principal Investigator (PI: Dr. Cameron Wright), University of Wyoming, Technology Requirements for National Unmanned Systems Experimental Environment (NUSE2), Biomimetic Vision Sensor, Congressional Award, Joint Robotics Program, \$198,202, 2006 – 2008. (DODAF44601WRHT)

National Institutes of Health Center for Biomedical Research Excellence (COBRE) in Cellular Signaling – Biomimetic Modeling of the Vision System of the Fly (*Musca domestica*), 2002-2006.

Dr. James Rose is the Principal Investigator and Program Director on campus.

EE Project Funding (Barrett): \$441,794. (DHHSNIH439PR8, 3928PROJ7)

- Initial proposals were evaluated by members of an external advisory panel and the DHHS/NIH Health Science Administrator, Dr. Larry Yager. In addition, research progress was evaluated on an annual basis by the external advisory board.

Co-Principal Investigator, Naval Air Warfare Center (NAWC) Grant, "Biomimetics," The University of Wyoming, \$224,555, 2000-2004.

Principal Investigator, National Science Foundation, Biomedical Engineering Program and Research to Aid Persons with Disabilities Program, "University of Wyoming, College of Engineering, Undergraduate Design

Projects to Aid Wyoming Persons with Disabilities," \$125,000, 2002 – 2007, with REU Supplement," \$7,200, 2002.

Sponsored Research - Internal

EWSI-UW Curriculum Improvement Grant, **\$5000**, summer program recruiting improvements and new laboratory exercises for EE4390 Microprocessors course.

Principal Investigator, Wyoming BRIN New Investigator Award, "Wyoming BRIN New Investigator Award Biomimetic Modeling of the Vision System of the Fly (*Musca domestica*)," **\$12,000**, 2002.

Principal Investigator, UW Grant In Aid, **\$5,000**, 2000.

7.2 Pending Projects

7.3 Proposals not accepted

Co-principal Investigator, DRT, Inc. "Non-Invasive Microfluidic Cardiopulmonary Monitoring System," \$274,000, 2010.

Co-principal Investigator (one of three), NSF ITEST, "Prime the Pipeline Project: Putting Knowledge to Work." UW collaborating as a partnering institution with Arizona State University on STEM recruitment initiative. PI: Carole Greenes, Associate Vice Provost for STEM Education, Arizona State University, \$240,000, 2012-2015.

Principal Investigator, National Science Foundation, PD 05-1639, CMMI – Sensor Technology for Civilian and Mechanical Structures, "Biologically Inspired Sensor for Monitoring Structures," \$594,774, 08/01/09 – 08/01/12.

Principal Investigator, National Science Foundation, Biomedical Engineering Program and Research to Aid Persons with Disabilities Program, "University of Wyoming, College of Engineering, Undergraduate Design Projects to Aid Wyoming Persons with Disabilities," \$125,000, 2009 – 2014.

Principal Investigator, National Science Foundation, Biomedical Engineering Program and Research to Aid Persons with Disabilities Program, "University of Wyoming, College of Engineering, Undergraduate Design Projects to Aid Wyoming Persons with Disabilities," \$125,000, 2008 – 2013.

Co-PI, (PI: Dr. Cameron Wright), The Office of Naval Research (ONR) White Paper "Robust Object Segmentation, Tracking, and Recognition Using a New Biomimetic Vision System," ONR Broad Agency Announcement (BAA) # 06-016 "Command and Control and Combat Systems Applied Research," 2006, not accepted for further consideration.

Co-PI, DoD DEPSCoR Preproposal, (PI: Dr. Cameron Wright), \$580,690.70 (over three years) requested for "High Speed Vision System for Obstacle Avoidance, Navigation Assistance, Target Tracking, and Object Recognition," 2005.

Principal Investigator, Sensors and Sensors Networks (NSF 04-526), "Investigation and Application of Biologically Inspired Vision," National Science Foundation, \$2,113,287 (over five years), 2005.

Co-PI, National Science Foundation Wider Pathways to Engineering Careers, \$903,780, PI: Dr. Richard Schmidt, 2005.

DoD EPSCoR Preproposal, (PI: Dr. Cameron Wright), \$669,295 (over three years) requested for "Computer Vision for Mobile Robots Using a Biomimetic Vision System Approach," 2005.

Principal Investigator, University of Wyoming, Technology Requirements for National Unmanned Systems Experimental Environment (NUSE2), Ground-Based Robot University, Joint Robotics Program, \$223,000, 2005 – 2007.

