Ronald Arthur Marsh, Ph.D.
Computer Science Department
University of North Dakota
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Grand Forks, ND 58202
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email: rmarsh@cs.und.edu

Part I. Educational Background:
1. 1985: B.S. Major: Physics, Minor: Computer Science (North Dakota State University).
2. 1986: Explosives Indoctrination, Infrared Technology, Electro-Optics, and VAX/VMS Utilities (NAWC).
3. 1987: Holography (L.A. School of Holography) and Spatial Light Modulators (SPIE).
4. 1988: Fourier Optics and Binary Optics (NAWC).
5. 1989: Practical Optics (U. Wisconsin).
6. 1990: Optical Design (Optics 1) and Digital Signal Processing (MIT/NAWC).
7. 1991: Laser Systems and Measurements (NIST), Infrared Window and Dome Materials (SPIE), and Grounding, Bonding, and Shielding (NAWC).
8. 1995: M.S. Computer Science (North Dakota State University). Thesis: A Face Detecting Hierarchical Neural Network.
9. 1998: PhD. Computer Science (North Dakota State University). Dissertation: A Correlation Architecture for Scale and Rotation Tolerant Pattern Recognition. Dr. Paul Juel.

Part II. Professional Experience:
1. 1985 to 1993: Optical physicist, Naval Air Warfare Center, China Lake, Ca. and Electro-Optics sensor program engineer, Naval Air Warfare Center, China Lake, Ca.
2. 1993 to 1998: Graduate teaching assistant, Computer Science and Operations Research Department, North Dakota State University and Graduate research assistant, Agricultural Engineering and Biosystems Engineering Department, North Dakota State University.
3. 1998 to 1999: Assistant Professor of Computer Science, Computer Science and Operations Research Department, North Dakota State University.
4. 1999 to 2001: Assistant Professor of Computer Science, Computer Science Department, University of North Dakota.
5. 2001 to 2005: Assistant Professor, Graduate Director of Computer Science, ACM and Anime faculty advisor, Computer Science Department, University of North Dakota.
6. 2006 to 2007: Associate Professor, Graduate Director of Computer Science, ACM and Anime faculty advisor, Computer Science Department, University of North Dakota.
7. 2008 to 2018: Associate Professor, Chair of Computer Science, Anime faculty advisor, Computer Science Department, University of North Dakota.
8. 2018 to present: Professor, Associate Director of School of Electrical Engineering and Computer Science, Anime and Car Club faculty advisor, University of North Dakota.

Part III. Courses Taught:

Regular Assignments:
1. CSci161 (Programming II - Ada) [fall 1999]
2. CSci451 (operating systems I) [fall 1999]
3. CSci452 (operating systems II) [spring 2000]
4. CSci260 (C++) [spring 2000]
5. CSci451 (Operating Systems I) [fall 2000]
6. CSci546 (Graduate computer graphics) [fall 2000]
7. CSci160 (Programming I Java) [spring 2001]
8. CSci446 (Computer Graphics) [spring 2001]
9. CSci500 (Graduate Orientation) [fall / spring 2001/2002]

Items in gray performed prior to promotion to Associate Professor

30. CSci500 (Graduate Orientation) [fall/spring 2006/2007]
31. CSci451 (Operating Systems I) [fall 2006]   3.8 (10 responses)
32. CSci370 (Computer Architecture) [spring 2007]   4.0 (14 responses)
33. CSci500 (Graduate Orientation) [fall/spring 2007/2008]
34. CSci451 (Operating Systems I) [fall 2007]   3.8 (9 responses)
35. CSci370 (Computer Architecture) [spring 2008]   4.0 (16 responses)
36. CSci446 (Computer Graphics I) [spring 2008]   4.1 (8 responses)
37. CSci451 (Operating Systems I) [fall 2008]   4.3 (13 responses)
38. CSci448 (Computer Graphics II) [fall 2008] new department course   3.7 (3 responses)
39. CSci546 (Advanced Computer Graphics) [fall 2008]   4.5 (4 responses)
40. CSci370 (Computer Architecture) [spring 2009]   3.8 (13 responses)
41. CSci451 (Operating Systems I) [fall 2009]   3.6 (8 responses)
42. CSci230 (Systems Programming) [fall 2009] new department course   3.0 (21 responses)
43. CSci446 (Computer Graphics I) [fall 2009]   4.0 (8 responses)
44. CSci451 (Operating Systems I) [spring 2010]   4.3 (6 responses)
45. CSci448 (Computer Graphics II) [spring 2010]   4.0 (3 responses)
46. CSci230 (Systems Programming) [fall 2010]   4.5 (27 responses)
47. CSci546 (Advanced Computer Graphics) [fall 2010]   4.0 (3 responses)
48. CSci451 (Operating Systems I) [spring 2011]   4.2 (13 responses)
49. CSci230 (Systems Programming) [fall 2011]   4.1 (23 responses)
50. CSci446 (Computer Graphics I) [fall 2011]   4.5 (10 responses)
51. CSci451 (Operating Systems I) [spring 2012]   4.5 (21 responses)
52. CSci546 (Advanced Computer Graphics) [spring 2012]   4.3 (10 responses)
53. CSci230 (Systems Programming) [fall 2012]   4.1 (18 responses)
54. CSci547 (Scientific Visualization) [Fall 2012]   4.5 (4 responses)
55. CSci451 (Operating Systems I) [spring 2013]   3.7 (16 responses)
56. Csci451 (Operating Systems I) [fall 2013]   4.1 (16 responses)
57. CSci446 (Computer Graphics I) [fall 2013]   4.2 (5 responses)
58. CSci230 (Systems Programming) [spring 2014]   4.1 (36 responses)
59. CSci448 (Computer Graphics II) [spring 2014]   4.0 (4 responses)
60. CSci451(Operating Systems I) [fall 2014]   4.3 (14 responses)
61. CSci547 (Scientific Visualization) [fall 2014]   4.0 (1 response)
62. CSci230 (Systems Programming) [spring 2015]   4.3 (27 responses)
63. CSci501 (Designing and Building Applications for Extreme Scale Systems) [spring 2015]
64. Csci451 (Operating Systems I) [fall 2015]   4.3 (26 responses)
65. CSci446 (Computer Graphics I) [fall 2015]   4.3 (9 responses)

Items in gray performed prior to promotion to Associate Professor

66. CSci230 (Systems Programming) [spring 2016]   4.4 (26 responses)
67. CSci448 (Computer Graphics II) [spring 2016]   4.6 (5 responses)
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68. Csci451 (Operating Systems I) [fall 2016]   4.23 (16 responses)
69. Csci492 (Senior Project I) [fall 2016]   3.88 (8 responses)
70. CSci230 (Systems Programming) [spring 2017]
71. Csci493 (Senior Project II) [spring 2017]
72. Csci451 (Operating Systems I) [fall 2017]
73. CSci446 (Computer Graphics I) [fall 2017]
74. CSci230 (Systems Programming) [spring 2018]
75. CSci448 (Computer Graphics II) [spring 2018]

<mark>Mean 4.07</mark>
<mark>Median 4.1</mark>

Undergraduate Student Advising:

Undergraduate Advisees:
1. The department allocates undergraduate advisees as evenly as possible throughout the faculty. Currently, I am the advisor for approximately 15 students.

Undergraduate Student Independent Projects:
1. CSci 494, UND in CG (Computer Graphics), 2001
2. CSci 491, MPIchess, 2001
3. CSci 491, Space mission design seminar, 2002
4. Hon489, A General-Purpose Distributed Computing Architecture, 2001-2003
5. CSci 494, Electronic Hand-in, 2002
6. CSci 494, CS department webpage redesign, 2003
7. CSci 494, PIT compiler, 2003
8. CSci 494, XNA Development: Amateur 3d Game Development, 2006
9. CSci 494, The Creatr, An Independent Study to Create A Web Content Management System Using PHP, Javascript, CSS and HTML, 2006
10. Ronald E. McNair Post baccalaureate Achievement Program, The Illusion of Privacy Online, 2012
11. CSci 494, Cubesat Task Scheduler, 2014.
12. CSci 492/493, Differential Blood Counter (for UND SMHS), 2014/2015.
13. CSci 492/493, Game Design, 2014/2015.
14. CSci 492/493, Game Design, 2015/2016.
15. CSci 492/493, Game Design, 2016/2017.
16. CSci 492/493, Regolith Miner, 2016/2017.
17. CSci 492/493, Cubesat Data Link, 2016/2017.
18. CSci 492/493, Heart Monitor App, 2016/2017.
19. CSci 492/493, Virtual Robotic World, 2017/2018.
20. CSci 492/493, Mars Miner, 2017/2018.

- Names have been removed to comply with FERPA.

Graduate Student Advising:

Graduate Independent Projects:
1. CSci 591, Card Swipe Data System, 2001
2. CSci 591, Super Resolution Enhancement of Telescope Images, 2002
3. CSci 591, Beowulf Cluster Computing, 2002
4. CSci 591, High Performance / miniGRID Computing facility, 2003
5. CSci 591, Gundam: A computer program to allow students to generate computer animated movies, 2004
6. CSci 591, A Quadrupedal Walking Algorithm for the Tetwalker, 2006
7. CSci 591, Creating AI controlled planes using SimConnect, 2006

Items in gray performed prior to promotion to Associate Professor

8. CSci 591 Animation Techniques, 2010
9. CSci 591, Utilization of an ADS-B feed to monitor UND aircraft during normal and emergency operations, 2010
10. CSci 591, Linux Scheduler Performance for Beowulf Compute Nodes, 2010
11. CSci 591, Quality Control of RNA-Seq Assembly, 2011
12. CSci 591, Localized Assembly of RNA-Seq Short Reads, 2011
13. CSci 591, Short Reads Assembly by Using the Overlap Graph Technique, 2011
14. CSci 591, Modeling and Animation of 3D Snakes, 2011

- Names have been removed to comply with FERPA.

