

DOUGLAS E. GALARUS

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Department of Computer Science

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<https://cs.mtech.edu/>

<http://www.westernstates.org>

<http://westernstatesforum.org>

<http://oss.weathershare.org>

EDUCATION, CERTIFICATION AND TRAINING

- **Doctor of Philosophy, Computer Science, 2017**, Montana State University, Bozeman, MT, GPA: 3.96. Dissertation: Anomaly Detection through Spatio-Temporal Data Mining, with Application to Real-Time Outlying Sensor Identification
- **Master of Science, Computer Science, 1995**, University of Montana, Missoula, MT, GPA: 4.0. Thesis: Modeling Stock Market Returns with Local Iterated Function Systems.
- **Master of Arts, Teacher of Mathematics, 1993**, University of Montana, Missoula, MT, GPA: 4.0
- **B.A. with high honors, Mathematics, 1989**, University of Montana, Missoula, MT, GPA: 3.93
- Microsoft Certified Professional (MCP)
- Sun Certified Programmer for the Java 2 Platform
- Completed Sun (Lead Faculty Java Authorization), iGeneration and New Horizons “Train the Trainer” Courses
- Completed Oracle Training / Oracle Certified Professional: “Introduction to Oracle: SQL and PL/SQL” and “Enterprise DBA Part 1a: Architecture and Administration.” Passed Exam #1 leading to Oracle Certified Professional (OCP) status
- Completed Consortium for ITS Training and Education (CITE) Introduction to System Engineering Course
- Completed: CITE Introduction to Telecommunications Technology Course
- Completed: CITE Advanced Telecommunications Technology Course
- Participated in FHWA Systems Engineering Workshop, ITS America, Palm Springs, California, June 3, 2007
- **State Certified (Montana) to teach Mathematics in Grades 5-12**
- **State Certified (Montana) to teach Computer Science in Grades 5-12**

EMPLOYMENT HISTORY

2020 – present, Department of Computer Science, Montana Technological University University

- **Associate Professor** – Taught CSCI 135 Fundamentals of Computer Science I, Fall 2022; CSCI 136 Fundamentals of Computer Science II, Spring 2023; CSCI 444 Data Visualization, Spring 2022; CSCI 347 Data Mining, Spring 2021, Spring 2022; CSCI 447 Machine Learning, Spring 2021, Spring 2022, Spring 2023; CSCI 470 Web Science, Spring 2021, Spring 2022, Spring 2023; ESOF 487 Software Design Project II, Spring 2021, Spring 2023; CSCI 102 Computational Thinking with Lab, Fall 2020, Fall 2021; CSCI 194 Freshman Seminar, Fall 2020, Fall 2021; CSCI 443 User Interface Design, Fall 2020, Fall 2021, Fall 2022; ESOF 486 Software Design Project I, Fall 2020; ESOF 486 Software Design Project I Lab, Fall 2020, Fall 2022

2017 – 2020, Computer Science Department, College of Engineering, Utah State University

- **Assistant Professor** – Data Science. Taught CS 5665 - Introduction to Data Science at Utah State University, Fall 2017, Spring 2019, Fall 2019; CS 1400 – Introduction to Computer Science - CS 1, Spring 2018; CS 4320 – Information Storage and Retrieval, Fall 2018, Fall 2019. Research interests include: Data Science and Systems, Data Quality, Spatio-Temporal Data and Intelligent Transportation Systems.

2003 – 2019, Western Transportation Institute, College of Engineering, Montana State University, Bozeman, MT

- **Senior Research Scientist / Program Manager / Project Lead / Principal Investigator** – Systems Engineering, Development and Integration Program. Managed numerous research staff, including student research assistants; multiple labs; projects; and a nationally recognized, award-winning program. Focused on rural data communication, traveler information, safety systems and intelligent transportation systems. Conducted systems and software engineering. Developed for handheld/mobile devices, touch-screen kiosks, database-driven websites, and controller devices. Delivered and facilitated technical training and professional development opportunities for engineers and technicians.
- **Adjunct Assistant Research Professor**, Computer Science Department, Montana State University –Appointment: September 1, 2006 – August 31, 2011.
- **Affiliate**, Computer Science Department, Montana State University –Appointment: September 1, 2011 – 2017.

1996 – 2003, Information Technology Office / Information Technology Resource Center, University of Montana, Missoula, MT.

- **Director of Applications Development / Lead Programmer.** Project lead for database-driven web sites, web site design, desktop applications, kiosk development, and interactive CD-ROMs; implemented online training and testing programs; developed content-rich, interactive web sites and cross-platform interactive CD-ROMs; delivered

continuing education/professional development courses as a Sun-Certified Instructor and housed a Sun Java Technologies for Academic Authorized Sun Education Center, and as a Oracle-Certified Instructor and housed a Oracle Workforce Development Program.

- **Research Visiting Assistant Professor**, Department of Mathematical Sciences, University of Montana, Missoula, MT – Appointment: August 26, 1998 – May 15, 1999
- **Faculty Affiliate**, Department of Mathematical Sciences, University of Montana, Missoula, MT – Appointment: November 11, 2000 – September 30, 2002

1997 – 1998, Computer Science Department, University of Montana, Missoula, MT.

- **Visiting Assistant Professor / Instructor**. Taught multiple sections per semester of introductory Computer Science courses (four sections of CS 171 – Communicating via Computer, approximately 50 students per section). Conducted significant course development. Developed original materials and detailed course outlines. Made recommendations for future of the course including topics, text(s) and use of labs. Completed an initial study of a proposed Applications Minor in Computer Science at the request of the Dean of the College of Arts and Sciences. Submitted a report to the department and the Dean upon completion. Primary research involved contacting and surveying department chairs and college deans whose students would benefit from the program.

1996, SIMMS Project, Department of Mathematical Sciences, University of Montana, Missoula, MT.

- **Technical Editor**. Edited and revised four books (two grade levels) for content, grammar, and punctuation to meet publisher’s deadline for an NSF funded high school mathematics project. Completed ten-week project in seven weeks.

1991 - 1996, STEM Project, Department of Mathematical Sciences, University of Montana, Missoula, MT.

- **Visiting Assistant Professor / Writer / Researcher**. Responsible for writing, (peer) editing, and revising text and teacher materials for an NSF-funded and nationally published middle school mathematics text (“MathThematics”). Lead developer of educational software for use with text and evaluator of third party hardware and software.
- **Visiting Assistant Professor / Instructor**. Taught two sections with approximately 30 students per section of Mathematics for Elementary Teachers in 1991.

1992 – 1993, TRIO Training Program, University of Washington, Seattle, WA.

- **Programmer / Analyst**. Prototyped a budgeting and record-keeping system.

1989 – 1991, Education Logistics / Logistic Systems, Inc., Missoula, MT.

- ***Operations Research Analyst / Systems Analyst.*** Designed, analyzed, and implemented optimization algorithms for various GIS applications including Vehicle Routing, Facility Location / Allocation, Apportionment, and Computational Geometry.