Principal Investigator, Frontiers in Integrative Biological Research (NSF 04-596), "Investigation and Application of Biologically Inspired Machine Vision," pre-proposal submitted October 4, 2004.

Not selected for submission of full proposal.

Co-PI, NSF Wider Pathways to Engineering Careers, \$903,780, PI: Dr. Richard Schmidt, 2004.

Principal Investigator, University of Wyoming, Faculty Grant-in-aid, "Undergraduate/Graduate Computer Engineering Laboratory," \$7,500, 2004

DoD EPSCoR, (PI: Dr. Cameron Wright), \$500,000 (over three years) requested for "Object Recognition Using Biologically-Inspired Sensors Coupled with Eigenspace Image Models," 2004.

MURI Proposal, "Identification of Biometric Parameters from Multiple Low Cost Sensors," BAA#03-012, 2003.

Principal Investigator: Dr. Robert Ives, United States Naval Academy. Other participating universities: United States Naval Academy, University of Texas at Austin, University of Maryland – Baltimore County, University of Wyoming, My role: Investigator, (Dr. Cameron Wright is also a UW Investigator), UW potential funding: \$565,000 over three year period

Principal Investigator, University of Wyoming Proposal for an Undergraduate Computer Engineering Laboratory, Rockwell Collins Trust University Grant, \$25,000, 2003

Principal Investigator, University of Wyoming, Faculty Grant-in-aid, "Undergraduate/Graduate Computer Engineering Laboratory," \$7,500, 2003

Principal Investigator, Wyoming BRIN Equipment Proposal to support BE4810 Bioinstrumentation Laboratory Sequence, \$24,000, 2002.

UW College of Engineering, Target of Opportunity Grant, "Motivational Robot-Based Undergraduate Computer Engineering Laboratory," \$25,000, 2002.

Rockwell Trust University Grant, "University of Wyoming Proposal for an Undergraduate Computer Engineering Laboratory Rockwell Collins Trust University Grant," \$25,600, 2002.

UW Grant In Aid, "Motivational Robot-Based Undergraduate Computer Engineering Laboratory," \$7,500, 2002.

UW Alumni Association Faculty Development Grant, 2001, \$800.

National Science Foundation, Division of Undergraduate Education, Course, Curriculum, and Laboratory Improvement Grant, "Motivational Robot-Based Undergraduate Computer Engineering Laboratory," \$192,000, 2001.

Whitaker Foundation, "Computer-Assisted Laser Tattoo Removal," \$240,000, 2001.

Wyoming National Science Foundation EPSCoR Starter Grant Project, "Computer-Assisted Laser Tattoo Removal" 2001, \$30,000.

NSF CAREER, "Computer-Assisted Photocoagulation for Ophthalmic Applications," \$375,000, 2000.

NIH, "Computer-Assisted Photocoagulation for Ophthalmic Applications," \$375,000, 2000.

UW H.T. Person, "H.T. Person Teaching and Learning Internal Awards Program for an Image Processing Laboratory," \$15,000, 1999.

Whitaker Foundation, "Computer-Assisted Photocoagulation for Biomedical Applications," \$240,000, 2000.

NSF BRP, "Computer-Assisted Photocoagulation for Biomedical Applications," \$300,000, 2000.

NSF WY EPSCoR, "Computer Assisted Laser Tattoo Removal," \$30,000, 1999.

8. OTHER ACTIVITIES/ACCOMPLISHMENTS

Patents

- Cooperative Optical-Imaging Sensor Array, patent submitted, June 11, 2005, S.F. Barrett, M.J. Wilcox, D. Cox, D. Thelen, claims 1, 4-8 approved USPO June 22, 2012. Continuation patent for "Cooperative Optical-Imaging Sensor Array" was issued by the United States Patent and Trademark Office November 22, 2016 under patent number 9,503,649
- Multi-Aperture Visual Sensor with Hyperacuity, G. P. Luke, C. H. G. Wright., S. F. Barrett. Patent application submitted by University of Wyoming Research Products Center, December 2010; full patent approved July 2013. USPTO: patent number 8,569,680 issued 10/29/2013.