Graduate non-Thesis Advisees:
1. I have directed the non-thesis work for four students.

- Names have been removed to comply with FERPA.

Graduate Thesis Advisees:
1. I have chaired or am chairing thesis committees for 23 students.

- Names have been removed to comply with FERPA.

Graduate Dissertation Advisees:
1. I have chaired or am chairing dissertation committees for 5 students, including our first Ph.D. to graduate from Computer Science). I am also the dissertation co-Chair for another student.

- Names have been removed to comply with FERPA.

Graduate Member-at-Large Advisees:
1. I have been, or am, the Member at large for two Chemistry Ph.D. students, four Physics Ph.D. students, one Communication M.S. student, one Teaching and Learning Ph.D. student, one Earth System Science and Policy Ph.D. student, and one Mechanical Engineering Ph.D. student.

- Names have been removed to comply with FERPA.

Curriculum Development Activities:
1. Lead author for stage 1 and stage 2 Scientific Computing Ph.D. proposal. 2001-2006
2. Developed an undergraduate specialization in game design and computer animation, including a revision of CSci546. 2006
3. Lead development of BS/MS combined degree program. 2007
4. Lead development of revised MS degree requirements. 2007
5. Lead author for stage I Cybersecurity BS and Cybersecurity Specialization. 2014
6. Developer of stage II Minor and BA/BS degrees in cybersecurity. 2015
7. Lead author for stage I Cybersecurity BS and Minor degrees. 2016
8. Lead author for Data Science BS degree (Stage I) 2017.
9. Lead author for Cyber Security minor (Stage I) 2017.
10. Lead author for Data Science BS degree (Stage II) 2017.
11. Lead author for Cyber Security minor (Stage II) 2017.
12. Lead author for Computer Science and Data Science and BS degree revisions 2018.

Part IV. Service:

Service to the Department:
1. Developed a "computer science museum" in the department. 2001
2. ACM faculty advisor. 2001-2006 and I was awarded a Memorial Union Leadership award, Outstanding Student Organization Advisor in 2003.
3. Animie faculty advisor. 2002-present.

Items in gray performed prior to promotion to Associate Professor

4. Supervised student trip to MicroSoft Studio.net seminar at NDSU. 2002
5. Supervised student trip to Bill Gate's keynote address at FargoDome. 2002
6. Supervised student trip to DigiKey programming competition (Thief River Falls, Mn). 2001-2006
7. Supervised student trip to ACM regional programming competition (Lincoln, Ne). 2002, 2005, 2006, and the U. of Minnesota, Minneapolis, Mn, 2003
8. Computer Science faculty advisor for UND's Lunabot NASA competition. 2011, 2012
9. Computer Science faculty advisor for UND's CubeSat project. 2012-present
10. Department resources committee 1999 - present
11. Department personnel committee 2006-present
12. **Graduate Director** 2001 – 2007
13. **Department Chair** 2008 - present
14. Computer Science field trip to Microsoft (March 8, 2017)

Service to the College:
15. JDOSAS promotion committee 2005, 2007
16. JDOSAS Dean Search committee 2014-2015

Service to the University:
17. Member of review committee for ND EPSCOR AURA program 2002
18. University Academic Standards committee. 2003-2005.
19. Vice President for Research's subcommittee on Information technology in Research. 2006-2013
20. Vice President for Research's subcommittee on Invention Disclosures. 2006-present
21. Chair of the Biomedical Informatics Core group for the UND Clinical and Translational Science Award (CTSA) grant application to the NIH (estimated proposal budget $30,000,000.00). 2007.
22. Presidential Ad Hoc Committee on Promotions. 2011-2012
23. Member of Faculty Seed Grant Review Committee. 2013-2014
24. Member of Provost's ad-hoc committee on High Performance Computing Committee. 2012-present
25. Member of UND Program Task Force (SOAR). 2014-2015

Service to the Professional Associations:
1. IEEE member. 1999 -2000
2. Pattern Recognition Society member. 1999-2006
3. ACM member. 2002 - 2006
4. Session chair at Computer Graphics and Imaging (CGIM 2000), Las Vegas, Nv., 2000.
5. Session chair at Midwest Instructional and Computing Symposium (MICS 2002), Cedar Falls, Ia., April, 2002.
6. Textbook reviewer for "A Balanced Introduction to Computer Science," Author(s): David Reed, Prentice-Hall. 2002
7. Textbook reviewer for "Universal Computer: Introducing Computer Science with Multimedia," Author(s): Glenn D. Blank, Robert F. Barnes and Edwin J. Kay, Prentice-Hall. 2002
8. Textbook reviewer for "An Introduction to Computer Science using HTML and JavaScript," Author(s): Patrick Young, Prentice-Hall. 2002
9. Textbook reviewer for "Java Software Structures," Author(s): John Lewis and Joseph Chase, Addison-Wesley. 2002
10. Paper reviewer for Pattern Recognition Journal (PATREC 2518: Vytautas Perlibakas, Automatical detection of face features and exact face contour). 2002
11. Paper reviewer for Pattern Recognition Journal (PATREC 2741: Y. He and J. Tian, An Apparatus of Fingerprint-Based Digital-Certificate). 2002
12. Paper reviewer for Journal Of Intelligent Systems (JIS 03-01-17: Guan and Liu, An Incremental Approach to Contribution-Based Feature Selection). 2003
13. Paper reviewer for Pattern Recognition Journal (PATREC 2895: D. Xu, Z. Liu, Y. Yuan and X. Li, Face tracking with low-level and high-level information). 2003
14. Paper reviewer for Journal Of Intelligent Systems (JIS 02-11-19: Henderson and Martinez, Constructing Low-Order Discriminant Neural Networks using Statistical Feature Selection). 2003
15. Paper reviewer for Pattern Recognition Journal (PATREC 3082: F.Y. Shih, S. Cheng and C.-F. Chuang, Locating and Extracting Faces and Eyes). 2003

Items in gray performed prior to promotion to Associate Professor

18. Session Chair "Classroom Innovation and Management" at Midwest Instruction and Computing Symposium, La Crosse, WI, 2008.
19. Session Chair "Novel Applications + Algorithms" at WorldComp 08: International Conference on Image Processing, Computer Vision, and Pattern Recognition, Las Vegas, NV, 2008.
20. Session Chair, UND Graduate School Forum. 2010
21. Session Chair, SERP 10 - International Conference on Software Engineering Research and Practice. Las Vegas, NV. 2010
22. Session Chair, CGVCVIP 2010 Conference. Frieburg, Germany.
23. Paper review, "eToys as a collaborative environment through OLPC's activity sharing," for Encyclopedia of Social Interaction Technologies. 2007
24. Paper review, "Folksonomy: Creating Metadata through Collaborative Tagging," for Encyclopedia of Social Interaction Technologies. 2007
25. Paper review, "Sakai, the "community sourced" web 2 tool, and its application to teaching forensic science across geography, time, profession and generational divides" for Encyclopedia of Social Interaction Technologies. 2007
26. Promotion and Tenure committee external member for University of Minnesota, Crookston. 2006
27. NSF Transforming Undergraduate Education in STEM (**TUES)** review panel. 2010
28. Paper review, "Probabilistic Model for Quick Detection of Dissimilar Binary Images." Journal of Electronic Imaging, Spring 2015.
29. NSF Research Experience for Undergraduates (**REU)** review panel. 2015
30. IEEE member. 2016 –
31. ACM member. 2017-
32. Paper review: Kasim A. Korkmaz and Munther Abualkibash, "Earthquake Damage Detection using Before and After Earthquake Satellite Images," IEEE International Conference on Electro/Information Technology, Rochester, Mi., May 2018.
33. Paper review: Qing Wu and Wenbing Zhao, "Machine Learning Based Human Activity Detection in a Privacy-Aware Compliance Tracking System," IEEE International Conference on Electro/Information Technology, Rochester, Mi., May 2018.
34. Paper review: Ayman M. El Mesalami, Soad F. Ibrahim, and Medhat Moussa, "Automatic Detection of the Main Vine and Branches of Tomato Plants Grown in Greenhouses," IEEE International Conference on Electro/Information Technology, Rochester, Mi., May 2018.
35. Paper review: Emmersen, Tracy; Hatfield, Joseph; Kosseff, Jeff; Orr, Steven, "United States Naval Academy: Training the Next Generation of Cyber Leaders," Curricular Foundations of Cybersecurity Computer, IEEE Computer.

Service to the Community:
7. Sun Earth Moon System co-founder, participated in an expedition to Kourou, French Guiana to provide a World Wide Web broadcast of the annular solar eclipse on September 22, 2006. The UND webcast received media coverage by the BBC and the ESA (European Space Agency) main website.
8. Hosted a booth at the Beyond Earth - Moon Madness science fair, Oct. 6, 2007.
9. Hosted the Internet Safety Night, Oct 23, 2007 in Clifford Hall.