BRIEF BIOGRAPHY

Dr. Douglas Galarus is an Associate Professor in the Department of Computer Science at Montana Technological University. Doug has 33 years of experience in systems and software engineering, information technology development, testing, implementation, management and instruction. Doug has extensive experience as the project manager, principal investigator and lead for mobile data communications systems, database-driven web sites, web site design, desktop applications, kiosk development, PDA, SmartPhone and Tablet PC –based development, and interactive CD-ROMs. At the Western Transportation Institute, Doug applied technical expertise to the development of applications for transportation safety, including improved tools for road weather management, incident management, traveler information and data communications. Doug grew a nationally recognized, award-winning program, and supervised numerous students, staff and multiple labs. Doug delivered and facilitated multiple technical training and professional development opportunities for engineers and technicians. As an Assistant Professor at Utah State University, Doug carried forward with similar research and development, with a focus on Data Science, Data Quality, Spatio-Temporal Data, Intelligent Transportation Systems and Applications of Data Science to Intelligent Transportation Systems. Now, as an Associate Professor at Montana Tech, Doug continues forward in applying his experience to instruction and research in Computer Science, Data Science, and Software Engineering to students in his home state of Montana. Doug has taught introductory, upper-division and graduate-level courses. Dr. Galarus holds a PhD in Computer Science from Montana State University and master's degrees in Computer Science and Mathematics Education from the University of Montana.

- Successful Leader and Manager
- Award-Winning Researcher
- Accomplished Educator
- Extensive Computer Skills
- Writing and Technical Editing Experience
- Proven Research Skills and Leadership
- Team-Oriented
- Cost and Budget Conscious
- Teaching, Tutoring, Training and Train the Trainer Experience
- Conference Organization, Professional Capacity Building and Professional Education
- Extensive Experience with Programming Languages, Applications, Systems, Internet Technologies, Communication Systems and Mobile Applications
- Proven Proficiency in Design, Analysis, Implementation and Optimization
- Systems and Software Engineer
- User Interface and User Experience Designer
- Data Scientist

PROFESSIONAL AFFILIATIONS

- IEEE (Senior Member) and IEEE Computer Society
 - PACE Chair, R6 NE Area of the IEEE (2007)
 - PACE Chair, Montana Section of the IEEE (2006, 2007)
 - Chair, Montana Section of the IEEE (2006)
 - Chair-elect, Montana Section of the IEEE (2005)
- Association for Computing Machinery (ACM) (Senior Member)

PAST PROFESSIONAL AFFILIATIONS

- Operations Research Society of America (ORSA)
- American Mathematical Society
- Mathematical Association of America
- Montana Academy of Sciences
- Golden Key Honor Society
- Pi Mu Epsilon
- Sigma Xi - The Scientific Research Society
- Montana Education Association and National Education Association
- Montana Council of Teachers of Mathematics
- National Council of Teachers of Mathematics
- APCO International (Association of Public Safety and Communications Officials)

HONORS AND AWARDS

- GEOProcessing 2019 “Best Paper” Award, *Challenges in Evaluating Methods for Detecting Spatio-Temporal Data Quality Issues in Weather Sensor Data*, GEOProcessing 2019 Conference, Athens Greece, February 24, 2019 to February 28, 2019. <https://www.iaria.org/conferences2019/AwardsGEOProcessing19.html>
- 2018-19 Computer Science Faculty Researcher of the Year Award in the Computer Science Department at Utah State University.
- 2018 Association of State Highway and Transportation Officials (AASHTO) Research Advisory Committee (RAC) Value of Research Task Force “High Value Research” (HVR) Project – Research Impacts, Better- Faster - Cheaper: From AWOS/RWIS to Caltrans Aviation Weather Information (AWI).
- 2018 Utah State University Proposal Writing Institute. Nominated and sponsored by the Utah State University College of Engineering to participate. May – June 2018.
- 2018 Utah State University RGS (Research and Graduate Studies) DC Faculty Fellow. Nominated by the Utah State University College of Engineering to participate in meetings with funding agencies in Washington, DC, December 2-5, 2017.
- 2015 Association of State Highway and Transportation Officials (AASHTO) Research Advisory Committee (RAC) Value of Research Task Force “High Value Research” (HVR) Project – Research Impacts, Better- Faster - Cheaper: One Stop Shop for Traveler Information.

- Winner: Best of Intelligent Transportation Systems (ITS) Award in the category of Best New Innovative Practice - Research Design and Innovation for work on One-Stop Shop for Traveler Information, ITS America 2014.
- Finalist: Best of Intelligent Transportation Systems (ITS) Award in the category of Best New Innovative Practice - Rural ITS Project for its work on Automated Safety Warning System Controller, ITS America / National Rural Intelligent Transportation Systems (NRITS) 2014.
- Finalist: 24th Annual (2013) Caltrans Transportation Foundation Transportation Awards, Operations Efficiency Program of the Year, One Stop Shop Traveler Information
- Winner: Best of Rural ITS Award for Best New Innovative Product, Service or Application – Western States Rural Transportation Technology Implementers Forum, National Rural Intelligent Transportation Systems conference (NRITS) 2012
- Winner: Best of Rural ITS Award for Best New Innovative Product, Service or Application – Redding Responder Project, National Rural Intelligent Transportation Systems conference (NRITS) 2010
- Finalist: 20th Annual (2009) Caltrans Transportation Foundation Transportation Awards, Traffic Operations/ITS Program of the Year - Redding Responder
- Finalist: ITS America 2007 “Best New Product, Service or Application” – Redding Responder Project
- Senior Member, ACM, 2011-present
- Senior Member, IEEE, 2005-present
- Bertha Morton Scholarship, Received while a Master’s Student in Computer Science at the University of Montana
- Joseph Hashisaki Memorial Scholarship, Department of Mathematical Sciences, Received while an Upper-Division Undergraduate Student at University of Montana

TEACHING

I integrate theory, research and practice into my teaching. It is important that students have a solid foundation and understanding behind the methods they use (theory), that they investigate those methods thoroughly (research), and that they apply those methods to real problems (practice). This should be accomplished at all levels while accounting for student background and capability.

Teaching at Montana Tech

- CSCI 135 Fundamentals of Computer Science I, Fall 2022
- CSCI 136 Fundamentals of Computer Science II, Spring 2023
- CSCI 444 Data Visualization, Spring 2022
- CSCI 347 Data Mining, Spring 2021, Spring 2022
- CSCI 447 Machine Learning, Spring 2021, Spring 2022, Spring 2023
- CSCI 470 Web Science, Spring 2021, Spring 2022, Spring 2023
- CSCI 102 Computational Thinking with Lab, Fall 2020, Fall 2021
- CSCI 194 Freshman Seminar, Fall 2020, Fall 2021
- CSCI 443 User Interface Design, Fall 2020, Fall 2021, Fall 2022
- ESOF 486 Software Design Project I, Fall 2020
- ESOF 486 Software Design Project I Lab, Fall 2020, Fall 2022
- ESOF 487 Software Design Project II, Spring 2021, Spring 2023

Teaching at Utah State University

- CS 5665 Introduction to Data Science, Fall 2017, Spring 2019, Fall 2019
- Independent Study – CS 6950, Abhinav Pandey, Spring 2019
- Independent Study – CS 5950 Tanner Kvarfordt Spring 2019
- CS 1400 Introduction to Computer Science, Spring 2018
- Independent Study – CS 6950, Manish Meshram, Spring 2018
- Independent Study – CS 6950, Deepesh Parate, Spring 2018
- CS 4320 Information Storage and Retrieval Fall 2018, Fall 2019

Teaching at the University of Montana

- CS 171 – Communicating via Computer, Two Sections Fall 1997, Two Sections Spring 1997. Computer Science Department.
- Math for Elementary Teachers, Two Sections, 1991. Department of Mathematical Sciences.

(Student) Teaching at Missoula Hellgate High School

- Taught Statistics, Algebra 2. Spring 1985.