Educational Contributions

- EE4530 Digital Image Processing, revamped course that had not been taught in some time
- BE4810 Bioinstrumentation, revamped course that had not been taught in some time, with student assistance established new laboratory exercises
- EE4390 Microprocessors, with student assistance established new laboratory exercises, new textbook, new student manual
- EE4800/EE5880 Embedded Control Systems, established new course, student manual, with student assistance established new laboratory exercises
- EE4590/EE5590 Real Time Embedded Systems, established new course, student manual, with student assistance established new laboratory exercises, laboratory exercises uses robots as motivational teaching tool

- EE4490 Hardware Descriptive Language (HDL) Digital Design, with student assistance established new laboratory exercises, new textbook, new student manual
- EE4800/5885 Industrial Control Systems, established new interdisciplinary engineering course in industrial control instrumentation using programmable logic controllers (PLCs) and industrial based microcontrollers, with student assistance established new laboratory exercises, adopted new textbook
- EE5390 Computer Architecture, revamped course with student assistance that had not been taught in some time, incorporated Verilog HDL design exercises into course

Review Service (past five years)

- Graduate program assessment, Electrical Engineering Department, University of Texas at Tyler, April 2015.
- Review three book chapters, "Digital Systems Design Using Verilog," Cengage Learning, July 2013.
- Reviewed paper for *Journal of Electronic Imaging*, 2012
- Reviewed paper for *Computers in Education Journal*, 2012 (3)
- Reviewed paper for 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems, 2012
- Reviewed paper for IEEE Engineering in Medicine and Biology Society (EMBS) *Transactions on Neural Systems and Rehabilitation Engineering*, 2012 (2)
- Served as reviewer for academic promotion for faculty at various universities:
 - East Carolina University, 2019 (tenure and associate professor)
 - Boise State University, 2019 (full professor)
 - Tenn Tech University, 2019 (full professor)
 - East Carolina University, 2016 (full professor)
 - Kansas State University, 2016 (full professor)
 - University of Hartford, Connecticut, 2014 (tenure and associate professor)
 - Jordan University of Science and Technology, 2014 (full professor)
 - Texas State University, 2014 (tenure and associate professor)
 - University of Hartford, Connecticut, 2014 (tenure and associate professor)
 - Penn State University, Commonwealth Campuses, 2012 (tenure and associate professor)
 - University of North Carolina, Charlotte, 2012 (full professor)
 - University of Texas, San Antonio, 2012 (tenure and associate professor)
 - Northern Illinois University, 2011 (full professor)
 - University of North Dakota, 2011 (tenure and associate professor)
 - Boise State University, 2011 (full professor)

Consulting (past five years)

- WYCO Embedded Systems, LLC, owner and manager, provides consulting services for proprietary, custom, Underwriter Laboratory (UL) approved embedded solutions for proprietary industrial control applications.
 - Registered Professional Engineer Wyoming (#9874) and Colorado (#33781).
 - Providing expertise in designing industrial embedded controller applications, 2000 – present
 - Projects include:
 - DC Barrier control - UL approved, in production – single processor, 5650 lines of code
 - ASICBARP - in production – single processor, 5,000 lines of code
 - POWERAM – final prototype near completion -- single processor, 5,000 lines of code
 - ASI Controller - final prototype near completion – dual processor, 1,245 and 10,000+ lines of code
 - P4400 – single processor, 1,700 lines of code – algorithm being adapted for smaller microcontroller
- Consulting Engineer, Keystone International, Inc, classified work (Q) for the Department of Energy, September 1, 2012 – 2015
- Consulting Engineer, Marquette University, Test Equipment, Kinesiology and Health, 2016-2017.