Items in gray performed prior to promotion to Associate Professor

10. Sun Earth Moon System co-founder, participated in an expedition to Rome, Italy to provide a World Wide Web broadcast of the total lunar eclipse on March 3, 2007.
11. Sun Earth Moon System co-founder, participated in an expedition to Xi'an, China to provide a world wide web broadcast of the total solar eclipse on August 1, 2008.
12. Sun Earth Moon System co-founder, participated in an expedition to Grand Forks, ND to provide a world wide web broadcast of the total lunar eclipse on February 20, 2008.
13. Sun Earth Moon System co-founder, participated in an expedition to Las Vegas, NV to provide a world wide web broadcast of the total lunar eclipse on August 29, 2007.
14. Sun Earth Moon System co-founder, participated in an expedition to Jakarta, Indonesia to provide a world wide web broadcast of the total solar eclipse on January 26, 2009.
15. Sun Earth Moon System co-founder, participated in an expedition to Wuhan, China to provide a world wide web broadcast of the total solar eclipse on July 22, 2009.
16. Sun Earth Moon System co-founder, participated in an expedition to Redding, California to provide a world wide web broadcast of the total solar eclipse on May 20, 2012.
17. Sun Earth Moon System co-founder, participated in an expedition to Anchorage, Alaska to provide a World Wide Web broadcast of the Venus Transit on June 5, 2012.
18. Sun Earth Moon System co-founder, participated in an expedition to Cairns, Australia to provide a World Wide Web broadcast of the Venus Transit on November 13, 2012.
19. Co-Hosted a Boy Scouts robotics merit badge class on May 13 and May 20, 2013.
20. Sun Earth Moon System co-founder, participated in an expedition to Grand Forks, ND to provide a world wide web broadcast of the total lunar eclipse on April 15, 2014.
21. Sun Earth Moon System co-founder, participated in an expedition to Grand Forks, ND to provide a world wide web broadcast of the total lunar eclipse on October 8, 2014.
22. North Dakota State Science Fair Judge, March 2015.
23. Co-Hosted a Girl Scouts Upward Bound class on June 20, 2015.
24. R. Marsh, "Robotics," Lego Robot Contest speaker. UND. February 11, 2017.
25. R. Marsh, "3D printing," Warren High School, March 6, 2017.
26. ND Science Fair judge, March 31, 2017

Part V: Publications/Presentations/Exhibits/Educational Products:

Publications:

Journal Articles (refereed):
1. P. Juell and R. Marsh, "A Hierarchical Neural Network for Human Face Detection," Pattern Recognition, Vol. 29, No. 5, May 1996. H-Index: 112 (http://academic.research.microsoft.com/Journal/418/pr-pattern-recognition)
2. Y. Chtioui, S. Panigrahi, and R. Marsh, "Conjugate Gradient and Approximate Newton Methods for an Optical Probabilistic Neural Network for Color Classification," Optical Engineering, Vol. 37, 1998. H-Index: 48 (http://academic.research.microsoft.com/Journal/8536/opt-eng-optical-engineering?query=optical%20engineering)
3. K. M. Iftekharuddin, W. Jia, and R. Marsh, "Fractal Analysis of Tumor in Brain MR Images," Machine Vision and Application, Vol. 13, pp. 352-362, 2003. H-Index: 39 (http://academic.research.microsoft.com/Journal/165/mva-machine-vision-and-applications)
4. R. Marsh, "FractalNet: A Biologically Inspired Neural Network Approach to Fractal Geometry," Journal of the Pattern Recognition Society Letters, Vol. 24, No. 12, pp 1881-1887, 2003. H-Index 78 (http://academic.research.microsoft.com/Journal/419/prl-pattern-recognition-letters)
5. R. Marsh, T. Young, T. Johnson, and D. Smith, "Enhancement of Small Telescope Images Using Super-Resolution Techniques," Publications of the Astronomical Society of the Pacific. May 2004. H-Index 115 (http://www.scimagojr.com/journalsearch.php?q=27781&tip=sid&clean=0)
6. R. Marsh, K. Ogaard, M. Kary, J. Nordlie, and C. Theisen, "Development of an Information Display System for UAS Operations in North Dakota," International Journal of Computer Information Systems and Industrial Management Applications, ISSN 2150-7988, Volume 3, 2011, pp. 435-443.
7. Jeremy Straub, Ronald Marsh, and David Whalen, "The Impact of an Interdisciplinary Space Program on Computer Science Student Learning," Journal of Computers in Mathematics and

Items in gray performed prior to promotion to Associate Professor

Science Teaching (JCMST). Volume 34, Number 1, January 2015 ISSN 0731-9258 Publisher: Association for the Advancement of Computing in Education (AACE), Chesapeake, VA

8. Ronald Marsh and Tyler Schmitt, "Object distance determination using a joint transform correlator," <u>International Journal of Science and Applied Information Technology</u>, Volume 6, No.1, 2017, ISSN 2278-3083

National/International Conferences (refereed):

1. S. Panigrahi and R. Marsh, "Neural Network Techniques for Color Classification of French Fries," ASAE-963004, American Society of Agricultural Engineers, St. Joseph, Mich., 1996.
2. R. Marsh, "Overview of Parallel Virtual Machine (PVM) and Its Use for Efficient Image Processing of Beans," ASAE, American Society of Agricultural Engineers, Minneapolis, Mn., 1997.
3. S. Panigrahi, C. Doetkott, and R. Marsh, "Advanced Information Technologies for Objective Quality Sensing of Edible Beans," Proceedings of Sensoral '98. International Conference on Sensors and Biodecision Support Systems in Agriculture. Montpellier, France. Feb. 1998.
4. K. M. Iftekharuddin, W. Jia, and R. Marsh "Fractal Analysis of Tumor in Brain MR Images," Proceedings of the World Congress on Medical Physics and Biomedical Engineering (WC2000), Chicago, Il., July, 2000.
5. P. Juell and R. Marsh, "Improved Scale and Rotation Invariant Correlation Using Block-median Filtering," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2000), Las Vegas, Nv., July, 2000. H-Index: 8 (http://academic.research.microsoft.com/Conference/576/cisst-conference-on-imaging-science-systems-and-technology)
6. R. Marsh, K. Nygard, and D. Schesvold, "A Computer Graphics Approach to UAV Flight Path Determination," Conference on Computer Graphics and Imaging (CGIM 2000), Las Vegas, Nv., Nov. 2000. H-Index: 11 (http://academic.research.microsoft.com/Conference/566/cgim-conference-on-computer-graphics-and-imaging)
7. R. Marsh, "Improved Correlation Target Rejection Using Neural Net Post-Processing," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2001), Las Vegas, Nv., July, 2001. H-Index: 8 (http://academic.research.microsoft.com/Conference/576/cisst-conference-on-imaging-science-systems-and-technology)
8. R. Marsh, " Correlation-based Form Document Retrieval," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2001), Las Vegas, Nv., July, 2001. H-Index: 8 (http://academic.research.microsoft.com/Conference/576/cisst-conference-on-imaging-science-systems-and-technology)
9. R. Marsh, "Document Retrieval via Fractal Dimension," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2003), Las Vegas, Nv., June, 2003. H-Index: 8 (http://academic.research.microsoft.com/Conference/576/cisst-conference-on-imaging-science-systems-and-technology)
10. R. Marsh, "Partial Correlation-based Keyword-Driven Form Document Retrieval ," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2003), Las Vegas, Nv., June, 2003. H-Index: 8 (http://academic.research.microsoft.com/Conference/576/cisst-conference-on-imaging-science-systems-and-technology)
11. Ron Marsh, "Assessment of a Team & Project Oriented Undergraduate Computer Graphics Course," International Conference on Frontiers in Education (FECS): Computer Science and Computer Engineering, Las Vegas, NV, June 25-28, 2007. H-Index 23 (http://academic.research.microsoft.com/Conference/1983/fecs-conference-on-frontiers-in-education)
12. R. Marsh and K. Ogaard, "12-TET Walker using a Quadrupedal Walking Algorithm" IC-AI'08 - The 2008 International Conference on Artificial Intelligence. Las Vegas, NV, July, 2008. H-Index: 19 (http://academic.research.microsoft.com/Conference/7/ic-ai-international-conference-on-artificial-intelligence)

Items in gray performed prior to promotion to Associate Professor

13. A. Banerjee, L. D. Louisiana II, and R. Marsh, "Animations of Organic Reactions for Better Visualization of Reaction Mechanisms," Abstract published by American Chemical Society, Spring 2008 ACS National Meeting & Exposition, New Orleans, LA. April 6, 2008

14. R. Marsh and K. Zarns, "RAYGL: An OpenGL to POV-Ray API," Computers and Advanced Technology in Education: *CATE* 2008, Crete, Greece, September 29 – October 1, 2008. H-Index: 7 (http://academic.research.microsoft.com/Conference/554/cate-computers-and-advanced-technology-in-education?query=Computers%20and%20Advanced%20Technology%20in%20Education)

15. R. Marsh, K. Ogaard, M. Kary, and J. Nordlie, "Development of a Range Control Center Information Display System For UAS Operations in North Dakota," Software Engineering Research and Practice (SERP) 2010. Las Vegas, NV. 2009. H-Index: 15 (http://academic.research.microsoft.com/Conference/361/serp-software-engineering-research-and-practice)

16. R. Marsh and T. Stokke, "The Trouble With Formal Assessment," International Conference on Frontiers in Education (FECS): Computer Science and Computer Engineering, Las Vegas, NV, July 13, 2009. H-Index 23 (http://academic.research.microsoft.com/Conference/1983/fecs-conference-on-frontiers-in-education)

17. R. Marsh, M. Kary, K. Ogaard, and J. Nordlie, "Development of a Mobile Ganged Phase Array Radar – Risk Mitigation System System for UAS Operations in North Dakota," Software Engineering Research and Practice (SERP) 2010. Las Vegas, NV. 2010. H-Index: 15 (http://academic.research.microsoft.com/Conference/361/serp-software-engineering-research-and-practice)

18. R. Marsh, M. Kary, K. Ogaard, J. Nordlie, and C Thesien, "Development of an Information Display System for UAS Operations in North Dakota," IADIS International Conference on Computer Graphics, Visualization, Computer Vision and Image Processing (CGVCVIP) 2010 conference. Frieburg, Germany. 2010

19. H. Reza, M. Askelson, and R. Marsh, "A Fault Tolerant Architecture Using AADLs for Unmanned Aircraft Systems (UAS)," Software Engineering Research and Practice (SERP) 2010. Las Vegas, NV. 2010. H-Index: 15 (http://academic.research.microsoft.com/Conference/361/serp-software-engineering-research-and-practice)