Teaching Certification

- State Certified (Montana) to teach Mathematics in Grades 5-12
- State Certified (Montana) to teach Computer Science in Grades 5-12

Professional Development Instruction

- Completed Sun (Lead Faculty Java Authorization), iGeneration and New Horizons "Train the Trainer" Courses.
- Completed Oracle Training courses for "training the trainer".
- Delivered continuing education/professional development courses as a Sun-Certified Instructor and housed a Sun Java Technologies for Academic Authorized Sun Education Center, and as an Oracle-Certified Instructor and housed an Oracle Workforce Development Program at the University of Montana between 1999 and 2002.

RESEARCH INTERESTS

Data Science & Systems

Data Quality

Spatio-Temporal Data

Intelligent Transportation Systems

Applications of Data Science to Intelligent Transportation Systems

My research spans the very applied, with development of mission-critical, production intelligent transportation systems, and theoretical, with the investigation and development of data science methods to solve challenges such as spatio-temporal data quality. My labs have conducted research in systems and software engineering to develop cutting-edge applications, applied data science and developed algorithms and methodologies to address challenges faced by the practitioners who use our many applications. We have also investigated the application of data science methods to estimate long-distance travel times during winter, the development of measures to evaluate dimension reduction techniques relative to data science tasks such as the classification of roadside camera images, and the estimation of delay due to chain-up during winter weather.

Emerging Research Topics

Applications of Data Science to Intelligent Transportation Systems

Spatio-Temporal Data Quality

Data-Driven User Experience

Applications of Sensor Data to Rural Transportation Challenges

Data Science Education

Keywords

Rural ITS, Intelligent Transportation Systems, User Experience, Data Science, Data Quality

AWARDED RESEARCH FUNDING AT MONTANA TECHNOLOGICAL UNIVERSITY (2021-PRESENT)

| Project | Role | Sponsor | Budget | Start | End |
|---|------------------|--------------------------|--|----------------------------------|------------------|
| ASWSC / OSS / WeatherShare Maintenance | PI | CALTRANS / WSDOT (WSRTC) | \$71,450 | Start: July 2021 | End: March 2023 |
| NSF-SSTEM (w/ MSU and UM) – planning grant on which I am listed as Senior Personnel | Senior Personnel | NSF | \$99,836 (total to MSU), \$3000 for personnel travel | Start: 7/1/2022 | End: 12/31/2024 |
| Chain-up Delay Estimation via Fusion of Bluetooth, WiFi and ITS Data | PI | CALTRANS / WSDOT (WSRTC) | \$125,000 (Phase 1) | Start: June 2023 | End: August 2025 |
| WeatherShare Maintenance (PENDING) | PI | CALTRANS | \$100,000 | (ANTICIPATED) Start: May 2023 | End: June 2025 |
| Chain-up Delay Estimation via Fusion of Bluetooth, WiFi and ITS Data | PI | CALTRANS / WSDOT (WSRTC) | \$125,000 (Phase 2) | (ANTICIPATED) Start: Summer 2025 | |

OTHER PROJECT WORK AT MONTANA TECH (2020-PRESENT)

| Project | Role | Sponsor | Budget | Start | End |
|--|-------------|---|---------------------------|--------------|------------------------|
| Saint Patricks Cemetery Locator | PI | Butte Archives, Ancient Order of Hibernians | \$1500 (loaned equipment) | | Start: 2021 Ongoing |
| Impact of Weather and Travel Time Estimation for Winter Travel | PI | Independent Research | none | | Start: 2020 Ongoing |

AWARDED RESEARCH FUNDING AT UTAH STATE UNIVERSITY (2018-2021)

| Project | Role | Sponsor | Budget | Start | End |
|---|-------------|--------------------------|---------------|-----------------------|------------------|
| Automated Safety Warning System Controller, Phase 3 | PI | CALTRANS / WSDOT (WSRTC) | \$249,995 | Start: September 2018 | End: August 2020 |
| One-Stop-Shop Phase 4 | PI | CALTRANS / WSDOT (WSRTC) | \$150,000 | Start: September 2018 | End: August 2020 |
| WeatherShare Phase 5 | PI | CALTRANS | \$242,795 | Start: June 30, 2019 | End: June 2021 |

**AWARDED RESEARCH FUNDING AT MONTANA STATE UNIVERSITY
(2003-2017)**

| Project | Role | Sponsor | Budget | Start | End |
|---|-------------|--------------------------|---------------|--------------|------------|
| WSRTC Meeting Coordination, Task Order 10 | PI | | \$60,000 | 3/1/2017 | 2/28/2018 |
| Integration of AWOS with RWIS, Phase 3 | PI | CALTRANS | \$150,000 | 2/16/2017 | 6/30/2019 |
| COATS Phase 7 | PI | CALTRANS | \$249,995 | 1/14/2017 | 1/31/2019 |
| Professional Capacity Building for Communications Systems, Phase 4 | PI | CALTRANS | \$150,000 | 12/1/2016 | 11/30/2018 |
| Rural Traveler Information (One-Stop-Shop) Phase 3 | PI | CALTRANS / WSDOT (WSRTC) | \$300,000 | 3/1/2016 | 3/31/2018 |
| WeatherShare Phase 4 | PI | CALTRANS / WSDOT (WSRTC) | \$100,000 | 3/1/2016 | 12/31/2017 |
| WSRTC Meeting Coordination, Task Order 8 | PI | CALTRANS / WSDOT (WSRTC) | \$60,000 | 3/1/2016 | 2/28/2017 |
| WSRTC Meeting Coordination, Task Order 5 | PI | WSDOT (WSRTC) | \$91,000 | 9/1/2014 | 6/30/2016 |
| California and Oregon Advanced Transportation Systems (COATS) Phase 6 | co-PI | CALTRANS | \$200,000 | 6/30/2014 | 6/29/2016 |
| Caltrans Road Weather for QuickMaps | PI | CALTRANS | \$175,000 | 4/8/2014 | 6/30/2017 |
| Professional Capacity Building for Communications Systems, Phase 3 | PI | CALTRANS | \$125,000 | 2/1/2014 | 1/30/2016 |
| WSRTC Meeting Coordination, Task Order 4 | PI | WSDOT (WSRTC) | \$80,000 | 5/1/2013 | 10/31/2014 |
| Integration of AWOS with RWIS, Phase 2 | PI | CALTRANS | \$300,000 | 7/3/2012 | 6/29/2014 |
| WeatherShare, Phase 3 | PI | CALTRANS | \$249,995 | 7/3/2012 | 6/29/2014 |
| UTC WeatherShare Phase 3 | PI | USDOT FHWA | \$50,000 | 7/1/2012 | 6/30/2013 |
| Professional Capacity Building for Communications Systems, Phase 2 | PI | CALTRANS | \$125,000 | 6/29/2012 | 9/31/2012 |
| WSRTC Meeting Coordination, Task Order 3 | PI | WSDOT (WSRTC) | \$77,000 | 4/1/2012 | 4/30/2013 |
| Rural Vehicle to Infrastructure Communication Evaluation (Lewistown) | PI | USDOT FHWA | \$40,000 | 1/3/2012 | 9/30/2012 |