Graduate Committee Service

- Joshua Ring, MS, Architectural Engineering, anticipated graduation date May 2020.
- Astrid Northrup, Ph.D., Curriculum and Instruction in Science Education, anticipated grad date May 2020.
- Michaela Keener, MS, Division of Kinesiology and Health, May 2018.
- Samira Samoudi, Ph.D. candidate, Electrical Engineering, May 2019
- Dewayne Tillman, MS, SMTC, December 2017.
- Jacob Layer, MS, Division of Kinesiology and Health, August 2017.
- Andrew Davis, Masters of Science, Electrical Engineering, May 2016
- McKenize Danforth, Masters of Science, Civil Engineering, December 2015
- Kimberly Perry, Masters of Science, Electrical Engineering, December 2015
- John Davis, Ph.D. Electrical Engineering, anticipated graduation date Dec 2014
- Anh Nguyen, Masters, Computer Science, May 2014
- Md. Arif Khan, Masters, Electrical Engineering, May 2014
- Charles Schmidt, Masters, Mechanical Engineering, August 2013
- James Branscomb, Masters, Electrical Engineering, May 2013
- Neil Long, Masters, Kinesiology and Health, May 2013
- Megan Neeman, Masters, Kinesiology and Health, May 2013
- Brian Dean, Ph.D, Electrical and Computer Engineering, Dec 2012.
- Michael Stephens, Masters, Electrical Engineering, May 2012.
- Thyra Page, Masters of Arts Communications, College of Arts & Sciences, Communications and Journalism Department, Dec 2011.
- Anthony Wallace, Ph.D. Computer Science, May 2011.
- Damao Zhang, Ph.D candidate, Atmospheric Science, Aerosol and cloud interactions from satellite lidar/radar observation, anticipated graduation date August 2011.
- Anthony Kunkle, MSEE (Plan A), Electrical and Computer Engineering, December 2010.
- Travis Lairscey, MSEE (Plan A), Electrical and Computer Engineering, December 2010.
- Quincy Howe, MS, Kinesiology and Health, August 2010.
- Jonathan Ngai, MSEE (Plan B), Dec 2009.
- Yi Zhang, Ph.D. Electrical and Computer Engineering, Dec 2009.
- Geoff Luke, MSEE (Plan A), Electrical and Computer Engineering, Aug 2009.
- Zachary Ruble, MSEE (Plan B), Electrical and Computer Engineering, May 2009.
- Paul M. Maxim, Ph.D. Computer Science, Dec 2008.
- Jonathan Schwietert, MSEE (Plan B), University of Wyoming, Dec 2008.
- Parke Price, MS, Natural Science, Science and Math Teaching Center, Dec 2008.
- Amy Carpenter, MS, Natural Science, Science and Math Teaching Center, Dec 2008.
- Michael Burnett, MSEE (Plan B), University of Wyoming, May 2008.
- Brett Roesler, MSEE (Plan B), University of Wyoming, May 2008.
- Hayley Bryant, MSCS, anticipated graduation date, August 2007.
- Miranda Bryant, MSCS, anticipated graduation date, August 2007.
- Travis Anderson, MSEE (Plan A), August 2007.
- Ruchik Amin, MSEE (Plan B), August 2007.
- Lucas Shaw, MSCS (Plan A), May 2007.
- Roopa Prabakhara, MSEE (Plan A), May 2006.
- Gayathri Sivasankaran, MSEE (Plan B), May 2006.
- David M. Mares, MSEE (Plan B), May 2006.
- Yang Teng, Ph.D. Electrical Engineering, August 2006.
- Thomas Kunkel, MSEE (Plan B), May 2006.

- Talwar Guarav, Ph.D. Electrical Engineering, University of Wyoming, Dec 2006.
- Jennifer Shuster, MSME (Plan A), Mechanical Engineering, University of Wyoming, May 2005.
- Tom Schei, MSEE (Plan A), University of Wyoming, August 2004.
- Prashant Patil, MSEE (Plan B), University of Wyoming, Spring 2005.
- Mona Dwivedi (Plan B), MSEE, University of Wyoming, August 2004.
- Praveen N. Potluru (Plan B), MSEE University of Wyoming, Aug 2004.
- Rodney Heil (Plan A), MSEE University of Wyoming, August 2004.
- David J. Poulson (Plan A), MSEE University of Wyoming, May 2004.
- Jian Sun, MSCS (Plan A) , University of Wyoming, Dec 2003.
- Wenlong Jin, MSEE (Plan B), University of Wyoming, Dec 2002.
- Uditha Piyasena, MSEE (Plan A), University of Wyoming, Dec 2000.
- Michael McKenna (Plan B), MSEE, University of Wyoming, May 2000.

References

Dr. Daniel Pack, Ph.D., P.E.

Dean of the College of Engineering and Computer Science, University of Tennessee, Chattanooga (UTC)

Colleague at United States Air Force Academy, 1993-1999; Co-author on multiple writing projects since 2002

e-mail: daniel-pack@utc.edu

Dr. Cameron H.G. Wright, Ph.D., P.E.

Interim Dean, College of Engineering and Applied Science

University of Wyoming

Colleague since 1992

e-mail: chgw@uwyo.edu

Megan Barber

Director of Business Operations, College of Engineering and Applied Science

Colleague since 2015

e-mail: mbarber@uwyo.edu

Laurie Bonini

Student Advising Manager, College of Engineering and Applied Science

Colleague since 2011

e-mail: lbbonini@uwyo.edu

Shannon Stanfill; Executive Director, Wyoming Board of Professional Engineers and Land Surveyors

Colleague since 2016

e-mail: shannon.stanfill@wyo.gov