20. R. Marsh and M. Aguilar, "Linux Scheduler Performance for Beowulf Compute Nodes," International Conference on Scientific Computing (CSC), July 18-21, Las Vegas, NV. 2011. H-Index: 4 (http://academic.research.microsoft.com/Conference/1887/csc-international-conference-on-scientific-computing)

21. K. Ogaard and R. Marsh, "Discovering Probabilistic Models from ADS-B Data Sets using Digital Pheromones," Twenty-Second International Joint Conference on Artificial Intelligence, Barcelona, Spain. June, 2011. H-Index: 129 (http://academic.research.microsoft.com/Conference/64/ijcai-international-joint-conference-on-artificial-intelligence?query=International%20Joint%20Conference%20on%20Artificial%20Intelligence)

22. A. Mohammad, E. Grant, and R. Marsh, "Cloud Security Model using SOA 3.0 - CSM 1.0: A New Frontier," International Conference on Cloud Computing and Virtualization, Penang, Malaysia. April 21, 2011

23. R. Marsh and K. Ogaard, "Mining Heterogeneous ADS-B Data Sets for Probabilistic Models of Pilot Behavior, "2010 IEEE International Conference on Data Mining Workshops (ICDMW). Sydney, Australia. December 14-17, 2010. H5-Index: 24 (https://scholar.google.com/citations?view_op=top_venues&hl=en&vq=eng_dataminingnanalysis)

24. R. Marsh (Presenter & Author) and T. Young (Co-Author), "Webcasting From Challenging Locations," International Conference on Creative Content Technologies (Content 2011), Rome, Italy, September 26, 2011. This paper won the International Academy, Research, and Industry Association (IARIA) best paper award.

25. Kaitlin Clarke, Brent Weichel, Ronald Marsh, and Kurt Zhang, "RNA-Seq Assembly: A Simulation Study of ABySS, Trinity and Velvet," ND INBRE Annual Meeting, 10/27/2011, Alerus Center. Grand Forks, ND.

26. Yi Yang, Kaitlin Clarke, Ronald Marsh, Kurt Zhang, "A Novel Assembly Algorithm Optimized for RNA-Seq Data," ND INBRE Annual Meeting, Grand Forks, ND 2012

Items in gray performed prior to promotion to Associate Professor

27. Kaitlin Clarke, Yi Yang, Ronald Marsh, Linglin Xie and Ke K. Zhang, "Comparative analysis of de nova transcriptome assembly", submitted to Bioinformatics and Computational Biology (BICoB) March 4-6, 2013. Honolulu, Hawaii, USA

28. Atif Farid Mohammad, Ronald Marsh, Jeremy Straub, and Scott Kerlin, "Exposing Multiple User-Specific Data Denominated Products from a Single Small Satellite Data Stream," IEEE Aerospace Conference, 2013.

29. Jeremy Straub, Ronald Marsh, Atif Farid Mohammad, " Robotic Disaster Recovery Efforts with Ad-Hoc Deployable Cloud Computing," 23rd Annual International Conference on Computer Science and Software Engineering, Markham, Ontario, Canada, November, 2013.

30. Atif Farid Mohammad, Emanuel S. Grant, Ronald Marsh, Scott Kerlin, "Cloud Computing Monitoring Gateway for Secured Session Management of Big Data Analytic Sessions," 6th Annual International Conference on Computer Games Multimedia and Allied Technologies," Singapore, April , 2013.

31. Jeremy Straub, Ronald Marsh, David Whalen, "The Impact of an Interdisciplinary Space Program on Computer Science Student Learning," IEEE Aerospace, Big Sky, Montana, March, 2013.

32. Travis Desell, Robert Bergman, Kyle Goehner, Ronald Marsh, Rebecca VanderClute, and Susan Ellis-Felege. Wildlife@Home: Combining Crowd Sourcing and Volunteer Computing to Analyze Avian Nesting Video. In the 2013 IEEE 9th International Conference on e-Science. Beijing, China. October 23-25, 2013.

33. Donovan Torgerson, Anders Nervold, Jeremy Straub, Josh Berk, Ronald Marsh, and Scott Kerlin, "Interplanetary Hitchhiking to Support Small Spacecraft Missions Beyond Earth Orbit," 64th International Astronautical Congress, Beijing, China, October, 2013.

34. John Nordlie, Jeremy Straub, Chris Theisen, Ronald Marsh, "Solar Ballooning: A Low-Cost Alternative to Helium Balloons for Small Spacecraft Testing," The American Institute of Aeronautics and Astronautics (AIAA) SciTech 2014 conference, National Harbor, Maryland, January, 2014.

35. Ronald Marsh, John Nordlie, Chris Thesien, Nate Kimber, and Mark Askelson, "Aerospace Aircraft Information Display System for Flight Operations in North Dakota," IEEE Aerospace Conference, Bozeman, Mt, March, 2014. H5-index 22 (https://scholar.google.com/citations?view_op=top_venues&hl=en&vq=eng_aviationaerospace)

36. J. Straub, R. Marsh, and D. Whalen, "A Two-Phase Development and Validation Plan for North Dakota's First Spacecraft," Proceedings of the AIAA Space 2014 Conference, San Diego, Ca, August, 2014.

37. J. Straub and R. Marsh, "Assessment of Educational Expectations, Outcomes and Benefits from Small Satellite Program Participation", AIAA/USU Conference on Small Satellites, Utah State University, USA, 2014.

38. D. Linesand, T. Whitney, J. Straub, and R. Marsh, "An Overview of the OpenOrbitoer Autonomous Operating Software," IEEE Aerospace, Big Sky, Montana, March, 2015.

39. T. Whitney, J. Straub, R. Marsh, "Image Enhancement using Hierarchical Bayesian Image Expansion Super Resolution," SPIE Sensing Technology + Applications, Baltimore, Maryland, April 2015.

40. S. Chaieb, M. Wegerson, J. Straub, R. Marsh, B. Kading and D. Whalen, "The OpenOrbiter CubeSat as a System-of-Systems (SoS) and How SoS Engineering (SoSE) Aids CubeSat Design," 10th International Conference on System of Systems Engineering (SoSE), San Antonio, Tx, May 2015.

41. K. Mayfield, R. Marsh, and C. Alberts, "GRALT: A Multi-thread Yool for Text Version Analsys," 2015 International Conference on Parallel and Distributed Processing Techniques and Application (PDPTA '15), Las Vegas, NV, July 2015.

42. R. Marsh and R. Goswami, "ALPHABLEND – A SELF-ADJUSTING ALGORITHM FOR REDUCING ARTIFACTS IN JPEG COMPRESSED IMAGES," IEEE International Conference on Electro/Information Technology, Grand Forks, ND, May 2016. H5-index 15 (https://scholar.google.com/citations?hl=en&view_op=search_venues&vq=IEEE+International+Conference+on+Electro%2FInformation+Technology)

43. A. Layton and R. Marsh, "Object Distance Detection using a Joint Transform Correlator," IEEE International Conference on Electro/Information Technology, Grand Forks, ND, May 2016. H5-index 15

Items in gray performed prior to promotion to Associate Professor

(https://scholar.google.com/citations?hl=en&view_op=search_venues&vq=IEEE+International+Conference+on+Electro%2FInformation+Technology)

44. D. Apostal, S. Faraji Jalal Apostal, R. Marsh, and T. Desell, "Towards Modeling a Complex Geological Simulation," Spring Simulation Multi-Conference, Pasadena, Ca, 2016.
45. Sara Faraji Jalal Apostal, David Apostal, and Ronald Marsh, "Containers and Reproducibility in Scientific Research," Midwest Instruction and Computing Symposium, Duluth, Mn., April 2018.
46. Ronald Marsh, Md Nurul Amin, Charles Crandall, Raymond Davis, "Image Zooming using Corner Matching," IEEE International Conference on Electro/Information Technology, Rochester, Mi. May 2018.

Regional Conferences (refereed):