AWARDED RESEARCH FUNDING AT MSU – CONTINUED

| Project | Role | Sponsor | Budget | Start | End |
|---|-------------|-----------------------|---------------|--------------|------------|
| Rural Traveler Information (One-Stop-Shop) Phase 2 | PI | WSDOT (WSRTC) | \$150,000 | 10/1/2011 | 9/30/2013 |
| UTC ROCS Phase 4 | PI | USDOT FHWA | \$24,825 | 7/26/2011 | 9/30/2012 |
| WSRTC Meeting Coordination and Website Maintenance | PI | WSDOT (WSRTC) | \$55,000 | 6/1/2011 | 3/31/2012 |
| UTC Professional Capacity Building Phase 2 | PI | USDOT FHWA | \$31,250 | 1/11/2011 | 9/30/2012 |
| California and Oregon Advanced Transportation Systems (COATS) Phase 5 | co-PI | CALTRANS | \$200,000 | 1/1/2011 | 9/30/2012 |
| UTC Integration of AWOS with RWIS, Phase 2 | PI | USDOT FHWA | \$75,000 | 1/1/2011 | 9/30/2012 |
| UTC COATS Phase 5 | co-PI | USDOT FHWA | \$80,000 | 1/1/2011 | 9/30/2013 |
| UTC Western States Forum | PI | USDOT FHWA | \$19,903 | 1/1/2011 | 3/31/2012 |
| UTC Rural Traveler Info (One Stop Shop) Ph. 2 | PI | USDOT FHWA | \$50,000 | 1/1/2011 | 9/30/2012 |
| Western States One-Stop Shop for Rural Traveler Information | PI | US FHWA | \$79,995 | 9/24/2010 | 9/23/2011 |
| Automated Safety Warning System Controller, Phase II | PI | CALTRANS | \$225,000 | 4/8/2010 | 3/14/2012 |
| UTC EMS System for Rural Areas | PI | USDOT FHWA | \$46,926 | 3/1/2010 | 3/31/2012 |
| UTC Automated Safety Warning System Controller Phase 2 | PI | USDOT FHWA | \$75,000 | 1/1/2010 | 9/30/2013 |
| UTC Responder Phase 3, Deployment Assistance | PI | USDOT FHWA | \$75,000 | 1/1/2010 | 9/20/2013 |
| UTC - COATS Phase IV | co-PI | USDOT FHWA | \$90,990 | 9/1/2008 | 6/30/2011 |
| Rural Traveler Information (One Stop Shop) Phase 1 | co-PI | CALTRANS | \$55,000 | 9/1/2008 | 12/31/2010 |
| COATS Phase 4 | co-PI | CALTRANS | \$214,990 | 9/1/2008 | 6/20/2011 |
| Professional Capacity Building for Communication Systems | PI | CALTRANS | \$99,999 | 9/1/2008 | 8/31/2009 |
| UTC Roadkill Observation Collection, Phase III | co-PI | USDOT FHWA | \$30,020 | 4/1/2008 | 12/31/2010 |
| UTC Portable TMC-TMS Comm. Demonstration | PI | USDOT FHWA | \$39,652 | 3/1/2008 | 6/30/2009 |
| Integration of Aviation Automated Weather Observation Systems (AWOS) with Roadside Weather Information Systems (RWIS) | PI | CALTRANS | \$150,000 | 2/1/2008 | 6/30/2010 |
| UTC-Sys. Eng. & Integration Transportation Tech SEITTP Feasibility Study, Phase 2 | PI | USDOT FHWA | \$15,005 | 11/1/2007 | 1/31/2010 |
| PDA Data Collection Package | PI | US DOT FHWA | \$34,934 | 9/17/2007 | 3/31/2011 |
| Integrated PDA/GPS System to Collect Standardized Road-Kill Date | co-PI | Central Federal Lands | \$30,000 | 9/6/2007 | 3/31/2011 |
| American Wildlands Road Watch | PI | American Wildlands | \$5,000 | 9/1/2007 | 10/31/2007 |
| UTC Integration of AWOS/RWIS | PI | USDOT FHWA | \$50,053 | 8/1/2007 | 9/30/2010 |
| UTC Mobile Communication Briefcase | PI | USDOT FHWA | \$74,809 | 7/1/2007 | 6/30/2011 |

AWARDED RESEARCH FUNDING AT MSU – CONTINUED

| Project | Role | Sponsor | Budget | Start | End |
|--|-------------|----------------|---------------|--------------|------------|
| UTC Ant Colony Optimization | PI | USDOT FHWA | \$22,574 | 6/1/2007 | 3/31/2012 |
| Systems Engineering Development & Integration Lab Phase 2 | PI | USDOT FHWA | \$187,408 | 5/1/2007 | 9/30/2012 |
| UTC Western States RTTIF | PI | USDOT FHWA | \$47,847 | 4/1/2007 | 3/31/2009 |
| MANETs for Rural Public Safety | PI | US DHS | \$315,326 | 3/1/2007 | 2/29/2008 |
| UTC-Trailer Configuration & Deployment | co-PI | USDOT FHWA | \$34,650 | 10/1/2006 | 9/30/2007 |
| UTC Sys Engineering Program Dev | PI | USDOT FHWA | \$292,709 | 10/1/2006 | 9/30/2013 |
| An Integrated PDA/GPS System to Collect Standardized Road-Kill Data | co-PI | Virginia DOT | \$30,000 | 8/1/2006 | 7/30/2007 |
| Advanced CMS | PI | Caltrans | \$137,926 | 7/27/2006 | 12/31/2009 |
| UTC Integrated PDA/GPS | PI | USDOT FHWA | \$30,584 | 7/15/2006 | 3/31/2008 |
| Automated Safety Warning System Controller | PI | CALTRANS | \$300,000 | 7/6/2006 | 9/30/2008 |
| Weathershare - Phase 2 | PI | CALTRANS | \$306,939 | 6/15/2006 | 6/30/2008 |
| Redding Responder - Phase 2 | PI | CALTRANS | \$339,280 | 6/15/2006 | 6/30/2008 |
| An Integrated PDA/GPS System to Collect Standardized Road-Kill Data | co-PI | WSDOT | \$30,000 | 5/11/2006 | 5/21/2007 |
| Improve Communications Between TMC & TMS Elements in a Rural Environment Through a System That is Deployable Statewide | PI | CALTRANS | \$364,915 | 5/10/2006 | 6/30/2008 |
| UTC Responder Field Test | PI | USDOT FHWA | \$15,088 | 1/23/2006 | 12/30/2006 |
| UTC Sys Engine Develop. & Integration Lab Phase I | PI | USDOT FHWA | \$93,679 | 9/15/2005 | 9/30/2007 |
| Traveler Information Database Requirements Analysis | co-PI | MDT | \$40,000 | 12/1/2004 | 6/30/2005 |
| 511 In Yellowstone National Park | co-PI | YNP | \$91,820 | 10/1/2004 | 9/30/2008 |
| UTC Integration Center | PI | USDOT FHWA | \$31,019 | 3/1/2004 | 3/31/2008 |
| UTC PDA/GPS Roadkill Data | co-PI | USDOT FHWA | \$15,197 | 2/1/2004 | 9/30/2005 |
| Redding District Incident Management Responder Study | PI | CALTRANS | \$150,000 | 5/1/2003 | 12/31/2005 |
| UTC Blackfeet Automated Accident Reporting | PI | USDOT FHWA | \$91,644 | 1/1/2002 | 12/31/2004 |

OTHER PROJECT WORK AT MSU (2003-2016)

| Project | Role |
|--|--------------------------------------|
| Toolkit for Federal Lands Managers | Technical Advisor |
| Evaluating Accuracy of RWIS Sensors | Technical Advisor |
| Systems Change | Technical Advisor |
| MDT/Liaison - Travelers Requirements | Systems Engineer |
| TRAIL Lab | Technical Advisor |
| Lewistown Rural Research-Rural Vehicle and Testbed | Technical Advisor |
| RWIS Training Course 10K | Instructor |
| Blaine County State Hwy 75 | Technical Lead |
| Washington I-90 Wildlife Watch | Technical Lead |
| Colorado I-70 Wildlife Watch Golden - Glenwood Springs | Technical Lead |
| UTC Special Event Congestion in Small Communities | Technical Advisor |
| Deploying Portable Traveler Info Systems | Technical Lead |
| UTC NW Passage Rural Vehicle Infrastructure | Technical Advisor |
| Mendenhall Spur Road | Technical Advisor / Systems Engineer |
| National Technical Assistance Center | TRIPTAC IT Manager |
| UTC EMS System for Rural Areas | Technical Advisor |
| Lab Resource Database & Website | Technical Lead |
| aSE: Reduce speed-related crashes on Rural Roads | Technical Lead |
| UTC Road Dust Institute & Website | Technical Lead |
| Nat'l Technical Assistance Center - Year 2 | TRIPTAC IT Manager |
| Federal --- NWP OTIIS, FHWA | Technical Lead |
| Central Federal Lands Transportation Assistance | TRIPTAC IT Manager |
| BZN Area Recreational Alternative Transport Study | Technical Advisor |

PROJECTS AT THE UNIVERSITY OF MONTANA (1996-2003)

| Project | Role |
|---|---------------------|
| University of Montana Admissions Department Recruitment CD-ROM | Technical Lead |
| America's Wars in Asia Digital Teaching Library | Lead Programmer |
| Greater Yellowstone Rural Intelligent Transportation Systems Corridor Kiosk Project | Lead Programmer |
| Lewis and Clark Intelligent Kiosk ITS System | PI, Lead Programmer |
| Montana Fish, Wildlife and Parks' Advanced and Remedial Hunter Education Website | PI |
| Montana Fish, Wildlife and Parks' Bear Identification Program Website | PI |
| Montana Fish, Wildlife and Parks' Bull Trout Identification Program Website | PI |
| Montana Fish, Wildlife and Parks' Fish of Montana CD-ROM | PI |
| MyUMT Website for University of Montana Admissions Department | Lead Programmer |
| NxLevel for Entrepreneurs, e-Learning Website | Lead Programmer |
| UM Non-Enrolled Survey for University of Montana Admissions Department | Lead Programmer |
| Travel Montana Website Development | Programmer |

STUDENT SUPERVISION AT MONTANA TECH

| My Role | Student | Years | Degree Program |
|---|---------------------------------------|--------------|---|
| Professor CSCI 136 | Brandon Mitchell (Teaching Assistant) | 2023 | B.S., Software Engineering |
| Professor CSCI 136 | Will Augustine (Teaching Assistant) | 2023 | B.S., Computer Science, B.S., Software Engineering |
| Instructor Capstone | Tyler Bodden | 2023 | B.S. Data Science |
| Instructor Capstone | Alyssa Hoffman | 2023 | B.S. Computer Science, B.S. Data Science |
| Instructor Capstone | Sawyer Gibson | 2023 | B.S. Computer Science, B.S. Data Science |
| PI/Supervisor, Project Mentor, Instructor Senior Design | Brandon Mitchell | 2022-3 | B.S., Software Engineering |
| PI/Supervisor, Project Mentor, Instructor Senior Design | Nathan Blankenship | 2022-3 | B.S., Software Engineering |
| PI/Supervisor, Project Mentor, Instructor Senior Design | Matthew Gallagher | 2022-3 | B.S., Software Engineering |
| PI/Supervisor, Project Mentor, Instructor Senior Design | John Nelson | 2022-3 | B.S., Software Engineering |
| Professor CSCI 135 | Brandon Mitchell (Teaching Assistant) | 2022 | B.S., Software Engineering |
| Professor CSCI 135 | Noah Harbor (Teaching Assistant) | 2022 | B.S. Computer Science |
| Professor CSCI 135 | Sarah Wiseman (Teaching Assistant) | 2022 | B.S. Mathematics, B.S. Data Science |
| Professor CSCI 135 | Xaavan Dolence (Teaching Assistant) | 2022 | B.S. Computer Science, B.S. Mathematics, B.S. Data Science, B.S. Statistics |
| Instructor Capstone | Xaavan Dolence | 2022 | B.S. Computer Science, B.S. Mathematics, B.S. Data Science, B.S. Statistics |
| PI/Supervisor | Timothy Foreman | 2022-3 | B.S., Computer Science |
| PI/Supervisor | Will Augustine | 2022 | B.S., Computer Science, B.S., Software Engineering |
| PI/Supervisor | Chase Farrar | 2022 | B.S., Computer Science, |
| PI/Supervisor | Tucker Kane | 2021-2022 | B.S., Software Engineering |
| PI/Supervisor | Ethan Schlepp | 2021-2023 | B.S., Computer Science |
| Professor CSCI 102 | Tyler Bodden (Teaching Assistant) | 2021-2022 | |
| Instructor Independent Study | Hunter Boles | 2021-2022 | B.S. Computer Science, B.S. Mathematics, B.S. Data Science |
| PI/Supervisor, Project Mentor Senior Design | Andrey Zuev | 2021 | B.S., Software Engineering |

STUDENT SUPERVISION AT USU

| My Role | Student | Years | Degree Program |
|--|--|--------------|---|
| Professor CS 5665 | Manish Meshram (Teaching Assistant) | 2019 | M.S., Computer Science |
| Professor CS 4320 | Manish Meshram (Teaching Assistant) | 2019 | M.S., Computer Science |
| PI/Supervisor | Andrew Chamberlin | 2019- | B.S., Electrical and Computer Engineering |
| PI/Supervisor | Haixuan Guo | 2019- | M.S., Data Science |
| PI/Supervisor | Jordan Knudsen | 2019- | B.S., Computer Science |
| PI/Supervisor | Brianna King | 2019 | B.S., Computer Science |
| PI/Supervisor | Max Susman | 2019 | B.S., Computer Engineering |
| Instructor Independent Study | Abinav Pandey | 2019 | M.S., Computer Science |
| Instructor Independent Study | Tanner Kvarfordt | 2019 | B.S., Computer Science |
| Committee Member | Shaju Saha | 2019- | M.S., Computer Science |
| Committee Chair | Honey Varghese | 2019- | M.S., Computer Science |
| Professor CS 5665 | Chelsi Gupta (Teaching Assistant) | 2019 | M.S., Computer Science |
| PI/Supervisor | Benjamin Taylor | 2019- | B.S., Computer Science |
| PI/Supervisor | Michael Harrop | 2019 | B.S., Computer Science |
| PI/Supervisor | Andrew Mortenson | 2018- | B.S., Computer Science |
| PI/Supervisor | Bradley Hoffman | 2018- | B.S., Electrical and Computer Engineering |
| PI/Supervisor | Brock Francom | 2018- | B.S., Computer Science |
| PI/Supervisor | Tanner Kvarfordt | 2018- | B.S., Computer Science |
| Committee Member | Meng Xu | 2018- | PhD., Computer Science |
| Professor CS 4320 | Bredyn McCombs (Teaching Assistant) | 2018-2019 | M.S., Computer Science |
| Instructor Independent Study | Manish Meshram | 2018 | M.S., Computer Science |
| Instructor Independent Study | Deepesh Parate | 2018 | M.S., Computer Science |
| Professor CS 1400 | Amar Farzaneh (Teaching Assistant) | 2018 | PhD., Computer Science |
| Professor CS 1400 | Shimin Li (Teaching Assistant) | 2018 | PhD., Computer Science |
| Advisor –Committee Chair | Wasim Kahn | 2018 | PhD., Computer Science |
| Committee Chair | Abinav Pandey | 2017-2019 | M.S., Computer Science |
| Committee Chair | Manish Meshram | 2017-2019 | M.S., Computer Science |
| <i>Predicting the Impact of Weather on Rural Travel Times using Now-Cast Weather Forecast Data</i> | | | |
| Committee Member | Kamilia Ahamadi | 2017- | PhD., Computer Science |
| Committee Member | Sayed M-H Mansourbeigi | 2017-2018 | PhD., Computer Science |
| Professor - CS 5665 | Bhagyashree Mandora (Teaching Assistant) | 2017- | M.S., Computer Science |
| Committee Member | Bhagyashree Mandora | 2017- | M.S., Computer Science |
| Committee Member | Venkatesh Kadali | 2017-2018 | M.S., Computer Science |
| Committee Chair | Sahiti Katragadda | 2017-2018 | M.S., Computer Science |