1. R. Marsh, "Student Involvement in Designing a Network Encryption Algorithm," Small College Computing Symposium, SCCS '99, La Crosse, Wi., 1999.
2. R. Marsh, "Public-Key Image Encryption Using Image Processing Hardware," Small College Computing Symposium, SCCS '99, La Crosse, Wi., 1999.
3. R. Marsh, "Operating Systems II: Use of the TinOS Operating System as a Development Tool for a Second Course in Operating Systems," Proceedings of the 33rd Midwest Instructional and Computing Symposium (MICS 2000), St. Paul, Mn., April, 2000.
4. R. Marsh, "Operating Systems I: An Operating System Simulation Developed as Homework," Proceedings of the 34rd Midwest Instructional and Computing Symposium (MICS 2001), Cedar Falls, Ia., April, 2001.
5. R. Marsh, "FractalNet: A Neural Network Approach to Fractal Geometry," Proceedings of the 35th Midwest Instructional and Computing Symposium (MICS 2002), Cedar Falls, Ia., April, 2002.
6. R. Marsh and A. Challa, "Self-Evaluating Space and Robotic Agents," Proceedings of the 36th Midwest Instructional and Computing Symposium (MICS 2003), Duluth, Mn., April, 2003.
7. R. Marsh, J. Kerian, and C. Hanson, "Operating Systems Simulation Applet," Submitted to 37th Midwest Instructional and Computing Symposium (MICS 2004), Morris, Mn., April, 2004.
8. J. Peterson and R. Marsh, "Graphical User Interfaces as Educational Tools," MICS 2006: Proceedings of the Midwest Instruction and Computing Symposium, Mt. Pleasant, IA, April 2006.
9. K. Zarns and R. Marsh, "RAYGL: An OpenGL to POVRAY API," MICS 2006: Proceedings of the Midwest Instruction and Computing Symposium, Mt. Pleasant, IA, April 2006.
10. R. Marsh, "Webcasting: How to from Remote Locations," MICS 2006: Proceedings of the Midwest Instruction and Computing Symposium, Mt. Pleasant, IA, April 2006.
11. Ron Marsh, "GridRAM: A Software Suite Providing User Level GRID Functionality for University Computer Labs," MICS 2006: Proceedings of the Midwest Instruction and Computing Symposium, Grand Forks, ND, April 2007.
12. R. Marsh, S. Buettner, K. Ogaard, and J. Nordlie, "Simulation of & Development of a Range Control Center Information Display System For UAS Operations in North Dakota," MICS, La Crosse, WI, April 12, 2008.
13. R. Marsh, K. Ogaard, M. Kary, and J. Nordlie, "A Data Manager to Multicast UAS IDS Data to Multiple IDSs," Midwest Instruction and Computing Symposium: *MICS*, Rapid City, SD, April 17, 2009.
14. Y. Yang, R. Marsh, A. Berstron, and K. Zhang, "Fast alignment of DNA sequences with GPU massive parallel programming," 2010 ND INBRE Annual Meeting (poster session). Grand Forks, ND. December 22, 2010.
15. R. Marsh, "Nifty Assignments: A Team & Project Oriented Undergraduate Computer Graphics Course," Midwest Instruction and Computing Symposium, Duluth, Mn, April 2011.
16. R. Marsh and N. Hamilton, "Animation Techniques: A comparison," Midwest Instruction and Computing Symposium, Duluth, Mn, April 2011.
17. Ron Marsh, Yong Lai, and Kirk Ogaard, "Aerospace Aircraft Display System," Midwest Instruction and Computing Symposium (MICS) 2013, La Crosse, Wi. 2013.
18. J. Nordlie, R. Marsh, and J. Straub, "Evaluation of materials for suitability in the construction of solar-powered unmanned hot-air balloons," 5th Annual 2014 Academic High-Altitude Conference, University of North Dakota, Grand Forks, ND, USA, June, 2014.

Items in gray performed prior to promotion to Associate Professor

19. J. Straub and R. Marsh, "The Differences are Not So Great: High Altitude Balloon and Small Spacecraft Software Development," 5th Annual 2014 Academic High-Altitude Conference, University of North Dakota, Grand Forks, ND, USA, June, 2014.
20. J. Straub and R. Marsh, "Advancing an Attitude Determination and Control Technology through NSF I-CORPS Participation," ND EPSCoR Conference, Grand Forks, ND, April 2016.
21. M. Wegerson, J. Straub, and R. Marsh, "Overview of the Open Orbiter Electrical System Design," ND EPSCoR Conference, Grand Forks, ND, April 2016.
22. M. Wegerson, M. Hlas, J. Straub, and R. Marsh, "Open Orbiter: Radio Subsystem," ND EPSCoR Conference, Grand Forks, ND, April 2016.
23. G. Tangen, M. Hlas, J. Straub, and R. Marsh, "Open Orbiter Electronic Power System," ND EPSCoR Conference, Grand Forks, ND, April 2016.
24. S. Antinozzi, A. Khalili, O. Velasco, J. Straub, J. Nordlie. and R. Marsh, " BalloonSat: A Very Low-Cost 'Satellite' Test Platform," Academic High Altitude Conference, St Paul, MN, 2016.
25. Ronald Marsh and Scott Kerlin, "A Many-key Image Encryption Method Using the Lorenz System" Midwest Instruction and Computing Symposium (MICS). April, 2017.
26. Tyler Welander, Ronald Marsh, Md Nurul Amin, "G-code Modeling for 3D Printer Quality Assessment," Midwest Instruction and Computing Symposium, Duluth, Mn., April 2018.

Books and Book Chapters:
1. R. Marsh, "The Sun Earth Moon System: Connecting Science and Informal Learning," book chapter in Encyclopedia of Social Interaction Technologies, Published July 2009 (Handbook of Research on Social Interaction Technologies and Collaboration Software: Concepts and Trends ISBN: 978-1-60566-368-5). 2009
2. Kirk Ogaard and Ronald Marsh, "Discovering Probabilistic Models of Pilot Behavior from Aircraft Telemetry Data," Chapter 13 in "Advances in Chance Discovery," ISBN 978-3-642-30113-1, Springer-Verlag. 2011
3. J. Straub, R. Marsh and D. Whalen, "Small Spacecraft Development Project-Based Learning: Implementation and Assessment of an Academic Program," ISBN 978-3-319-23644-5, Springer. 2017

Technical Reports:
1. R. Marsh and G. Petty, "Optical Correlator Technology Laboratory and Computer Models," NWC Technical Memo 6764, Sep. 1990.
2. R. Marsh and M. Shah, "DOW - Database on the Wire," NDSU Technical Report #NDSU-CSOR-TR-9510, 1995.
3. K. E. Nygard, D. Schesvold, R. Marsh, M. Hennebry, and M. Haugrud, "Automated Aircraft and Cruise Missile Mission and Route Planning Using Parallel Constraint-Satisfaction Techniques," Phase II Final Report, SBIR N91-336 Dec. 1997.
4. S. Panigrahi, V. L. Hofman, G. Secor, R. Marsh, H. Gu, and J. Tate, "A Portable Computer Imaging System for Spray Coverage Evaluation," Pesticide Formulations and Application Systems: 18th Volume, ASTM STP 1347. 1998.
5. P. Juell and R. Marsh, "Improved Scale and Rotation Invariant Correlation Using Block Median Filtering," NDSU Technical Report #NDSU-CSOR-TR-9910, 1999.
6. P. Juell and R. Marsh, "Improved Correlation Rejection Using Neural Net Post-processing," NDSU Technical Report #NDSU-CSOR-TR-9911, 1999.

Patents:
1. R. Marsh, Optical Correlator for Terrain Identification. Notice of allow ability granted in 1991 (invention may have contained classified material).
2. R. Marsh, Method and Apparatus for Tracking Peaks in Optical Correlator. Notice of allow ability granted in 1992 (invention may have contained classified material).
3. R. Marsh and G. Petty, "Optical Correlator for Finger Print Identification," Patent # 5050220, 1991.
4. R. Marsh, "Electro-rheologically Damped Pneumatic Actuator," Patent # H1292, 1994.
5. R. Marsh, "Weather Information Network Enabled Mobile System (WINEMS)." Patent # US 7725256 B2. 2003.

Items in gray performed prior to promotion to Associate Professor

6. A. Banerjee, L. Louisiana II and R. Marsh, "A Method Animating Chemical Mechanisms," Patent # US 20090177455 A1. 2008
7. M. Askelson, B. Trapnell, C. Thiesen, R. Marsh, T. Young, H. Reza, "Airspace Risk Mitigation System," Patent # US 8368584 B2, 2010.
8. J. Straub, M. Wegerson, and R. Marsh, "Systems and Methods for Intelligent Attitude Determination and Control," Patent # US 10023300 B2, 2018.

Copyrights:
1. Mouse – Mouse Support for Turbo Pascal (1992).
2. List – Disk I/O Support for Turbo Pascal (1992).
3. Clock/Clock2 – Date/Time Support for Turbo Pascal (1992).
4. Video – Graphics Support for Turbo Pascal (1992).
5. Mouse Support for Microsoft FORTRAN (1992).
6. FracRAM - A fractal production software package (1992).
7. PuzzRAM - A game (puzzle program) (1992).
8. Cursor - A mouse cursor design software package (1992).
9. Aerospace Aircraft Display System (AADS) (2012).

Educational Products / Software Development:
1. Developed the website and webcasting software for use by the Sun Earth Moon System project. This project, which webcasts astronomical events to the world, has attracted local, national, and international media coverage. To date over 1,000,000 people have visited the SEMS site (www.sems.und.edu), 2004.
2. Developed "GridRAM" software to load balance embarrassingly parallel applications across a cluster. Developed for use by CSci 446 students to render scenes on POVRAY, 2005.
3. Developed "MovieRAM" software to compile individual images into an avi movie. Developed for use by CSci 446 students to create movies out of POVRAY rendered images, 2005.
4. Developed "Parallel Processing: A KISS Approach," a tutorial (including 6 sample programs) to assist UND faculty port serial code to PVM and MPI for use on the CRC cluster, 2005.
5. Aerospace Aircraft Display System (AADS). This system was developed as a byproduct of our GPARS Air Force contract development. AADS is currently used by UND Flight Operations to track/locate UND aircraft. 2011. It was completely rewritten in to 2013 to better support UND Flight Operations at UND and Phoenix as well as support LD-CAP tests at UND and in Virginia (NASA).
6. Lead developer of the UND SMHS Differential Counter package which is used by medical school students to learn how to determine the relative percentage of each type of white blood cells, 2014.
7. Cooperative Airspace Technology and Visualization (CATV). This system was developed as a byproduct of our AADS development. CATV is currently used by the Northern Plains UAS Test Site for a research project. Once completed, parts of the system will be used to enhance the capabilities of the AADS.

Part VI. Professional Presentations:

National/International:
1. P. Juell and R. Marsh, "Improved Scale and Rotation Invariant Correlation Using Block-median Filtering," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2000), Las Vegas, Nv., July, 2000.
2. R. Marsh, K. Nygard, and D. Schesvold, "A Computer Graphics Approach to UAV Flight Path Determination," Computer Graphics and Imaging (CGIM 2000), Las Vegas, Nv., Nov. 2000.
3. R. Marsh, "Improved Correlation Target Rejection Using Neural Net Post-Processing," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2001), Las Vegas, Nv., July, 2001.