STAFF AT MSU

| Staff | Years | Degrees |
|--------------------|--------------|---|
| Bateman, Kelvin | 2008-2012 | B.S., Computer Science, MSU 2009 |
| Graham, Sean | 2003-2007 | M.S., Computer Science, MSU; B.S., Recreation and Parks Management; WTI Fellowship Winner |
| Green, Jo Marie | 2008 | B.S., Computer Science, MSU |
| Hayden, Larry | 2006-2015 | M.S. Electrical Engineering, MSU; B.S., Mechanical Engineering |
| Jameson, Bill | 2006-2012 | Ph.D., Applied Mathematics; M.A., Physics; B.A., Mathematics, UM |
| Johnson, Nicholas | 2010-2013 | B.S., Business Management / Management Information Technology, MSU |
| Koon, Leann | 2005-2015 | M.S., Agricultural Education, MSU; B.S., Agricultural Education, MSU |
| Krohn, Justin J | 2005-2009 | B.S., Electrical and Computer Engineering, MSU |
| Lassacher, Suzanne | 2003-2012 | M.S., Computer Science, MSU; B.A. Italian |
| Miller, Frank E | 2006-2009 | M.E., General Science, MSU Northern; B.S., Interdisciplinary Studies, MSU Northern |
| Richardson, Hugh | 2006-2007 | Ph.D., Economics; M.S., Computer Science, MSU; B.Ec., Economics and Chinese |
| Richter, Daniell | 2007-2015 | B.S., Computer Science |
| Schoep, Gary | 2006-2009 | B.S., Computer Engineering, MSU |
| Smith, Killian | 2012-2015 | B.S., Computer Science, MSU |
| Summers, John | 2009-2012 | Computer Science Undergraduate |
| Wang, Shaowei | 2003-2010 | M.S., Industrial and Management Engineering, MSU; B.S., Industrial Engineering |

STUDENT RESEARCH ASSISTANTS AT MSU

| Student | Years | Degrees |
|--------------------------|-----------|--|
| Akbar, Monika | 2007 | M.S., Computer Science, MSU; B.S., Computer Science |
| Alkanlar, Mehmet | 2007-2008 | B.S., Computer Science, MSU |
| Allison, John | 2006-2008 | B.S., Electrical Engineering, MSU |
| Bateman, Kelvin | 2008-2012 | B.S., Computer Science, MSU 2009 |
| Behrens, Samuel | 2016-2017 | B.S., Computer Science, MSU |
| Bharata, Anish | 2012-2013 | M.S., Computer Science, MSU; B.T., Computer Science |
| Bohannan, Chad | 2007-2008 | M.S., Computer Science, MSU; B.S., Computer Science, MSU; WTI Fellowship Winner; Member – Master’s Committee |
| Bones, Alex | 2012-2014 | B.S., Industrial Engineering, MSU |
| Cohan, Brendan | 2010-2011 | Computer Science Undergraduate |
| Edwards, Andrew | 2006 | B.S., Electrical and Computer Engineering, MSU |
| El Ferradi, Nabil | 2005-2008 | E.E. Undergraduate |
| Garcia-Puigcerver, Aitor | 2009 | M.S. Telecommunications Engineering; B.S. Telecommunications Engineering; Exchange Student at MSU |
| Graham, Sean | 2003-2007 | M.S., Computer Science, MSU; B.S., Recreation and Parks Management; WTI Fellowship Winner |
| Gurdasani, Neeraj | 2007-2008 | M.S., Computer Science, MSU; B.T., Electronics and Communication |
| Hadella, Justin | 2007 | B.S., Computer Engineering, MSU |
| Hufford, Joseph | 2008 | B.S. Computer Engineering, MSU |
| Kim, Kyoung Won | 2006-2007 | M.S., Electrical and Computer Engineering, MSU |
| Koon, Leann | 2005-2017 | M.S., Agricultural Education, MSU; B.S., Agricultural Education, MSU |
| Krohn, Justin J | 2005-2009 | B.S., Electrical and Computer Engineering, MSU |
| Langemeier, Jeffrey | 2011-2012 | B.S., Electrical and Computer Engineering, MSU |
| Laufmann, Andrew | 2009 | B.S. Computer Engineering, MSU |
| Liang, Yujie | 2006-2007 | M.S., Electrical and Computer Engineering, MSU; Member, Master’s Committee Use of Wireless Multi-hop and Ad-hoc Routing for Communications Between Highway Traffic Sensors in Rural Areas |
| Lingley, Andy | 2006 | B.S., Electrical and Computer Engineering MSU |
| Livingston, Justin | 2011-2015 | B.S., Computer Science, MSU |
| McCabe, Christopher | 2015-2016 | B.S., Computer Science, MSU |
| Nelson, Gordon | 2008-2009 | B.S., Electrical Engineering MSU |
| Nikalandawatte, Nishadhi | 2009-2012 | B.S., Computer Science, MSU |
| Paine, Tyler | 2010-2011 | B.S., Mechanical Engineering, MSU |
| Parker, Robert | 2009-2011 | B.S., Computer Science, MSU (in progress) |
| Petrick, Chris | 2007-2009 | B.S., Computer Science, MSU |
| Schoep, Gary | 2006-2009 | B.S., Computer Engineering, MSU |
| Sharkey, Jeff | 2006-2008 | M.S., Computer Science, MSU; B.S., Computer Science; WTI Fellowship Winner; Member, Master’s Committee Automated Radio Network Design Using Ant Colony Optimization |
| Smith, Killian | 2012-2015 | B.S., Computer Science, MSU |
| Taylor, Koby | 2015 | B.S., Mechanical Engineering |
| Vollmer, Fredric | 2015 | M.S., Computer Science, B.S., Economics |
| Willich, James | 2011-2013 | B.S., Mechanical Engineering, MSU; B.S., Social Science |
| Zhang, Li | 2008 | M.S., Computer Science, MSU |

STUDENT RESEARCH ASSISTANTS AT UM

| Student | Years | Degrees |
|------------------|-----------|--|
| Jamey Maxwell | 1998-2002 | (B.A., Computer Science) |
| Nick Dolezal | 1998-2002 | (B.S., Management Information Systems) |
| Ryan Grinsteiner | 1998-2002 | (B.A., Computer Science) |
| Spencer Wolny | 2000 | (B.A., Computer Science) |
| Michael Cassens | 1998 | (M.S., Computer Science) |
| Larisa Brigida | 1998 | (Computer Science Undergraduate) |
| Yuriy Brigida | 1998 | (Computer Science Undergraduate) |

PROFESSIONAL STAFF AT UM

| Staff | Years | Degrees |
|------------------|-----------|--------------------------------|
| Dale Ward | 1998-2003 | Computer Science Undergraduate |
| Ryan Grinsteiner | 2002 | B.A., Computer Science |

PRESENTATIONS/PUBLICATIONS

Textbook Series

Billstein, R., Williamson, J., Montoya, P., Lowery, J., Williams, D., Buck, M., Burkett, C., Churchill, L., Clouse, C., Denny, R., Derrick, W., Dolezal, S., **Galarus, D.**, Kennedy, P., Lamphere, P., Merrill, N., Morse, S., Petit, M., Runkel, P., Sanders-Garrett, T., T. Seitz, R., Spence, B., Sowders, B., Tuckerman, C., Wenger, K., Wilkie, J., Wilson, C., Winston, B. Middle grades MATH thematics. Evanston: McDougal Littell. 1999. (Three volumes of student materials with three volumes of teacher materials.)