Items in gray performed prior to promotion to Associate Professor

4. R. Marsh, " Correlation-based Form Document Retrieval," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2001), Las Vegas, Nv., July, 2001.
5. R. Marsh, "Document Retrieval via Fractal Dimension," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2003), Las Vegas, Nv., June, 2003.
6. R. Marsh, "Partial Correlation-based Keyword-Driven Form Document Retrieval ," Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST'2003), Las Vegas, Nv., June, 2003.
7. R. Marsh, "Webcasting: Ins and Outs," Technological University of Panama at Penonome, Panama, April 5, 2005.
8. R. Marsh, "Webcasting" Universidad Autonoma de Madrid, Madrid, Spain, Oct 4, 2005.
9. Ron Marsh, "Assessment of a Team & Project Oriented Undergraduate Computer Graphics Course," International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS), Las Vegas, NV, June 25-28, 2007
10. R. Marsh and T. Stokke, "The Trouble With Formal Assessment," International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS), Las Vegas, NV, July 13, 2009.
11. R. Marsh, M. Kary, K. Ogaard, and J. Nordlie, "Development of a Mobile Ganged Phase Array Radar – Risk Mitigation System System for UAS Operations in North Dakota," Software Engineering Research and Practice (SERP), Las Vegas, NV. 2010
12. R. Marsh, M. Kary, K. Ogaard, J. Nordlie, and C Thesien, "Development of an Information Display System for UAS Operations in North Dakota," IADIS Computer Graphics, Visualization, Computer Vision and Image Processing (CGVCVIP) 2010 conference. Frieburg, Germany. 2010
13. R.Marsh (Presenter & Author) and T. Young (Co-Author), "Webcasting From Challenging Locations," International Conference on Creative Content Technologies (Content 2011), Rome, Italy, September 26, 2011. This paper won the International Academy, Research, and Industry Associtaion (IARIA) best paper award.
14. R. Marsh, "Lessons Learned from Developing a Real-Time, Critical System UAS Mobile Information Display System," HELP University International Computer Science Research Symposium (HICSRS), Kuala Lumpur, Malaysia, 2011.
15. Clarke Kaitlin, Yang Yi, Marsh Ronald, Xie Linglin and Zhang Ke K, "Comparative analysis of *de novo* transcriptome assembly," Bioinformatics and Computational Biology (BICoB), Honolulu, Hawaii, USA, March 2013.
16. Ronald Marsh, John Nordlie, Chris Thesien, Nate Kimber, and Mark Askelson, "Aerospace Aircraft Information Display System for Flight Operations in North Dakota," IEEE Aerospace Conference, Bozeman, Mt, March, 2014.

Regional:
1. R. Marsh, "Student Involvement in Designing a Network Encryption Algorithm," Small College Computing Symposium, SCCS '99, La Crosse, Wi., 1999.
2. R. Marsh, "Public-Key Image Encryption Using Image Processing Hardware," Small College Computing Symposium, SCCS '99, La Crosse, Wi., 1999.
3. R. Marsh, "Operating Systems II: Use of the TinOS Operating System as a Development Tool for a Second Course in Operating Systems," Proceedings of the 33rd Midwest Instructional and Computing Symposium (MICS 2000), St. Paul, Mn., April, 2000.
4. R. Marsh, "Operating Systems I: An Operating System Simulation Developed as Homework," Proceedings of the 34rd Midwest Instructional and Computing Symposium (MICS 2001), Cedar Falls, Ia., April, 2001.
5. R. Marsh, "FractalNet: A Neural Network Approach to Fractal Geometry," Proceedings of the 35th Midwest Instructional and Computing Symposium (MICS 2002), Cedar Falls, Ia., April, 2002.
6. R. Marsh, "Webcasting: How to from Remote Locations," MICS 2006: Proceedings of the Midwest Instruction and Computing Symposium, Mt. Pleasant, IA, April 2006.

Items in gray performed prior to promotion to Associate Professor

7. Ron Marsh, "GridRAM: A Software Suite Providing User Level GRID Functionality for University Computer Labs," MICS 2006: Proceedings of the Midwest Instruction and Computing Symposium, Grand Forks, ND, April 2007.
8. R. Marsh, "Nifty Assignments: A Team & Project Oriented Undergraduate Computer Graphics Course," Midwest Instruction and Computing Symposium, Duluth, Mn, April 2011.
9. Yi Yang, Kaitlin Clarke, Ronald Marsh, and Kurt Zhang, "A Novel Assembly Algorithm Optimized for RNA-Seq Data, "North Dakota INBRE, Grand Forks, ND, October, 2012.
10. Kyle Goehner, Christoffer Korvald, Jeremy Straub and Ron Marsh, "The Development of Payload Software for a Small Spacecraft," Midwest Instruction and Computing Symposium, La Crosse, WI, April 2013.
11. Ronald Marsh, Yong Lai, and Kirk Ogaard, "Aerospace Aircraft Display System," Midwest Instruction and Computing Symposium, La Crosse, WI, April 2013.

State/Local:
1. R. Marsh, "Deblocking a JPEG Compressed Image," NDSU ACM, March 3, 2005.
2. Lynn Kubeck (UND CIO) and I presented the findings of the EPSCoR Cyberinfrastructure Assessment Workshop to the University Research Council, November 30, 2007.
3. R. Marsh, "Sun, Earth, Moon System (SEMs) Astronomical Webcasting," North Dakota legislative Council Information Technology Committee Internet2 Presentation, NDSU, January 18, 2008.
4. John Nordlie, Jeremy Straub, Chris Theisen, and Ronald Marsh, "The Use of Solar Balloons at UND as a Lo-Cost Alternative to Helium Balloons for Small Spacecraft Testing and STEM Education," UND Scholarly Forum, March, 2014.
5. Tyler Leben, Jeremy Straub, and Ronald Marsh, "Low Cost Navigation System," UND Scholarly Forum, March, 2014.
6. Daylin Limesand, Christoffer Korvald, Jeremy Straub, and Ronald Marsh, "OpenOrbiter Operating Software," UND Scholarly Forum, March, 2014.
7. Jeremy Straub and Ronald Marsh, "The Use of the ROOFSAT for Computer Science and Engineering Education," UND Scholarly Forum, March, 2014.
8. Michael Hias, Calvin Littlebina, Daylin Limesand, Christoffer Korvald, Jeremy Straub, and Ronald Marsh, "OpenOrbiter Operating Sytem Components: Development of Software for Communications and Power Management," UND Scholarly Forum, March, 2014.
9. Michael Wegerson, Jeremy Straub, Sima Moghanian, and Ronald Marsh, "Advancement of the Software Defined Radio (SDR) for the Open Orbiter Project," UND Scholarly Forum, March, 2014.
10. Donovan Torgerson and Ronald Marsh, "Creation of A Heuristic Scheduler for Nano-Satellites," ND EPSCoR, April 29, 2014.
11. Dayln Limesand, Christoffer Korvald, Jeremy Straub, and Ronald Marsh, "Update on the Operating Software for OpenOrbiter," ND EPSCoR conference, April 29, 2014.
12. Ben Kading, Jeremy Straub, and Ronald Marsh, "Mechanical Design and Analysis of a 1-U CubeSat," ND EPSCoR conference, April 29, 2014.
13. Michael Wegerson, Jeremy Straub, Sima Noghanian, and Ronald Marsh, "Advancement of the Software Defined Radio (SDR) for the OpenOrbiter Project," ND EPSCoR conference, April 29, 2014.
14. J. Straub, R. Marsh. "Update on the Development of a 1-U CubeSat at the University of North Dakota," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.
15. M. Hlas, J. Straub, R. Marsh. "The Creation of a Communication System for a Small Satellite at the University of North Dakota," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.
16. C. Bina, J. Straub, R. Marsh. "Scheduling Algorithm Development for an Open Source Software Spacecraft," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.
17. S. Chaieb, M. Wegerson, J.Straub, R. Marsh, D. Whalen. "Electrical Power System for an OPEN Hardware CubeSat," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.

Items in gray performed prior to promotion to Associate Professor

18. B. Kading, J. Straub, R. Marsh. "Open Prototype for Educational NanoSats CubeSat Structural Design," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.
19. M. Wegerson, J. Straub, R. Marsh. "Design of an Onboard Distributed Multiprocessing System for a CubeSat Spacecraft Using GumStix Computer-on-Module Units," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.
20. M. Wegerson, J. Straub, R. Marsh. "Hardware Design for an Intelligent Attitude Determination and Control System," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.
21. M. Wegerson, J. Straub, R. Marsh. "A Low-Cost Radio for an OPEN CubeSat," Presented at the University of North Dakota Graduate School Scholarly Forum, March, 2015.