Book Chapter

Galarus, D., I. Turnbull, S. Campbell, J. Pearce and L. Koon Spatio-Temporal Data Quality in Handbook of Big Geospatial Data, Werner, M. and Chiang, Y. Springer. 2021.

Huijser, M., **D. Galarus** & A.V. Kociolek. 2010. Ch. 16. Current and Developing Technologies and their Potential Application in Highway-wildlife Mitigation. In Safe Passages, Beckmann, J., A.P. Clevenger, M.P. Huijser and J.A. Hilty (eds.) Island Press.

Journal Articles

Galarus, Douglas E., and Rafal A. Angryk. "*Detecting Spatio-Temporal Data Quality Issues in Weather Sensor Data, Including Identification of Mis-located Sites*". International Journal on Advances in Systems and Measurements, v 12 n 3&4 2019. IARIA Publications. December 2019.

Galarus, Douglas E., and Rafal A. Angryk. "Beyond Accuracy - A SMART Approach to Site-Based Spatio-Temporal Data Quality Assessment". Intelligent Data Analysis, vol. 22, no. 1. (January 2018). IOS Press.

Galarus, Douglas E., and Rafal A. Angryk. "Spatio-temporal quality control: implications and applications for data consumers and aggregators." Open Geospatial Data, Software and Standards 1.1 (2016): 1., Springer.

Magazine Articles and Newsletters

Campbell, Sean, and **Galarus, Douglas**. "Research Pays Off – The One-Stop-Shop – Traveler Information Tool for Multistate Road Trips." TR News 312 (December 2017)

Huijser, M. & **D. Galarus**. 2004. Software for Pocket PC to collect road-kill data. TRB A1F02 Newsletter, Environmental Analysis in Transportation, November 2004, p. 9.

Conference Papers

Galarus, D.E., Turnbull, I., Campbell, S., Pearce, J., Koon, L., Angryk, R., *Accurate, Timely, Reliable - A High Standard and Elusive Goal for Traveler Information Data Quality*. Proceedings of the Future of Information and Communications Conference (FICC) 2019 in Lecture Notes in Networks and Systems, San Francisco, CA, March 14-15, 2019. Springer.

Galarus, D.E., Angryk, R., *Challenges in Evaluating Methods for Detecting Spatio-Temporal Data Quality Issues in Weather Sensor Data*. GEOProcessing 2019, The Eleventh International Conference on Advanced Geographic Information Systems, Applications, and Services, Athens, Greece, February 24-28, 2019. Winner of "Best Paper" Award.

Galarus, D.E., Turnbull, I., Campbell, S., Pearce, J., Koon, L., *Accurate, Timely, Reliable - A High Standard and Elusive Goal for Traveler Information Data Quality*. ITS America Annual Meeting & Expo, Detroit, MI, June 4-7, 2018.

Galarus, D.E., Angryk, R. *The SMART Approach to Comprehensive Quality Assessment of Site-Based Spatial-Temporal Data*. 1st IEEE International Workshop on Big Spatial Data in conjunction with the 2016 IEEE International Conference on Big Data, Washington, D.C., December 5-8, 2016.

Galarus, D.E., Angryk, R. *A SMART Approach to Quality Assessment of Site-Based Spatio-Temporal Data*. 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2016), Burlingame, California, October 31 - November 3, 2016.

Galarus, D.E., Angryk, R. *Quality Control from the Perspective of the Real-Time, Spatial-Temporal Data Aggregator and (re)Distributor*. 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2014), Dallas, Texas, November 4-7, 2014.

Galarus, D.E., Angryk, R. *Mining robust neighborhoods for quality control of sensor data*. 4th ACM SIGSPATIAL International Workshop on GeoStreaming (IWGS) 2013, Orlando, Florida, November 5, 2013.

Galarus, D. E., Angryk, R., and J. W. Sheppard *Automated Weather Sensor Quality Control* Proceedings of the twenty-fifth international Florida Artificial Intelligence Research Society conference (FLAIRS-25), San Marco Island, Florida, May 23-25, 2012.

Alfelor, R. M., Pisano, P. A., **Galarus, D. E.**, Yohanan, D. *Using Clarus Data for Disseminating Winter and Other Weather-Related Alerts* Proceedings of the 2012 International Conference on Winter Maintenance and Surface Transportation Weather, April 30 - May 3, 2012, Coralville, Iowa.

Galarus, D. E., Wang, S., Wei, W., Moreland, C. *Integration of Aviation Weather Information Systems with Roadside Weather Information Systems (RWIS)*. Presented as a poster session at the Transportation Research Board 90th Annual Meeting, Washington, D.C. January 24, 2011.

Kociolek, A.V., M.P. Huijser, **D. Galarus**, D. W. Taylor and J. Kintsch. September 13, 2009. *Motorists as citizen scientists: The benefits of a wildlife reporting website* (Oral presentation). International Conference on Ecology and Transportation. Duluth, MN.

C. Bohannon, L. Zhang, J. Tang, R. S. Wolff, S. Wan, N. Gurdasani and **D. Galarus**, QoS enhancement and performance evaluation of ad-hoc routing protocols for rural public safety, IEEE ICC'2009.

Galarus, D., Hayden, L., Schoep, G., Krohn, J., Hufford, J., Sharkey, J. *MeshBox: Mesh Network Communication System for Intelligent Transportation Research Using Open Source Software*. 15th World Congress on Intelligent Transport Systems, New York, New York, November 16 - 20, 2008.

Sharkey, J., **Galarus, D.** *Radio Network Design for Rural Intelligent Transportation Systems Using Artificial Intelligence*. Presented as a poster session at the Transportation Research Board 87th Annual Meeting, Washington, D.C. January, 2008.

Galarus, D. E. *Redding Responder Project: Computing and Communication in the Middle of Nowhere*. Presented as a poster session at the Transportation Research Board 86th Annual Meeting, Washington, D.C. January 22, 2007.

Huijser, M.P., **D.E. Galarus** & A. Hardy. 2006. *Software for Pocket PC to Collect Road-Kill Data*. Page: 640 in: C.L. Irwin, P. Garrett and K.P. McDermott (eds.). *Proceedings of the 2005 International Conference on Ecology and Transportation*. Center for Transportation and the Environment, North Carolina State University, Raleigh, NC, USA.