Part VII. Grants and Contracts:

Submitted:
1. R. Marsh, "Content-Free Image Retrieval," ND EPSCoR 2 years $38,686 (not funded). 1999
2. R. Marsh and W. Haga, "Analysis of Data Mining Techniques Applied Towards the Discovery of Judicial Trends," National Institute of Justice 2 years $34,909 (not funded). 1999
3. R. Marsh and R. Schultz, "Satellite Systems Simulation Facility (TriSFac)," NSF 3 years $386,827 (not funded). 2000
4. K. Iftekharuddin and R. Marsh, "A Searchable Medical Digital Library to Aid Disease Diagnoses, Learning and Research," National Library of Medicine 3 years $300,000 (not funded). 2000
5. George Seielstad et al, "Rapidly Deployable, Flexible Remote Sensing Systems Customized for Northern Great Plains," NASA Epscor 3 years, $884,645 (not funded) 2000
6. R. Marsh, "Content-based Image Retrieval for Detection of Temporal Changes in Surveillance Data," Depscor (U.S. Navy) 3 years, $159,198 (not funded). 2000
7. T. Young et al, "Remote Controlled Telescope for Tracking Near-Earth Objects" NASA (not funded).
8. R. Marsh and T. Wiggen, "Federal Cyber Service: Institutional Development Track at the University of North Dakota," NSF, 2 years, $79,717 (not funded). 2000
9. R. Marsh, "A Novel Approach to Increase Storage Capacities of Digital Image Repositories", (NSF) 2 years, $80,222 (not funded). 2001
10. R. Marsh, "Content-based Image Retrieval," Faculty Research Seed Money (UND) 1 year, $26,824 (not funded). 2001
11. R. Marsh, "ITR: Region Of Interest Focused Image Retrieval for Improving Societal use of Digital Image Repositories", (NSF) 3 years, $180,480 (not funded). 2001
12. T. Young, R. Marsh, et al. "A Telescope Facility for Multi-disciplined Astronomy Research," (NASA) 3 years, $240,000 (not funded). 2001
13. R. Marsh and T. Young, "Improving the Image Quality of Small Telescopes Through Super-resolution Techniques," NASA EPSCoR, $15,184. (not funded) 2002
14. R. Marsh, "Use of super-resolution to improve MODIS images," NASA, $54,630. (not funded) 2002
15. R. Marsh, et al "Advanced Computing Facility," ND EPSCoR, $68,133. (not funded) 2002
16. Denet Labs (Darryl Sale) and R. Marsh, "High Resolution Flash Ladar Processing," EPSCoR FITT grant, $5000. (not funded) 2002
17. R. Marsh, "High Performance Computing Facility for the University of North Dakota," submitted to UND preproposal competition for NSF Major Research Instrumentation Solicitation 04-511, $234,636 (not funded). 2003
18. R. Marsh and T. Young, "Improving the Image Quality of Small Telescopes Through Super-resolution Techniques" Submitted to NSF Computer Vision 03-602, $65,828. (not funded). 2003
19. R. Marsh "Development of a Standard Image Database for Image Retrieval / Digital Library Research" Submitted to NSF Information and Data Management (IDM) 04-500, $49,932. (not funded). 2003
20. Marsh, Reza "Development of a Standard Image Database for Image Retrieval / Digital Library Research," submitted to NSF, $258,812. (not funded) 2004

Items in gray performed prior to promotion to Associate Professor

21. Hoffman, Schultz, Thomasson, Marsh, Moreno, "MRI: Acquisition of a High Performance Computer to Support Multi-scale, Multi-phenomena Modeling at the University of North Dakota," submitted to NSF, $2,000,000 (not funded) 2004

22. Hoffmann, Osborne, Schultz, Thomasson, Marsh, Moreno, "Graduate Training and Research in Multi-scale, Multi-phenomena Modeling," Submitted to NSF (IGERT). (not funded) 2004

23. Young, Marsh, Reza, Van Elke, Lawlor, The Sun Earth Moon System: Correcting Misconceptions In Astronomy," Preproposal submitted to NSF, $1,245,735. (not funded) 2004

24. Young, Marsh, Reza, Guy, Lawlor, The Sun Earth Moon System: Correcting Misconceptions In Astronomy," Submitted to NSF, $ 2,690,259. (not funded) 2004

25. Mark Hoffmann, Mark, Ronald Marsh, Juana Moreno, Leon F. Osborne, Jr., Richard R. Schultz, and Kathryn Thomasson Multi-scale, Multi-phenomena Modeling at the University of North Dakota, NSF-MRI preproposal, $992,324 (not funded) 2005

26. Tim Young, Ron Marsh, Hassan Reza, and Mark Guy, "The Sun Earth Moon System: Promoting Higher-order Thinking and Correcting Misconceptions In Astronomy", NSF, $548,432 (not funded) 2005

27. Ron Marsh, Hassan Reza, Tom Stokke, and John Engel, "cScibots: A Lego Robot Simulation Environment for Covertly Teaching Programming Fundamentals to Adolescents," NSF, $528,876. (not funded) 2005

28. Wen Chen Hu, Tom Wiggen, Ron Marsh, "Teaching CS2 with C# by Using Microsoft XNA Game Studio," MicroSoft, $52,847.00 (not funded). 2005

29. Ron Marsh, Hassan Reza, Tom Stokke, Mark Grabe, and John Engel, "cScibots: A Lego Robot Simulation Environment for Covertly Teaching Programming Fundamentals to Adolescents," NSF, $590,415.00 (not funded). 2005

30. Ron Marsh, "Microsoft XNA Laboratory and curriculum development RFP," $5080.00 (declined).

31. Timothy Young, Sandra Wolf, Mark Guy, Clarice Baker-Big Back, Ronald Marsh, "Beyond Earth: Weaving Science and Indigenous Culture," NSF, $1,363,566.00 (not funded). 2005

32. Glenda Lindseth, et al "Northern Plains Center for Research Translation," NIH, $19,489,870, (not funded). 2007

33. R. Marsh and T. Young, "Sun Earth Moon System (SEMS)," NorthWest Academic Computing Consortium, $10,000, Feb. 22, 2008. (not funded). 2007

34. R. Marsh, H. Reza, M. Askelson, T. Young, and P. Dreschel, "CPS: Medium: Collaborative Research: Autonomous Airspace Risk Mitigation," NSF, $672,107, (withdrawn) 2008

35. G. Lindseth and R. Marsh, "Building a Bioinformatics Infrastructure at UND," UND, $117,000 (not funded). 2008

36. T. Young and R. Marsh, "UND Outreach Program: Astronomical Webcasting Live Solar and Lunar Eclipses," submitted to UND Outreach Program: $39,400 (not funded). 2008

37. R. Marsh & T. Young, "CDI-Type I: Marsh, Understanding Complexity & From Data to Knowledge, Autonomous Airspace Risk Mitigation ," NSF, $407,600 ((not funded). 2008

38. R. Marsh & B. Trapnell, "CPS: Small: Virtual UAS Cockpit Employing Synthetic Vision," NSF, $489,728 ((not funded). 2008

39. R. Marsh and B. Trapnell, "CPS: Small: Components, Run-time Substrates, and Systems: Virtual UAS Cockpit Employing Synthetic Vision for VFR Operations," NSF, $315,569, March 2011. (not funded) 2011

40. R. Marsh and A. Frazier, "Innovative Tools for Law Enforcement," DOJ, $142,058, June, 2011. (not funded). 2011

41. Marsh, R. (Supporting), Bergstrom, A., Grant, "EPSCoR CI - Visualization", EPSCoR, EPSCoR, Research, 2011. (not funded). 2011

42. D. Olsen and R. Marsh, "ISR Innovation Laboratory," Base Realignment Impact Committee (BRIC), $1,200,000. (not funded). 2011.

43. R. Fevig, J. Casler, N. Kaabouch, R. Marsh, and W. Semke, "A Multi-Tier Exploration and Reconnaissance Research Program a proposal for a Seed / Planning Grant for Collaborative Research at UND," UND, $75,000, (not funded). 2011.

44. T. O'Neil and R. Marsh, "Software Design and Implementation Projects for Senior Capstone Course," Rockwell Collins, $24,000. (not funded), 2012.

Items in gray performed prior to promotion to Associate Professor

45. D. Olsen and R. Marsh, "ISR Innovation Laboratory for Unmanned Aircraft Systems," United States Air Force, DCS Intelligence, Surveillance, and Reconnaissance, $250,000, (not funded) 2012.
46. R. Marsh and S. Kerlin, "SFS: Capacity Building Track: Faculty Training to Integrate Cyber-Security into UND Curriculum," NSF, $111,557, (not funded) 2012.
47. R. Marsh, T. Desell, and T. Stokke, "CER: Integrating Computing into Existing High School Curricula via Volunteer Computing and Graphical Programming interfaces," NSF, $589,894, (not funded), 2012.
48. R. Marsh, "Advancing STEM Education and Assessment," UND, $39,852, (not funded). 2013.
49. R. Marsh and J. Straub, "Extending Humanity's Grasp into the 'Final Frontier' with Artificial Intelligence Control Software for Interplanetary CubeSats," NASA Innovative Advanced Concepts (NIAC) pre-proposal (declined). 2013.
50. R. Marsh, Sima Noghanian, Doug Olsen, William Semke, and David Whalen, "Creation of a Small Spacecraft Development Capability in North Dakota A Pre-proposal for the NASA EPSCoR CAN Opportunity," NASA, $748,348, (not funded). 2013.
51. R. Marsh, "Creation of an Open Framework for Educational NanoSats for Incorporation into Undergraduate STEM and Pre-Service Teacher Education," NASA ROSE pre-proposal (declined). 2013.
52. Mike Rioux and Dr. Ron Marsh, "Hardware and Software for High Fidelity Autonomous Deck Operations," White Paper submitted to 2012 Basic and Applied Research in Sea-Based Aviation Science and Technology Special Notice 12-SN-0028, (not funded). 2013.
53. R. Marsh, "'Stellar' Learning Driven by a Spacecraft Design Program," UND OID, $5,216 (not funded). 2013.
54. R. Marsh and T. O'Neil, "Rockwell Collins Foundational Support for a Senior Capstone Course," $24,400.00, (not funded). 2013
55. R. Marsh, "Emerson Process Management Gift Computer Science SCALE-UP lab," $35,941, (not funded) 2013.
56. R. Marsh, "Emerson Process Management Gift Computer Science door lock system," $21,245.70, (not funded) 2013.
57. R. Marsh, "Rockwell Collins Foundational Support for A Hands-On Aerospace Skill Development Project for Computer Science and Engineering Students to Enhance and Augment Their Formal Educational Experiences," $21,320, (not funded) 2014.
58. R. Marsh, "II-NEW: Equipment for Aero-robots Autonomous Swarm Research & Outreach," NSF, $295,647, November, 2013 (not funded).
59. R. Marsh, D. Whalen, S. Noghanian, and J. Straub, "A Proposal in Response to the Announcement of CubeSat Launch Initiative," NASA, (not funded). 2013
60. M. Gilmore, M. Askelson, R. Marsh, S. Gonsalez-Smith, C. Theisen and J. Nordlie, "Development of a 3D Snowflake Disdrometer using COTS Equipment to Fundamentally Advance the Understanding of Snow Microphysics," UND Collaborative Research Seed/Planning Grant, $73,450, December 6, 2013 (not funded).
61. R. Marsh, J. Zhang, S. Noghanian, and W. Semke, "Glintsat: A Lowcost CubeSat for Remote Sensing of Aerosol Absorption over Ocean Glint Regions," NSF, $894,064. May 12, 2014 (not funded).
62. J. Garvey and R. Marsh, "Mid-Air Retrieval of Nanosat-Class Payloads and Launch Vehicle Stages Using Intelligent UAVs," NSF STTR, $224,850 ($84,990 for UND), June 2014 (not funded).
63. R. Marsh and S. Kerlin, "Continued Development and Commercialization of Quality Characterization Technology for 3D Printing," ND Department of Commerce, $96,343, August 2014 (not funded).
64. S. Kerlin and R. Marsh, "Enhancing Network Security for Spacecraft," NASA EPSCoR, $28,174, September 2014 (not funded).
65. R. Marsh, S. Kerlin, and T.Stokke, "II-NEW: Equipment for Aero-robots Autonomous Swarm Research & Outreach" NSF, $197,237, October, 2014 (not funded).
66. P. Ranganathan and R. Marsh, "To support capstone projects, and develop electives on Cyber Security Areas," Rockwell-Collins, $25,000, 2015 (not funded).

Items in gray performed prior to promotion to Associate Professor

67. S. Kroeber and R. Marsh, "Enhanced Situational Awareness using Low Latency Head Mounted Displays with Augmented/Synthetic Vision, Fused Multi-Sensor Inputs, and Conformal Flight/Payload HUD Symbology," White paper submitted to Honeywell and DOD, 2015 (not funded).
68. R. Marsh, "Computer Science Student Research on an Open-Source Software CubeSat," ND EPSCoR AURA. $7000.00, 2015 (not funded).
69. R. Marsh, "Electrical Engineering Student Research on an OPEN Hardware CubeSat," ND EPSCoR AURA. $7000.00, 2015 (not funded).
70. R. Marsh, "Mechanical Engineering Student Research on an OPEN Hardware CubeSat," ND EPSCoR AURA. $7000.00, 2015 (not funded).
71. A. Bergstrom, S.Kerlin, John. Kroshus (NDSCS), Craig Peters (Southeast Technical Institute – Sioux Falls), Thomas Pensabene (Metropolitan Community College – Omaha), R. Marsh, and T. Desell, "HPC-MAGNETO: High Performance Computing – Machine Administrators' Guide to NExT-generation Occupations," NSF, $299,998, 2015 (not funded).

Funded:
1. R. Marsh, NDSU-IBID (Institute for Business and Industry Development) 1 year $2000.00, 1995.
2. K. Iftekharuddin and R. Marsh, "An Unconventional Non-invasive Approach to Cancerous Tumor Detection; 3-Dimensional Fractal Geometry," EPSCOR seed grant submitted to National Cancer Institute 1 year $5000, 1999.
3. H. Hexmoor and R. Marsh, "Self Evaluating Space & Robotic Agents," Depscor (U.S. Air Force) 3 years, $290,394. (I assumed this funded grant when Dr. Hexmoor left UND), 2000.
4. Karl Altenburg and Ronald Marsh, "FLARE program," (ND EPSCoR) $5274, 2000.
5. D. Sale, R. Marsh, "Weather Information Network Enabled Mobile System (WINEMS)," (NSF – Phase I STTR), 1 year $98,000 ($36,771 for UND), 2001.
6. Denet Labs (Darryl Sale) and R. Marsh, "High Resolution Flash Ladar Processing," SBIR Phase 1 grant (BMDO) $64,654, 2002.
7. R. Marsh, "High Performance / miniGRID Computing facility," UND Summer 2004 Graduate Research Fellowship Program, $16000, 2003.
8. Kendall Nygard, Xiaojiang (James) Du, Ron Marsh, "Smart Sensing and Decision Making for NASA sensor webs," NASA EPSCoR, $60,000, 2005.
9. Ben Trapnel, et al, "Unmanned Aerial System Remote Sense and Avoid System Development, United States Air Force UAV Battle Lab, $1,000,000, 2006.
10. Ben Trapnel, et al, "Unmanned Aerial System Remote Sense and Avoid System and Airborne Payload Analysis and Investigation, United States Air Force UAV Battle Lab, $9,656,000 million, 2007.
11. Martha Potvin, et al, "Transforming STEM Education through Inquiry- Based Learning," NDUS, $2,209,750. ($1,158,800 awarded, but not funded), 2008.
12. K. Zhang and R. Marsh, "Fast Assembly of RNA-Seq Short Reads Using GPU Parallel Programming," UND School of Medicine / JDSOS, $19,295, 2011.
13. Josh Riedy, Rick Anderson, Aaron Bergstrom, Ron Marsh, Travis Desell, Kurt Zhang, Kathryn Thomasson, Mark Askelson, Gretchen Mullendore, and Wayne Barkhouse "Data Vortex – A Disruptive Technology for the Scientific Computing," UND, $274,768, 2011.
14. R. Marsh, "Advancing STEM Education and Assessment," Faculty Seed Grant, $29,718, 2013.
15. R. Marsh and D. Whalen, "Research Experience in Developing Software for Mission Critical Space Systems," NSF (REU), $372,449, 2013.
16. R. Marsh, "Assessment of Operating Software for a Small Spacecraft," ND EPSCoR AURA. $7000.00 (funded) 2013.
17. R. Marsh, "Research to Support the Initiation of an Autonomous Checkout and Fault Detection Software Development Program for Small Spacecraft," ND EPSCoR, $2483.00. (funded). 2013
18. T. Desell, J. Higgins, R. Marsh, B. Wild, E. Grant, K. Lovelace, and L. Liang, "Developing intuitive Parking Software with FedEx using High Performance Computing," ND Department of Commerce, $628,736.00, 2015.
19. C. Theisen, M. Askelson, N. Kaabouch, R. Marsh, J. Nordlie, and M. Hastings, "Cooperative Airspace Techniques and Visualization (CATV) Testing for Enabling UAS Operations," ND Department of Commerce, $613,748, 2015.

Items in gray performed prior to promotion to Associate Professor

20. M. Askelson, D. Brooks, C. Theisen, T. Woods, S. Kroeber, R. Marsh, H. Reza, W. Semke, N. Kaabouch and D. Olsen, "A11L.UAS.22 Small UAS Detect and Avoid Requirements Necessary for Limited Beyond Visual Line of Sight (BVLOS) Operations, UAS Research Focus Area: Low Altitude Operations Safety," FAA, $399,992, 2015.
21. R. Marsh and S. Kerlin, "Continued Development and Commercialization of Quality Characterization Technology for 3D Printing," ND Department of Commerce, $96,343, 2015.
22. R. Marsh and J. Straub, "Commercialization for an Autonomous Attitude Determination and Control Technology," NSF- IIP ICORES, $50,000, 2016.

Pending:

Part VIII. Professional Education/Consultant Activities:
1. Review and assessment of Mayville State's CIS program. 2001
2. Guest on UND's Studio One (video games), October 20, 2005
3. Human Bandwidth, Microsoft Game Studios, Redmond, Washington on October 12, 2006.
4. Telehealth 2007, Montreal, Quebec, Canada, May 31 – June 2, 2007.
5. STK Fundamentals, Colorado Springs, CO, June 7 - June 7, 2007
6. Attended the EPSCoR Cyberinfrastructure Assessment Workshop, Lexington, Kentucky October 15-16, 2007.
7. Attended UVS Canada conference, St. Johns, Newfoundland November 6-9, 2007.
8. Attended UND Professional Development Workshop "What Students are Saying About UND," 3/27/2008.
9. Attended UND Professional Development Workshop "Basic International Student Requirements," 3/28/2008.
10. Attended UND Professional Development Workshop "So, Now You're a Supervisor," 5/14/2008.
11. Attended Microsoft Academic Gaming Conference, Miami, February 27-March 3, 2008.
12. Attended The Information Technology Council of North Dakota's IT Career Awareness Initiative. April 20, 2008.
13. CRA Chairs conference, Snowbird, Utah, July 2014.
14. Center of Academic Excellence Community meeting on Cybersecurity, Washington D.C., July, 2014.
15. Center of Academic Excellence Community meeting on Cybersecurity, Columbia, Maryland, November 4, 2014.
16. National Incentive for Cybersecurity Education meeting, Columbia, Maryland, November 5-6, 2014.
17. Bemidji State University Computer Science Department external review, Spring 2018.

Part IX. Honors / Awards:
1. R. Marsh, Letter of Appreciation, P. M. Lowell, Commander, Naval Intelligence Command, 1991.
2. UND Memorial Union Leadership Award: Outstanding Student Organization Advisor, 2003.
3. Certificate of Participation, Symposium on Operating Systems and Network Security, St. Cloud State University, 2004.
4. ACM Certificate of Achievement, ACM North Central Region Programing Contest, 2005.
5. Letter of Appreciation, Dakota Science Center, 2006-2015.
6. JDOSAS Above and Beyond award, 2007.
7. Awarded a "Certificate of Acknowledgement for the Advancement of Intellectual Property Commercialization and Economic Development," by the UND Division of Research, 3/11/2008.
8. Named an EA (Electronic Arts Scholar for 2007/2008). 10 out of 60 worldwide applicants were selected.
9. Certificate of Recognition, UND IP Commercialization & Economic Development, 2012.
10. International Academy, Research, and Industry Association (IARIA) best paper award, Third International Conference in Creative Content Technologies (Content 2011), 2012.
11. Certificate of Appreciation, NASA Cube Quest Challenge, 2015.

Items in gray performed prior to promotion to Associate Professor