Graham, S.C., Oudshorn, M.J., **Galarus, D.E.**, 2005. *Designing Primary Responder Applications with Web Services in a Hostile Environment*. Presented by M.J. Oudshorn at the IASTED International

Conference on Parallel and Distributed Computing and Networks ~PDCN 2005~ as part of the 23rd IASTED International Multi-Conference on APPLIED INFORMATICS CONFERENCE PROGRAM Innsbruck, Austria February 15 - 17, 2005.

Conference Presentations

Galarus, D. E., Campbell, S., Pearce, J., Analytics and the One-Stop Shop for Rural Traveler Information – Measuring Use Across Corridors and Between Communities During Winter Weather Events, (To Be) Presented at the Institute of Transportation Engineers (ITE) Mountain District Conference, Helena, Montana, November 1-3, 2023.

Galarus, D. E., Pearce, J., Campbell, S., Automated Safety Warning System Controller. (To Be) Presented at the Institute of Transportation Engineers (ITE) Annual Meeting / National Rural ITS (NRITS) Conference, Portland, Oregon, August 13-16, 2023.

Pearce, J., Worthington, J., **Galarus, D. E.**, ASWSC Phase 3: Migration of the Automated Safety Warning System Controller to the Caltrans Advanced Transportation Controller Platform. Presented at the Sixteenth Annual Western States Rural Transportation Technology Implementers Forum, Yreka, California, October 5-7, 2021.

Galarus, D. E., Campbell, C., The One-Stop-Shop for Rural Traveler Information – Serving Real-Time Traveler Information Across the Western States. Presented (Online) at the National Rural ITS (NRITS) Conference 2020, New Orleans, Louisiana, August 9-12, 2020.

Koeppen, K., Campbell, C., Pearce, J., **Galarus, D. E.**, Accurate, Timely, Reliable...A Look at the Current State of Traveler Information, Data Quality and Performance Objectives in Rural Areas Within California. Presented (Online) at the National Rural ITS (NRITS) Conference 2020, New Orleans, Louisiana, August 9-12, 2020.

Campbell, S., Pearce, J., **Galarus, D.**, The One-Stop-Shop for Traveler Information. Presented at CalGIS 2019, Fresno, California, April 9-10, 2019.

Galarus, D. E., Kantar, D., Clark, M., Caltrans Aviation Weather Information (AWI) from Surface Transportation and Concept to Aviation and Implementation. Presented at the National Rural ITS (NRITS) Conference 2018, Fort McDowell, Arizona, October 21-24, 2018.

Galarus, D. E., Kantar, D., Clark, M. *From AWOS/RWIS to Caltrans Aviation Weather Information (AWI)*. Presented at the Thirteenth Annual Western States Rural Transportation Technology Implementers Forum, Yreka, California, June 19- 21, 2018.

Galarus, D. E. *WeatherShare Phase 4*. Presented at the Twelfth Annual Western States Rural Transportation Technology Implementers Forum, Yreka, California, June 22- 24, 2017.

Galarus, D. E., Richter, D., Campbell, C., Turnbull, I., Expansion of the Western States One Stop Shop for Rural Traveler Information. Presented at the National Rural ITS (NRITS) Conference 2015, Snowbird, Utah, August 9-12, 2015.

Galarus, D. E., Koon, L. Campbell, C., Turnbull, I., Data Quality Aggregation and Dissemination of DOT Traveler Information: Best Practices. Presented at the National Rural ITS (NRITS) Conference 2015, Snowbird, Utah, August 9-12, 2015.

Galarus, D. E., Koon, L. Campbell, C., Turnbull, I., Professional Capacity Building for Communications. Presented at the National Rural ITS (NRITS) Conference 2014, Branson, Missouri, August 24-27, 2014.

Galarus, D. E., Richter, D., Campbell, S., Turnbull, I., *Field Element Data Quality Control from the Perspective of Data Redistribution*. Presented at the National Rural ITS (NRITS) Conference 2013, St. Cloud, Minnesota, August 25-28, 2013.

Galarus, D. E., Richter, D., Campbell, S., Turnbull, I., *Field Element Data Quality Control from the Perspective of Data Redistribution*. Presented at the Eighth Annual Western States Rural Transportation Technology Implementers Forum, Yreka, California, June 18- 20, 2013.

Galarus, D.E., Hayden, L., Ward, N., *Augmented Speed Enforcement (aSE) Smart Drums (sDrums) from a Technical Perspective, Part 2 - Deployment*. Presented at the National Rural ITS (NRITS) Conference 2012, Biloxi, Mississippi, September 17-19, 2012.

Veneziano, D., Koon, L., **Galarus, D.**, Turnbull, I., Campbell, S., Bailey, T., McGill, G. The WSRTC – An Implementers Pooled-Fund to Tackle the Challenges of Rural ITS. Presented at the National Rural ITS (NRITS) Conference 2012, Biloxi, Mississippi, September 17-19, 2012

Galarus, D. E., Richter, D., et al, *Technical Development of the Western States One Stop Shop for Rural Traveler Information*. Presented at the Seventh Annual Western States Rural Transportation Technology Implementers Forum, Yreka, California, June 12- 14, 2012.

Galarus, D., Veneziano, D., Turnbull, I., Campbell, S., Bailey, T., McGill, G. The Western States Rural Transportation Consortium – a Partnership to Advance Rural ITS. Presented at the 2012 Northwest Transportation Conference, Corvallis, Oregon, February 7 – 9, 2012.

Galarus, D. E., Veneziano, D., Campbell, S., Turnbull, I. Western States Clarus One-Stop Shop for Rural Traveler Information. Presented at the National Winter Maintenance Peer Exchange, Albuquerque, New Mexico, September 21, 2011.

Galarus, D. E., Hayden, L., Ward, N., Ye, J. Augmented Speed Enforcement (aSE) Smart Cones (sCones) form a Technical Perspective. Presented at the National Rural ITS (NRITS) Conference 2011, Coeur d’Alene, Idaho, August 28 – 31, 2011.

Galarus, D. E., Wei, W., Chu, M., Barrie, T. L. Integration of Aviation Weather Information Systems with Roadside Weather Information Systems for Rural Air Fields and Heliports. Presented at the National Rural ITS (NRITS) Conference 2011, Coeur d’Alene, Idaho, August 28 – 31, 2011.

Galarus, D. E., Wang, S., Richter, D. Veneziano, D., Campbell, C., Turnbull, I., Development of a One Stop Shop for Rural Transportation. Presented at the National Rural ITS (NRITS) Conference 2010, Huntington, West Virginia, August 1-4, 2010.

Galarus, D. E., Campbell, C., Turnbull, I., Automated Safety Warning Controller (ASWC) Phase I – Proof of Concept. Presented at the National Rural ITS (NRITS) Conference 2010, Huntington, West Virginia, August 1-4, 2010.

Veneziano, David, **Doug Galarus**, Sean Campbell and Ian Turnbull. COATS: A Decade of Rural ITS. Presented at the 2009 National Rural ITS (NRITS) Conference, Seaside, Oregon. August 23-27, 2009.

Galarus, D., Turnbull, I., Wang, S., Chu, M., Richter, D. COATS: Caltrans WeatherShare Phase II System: An Application of Systems and Software Engineering Process to Project Development. Presented at the 2009 National Rural ITS (NRITS) Conference, Seaside, Oregon. August 23-27, 2009.

Kumar, M., **Galarus, D. E.** Development of A Prototype Traveler Information System for Rural Work Zones - Part 1. Presented at the 15th World Congress on Intelligent Transport Systems, New York, New York, November 16 - 20, 2008.

Kumar, M., **Galarus, D. E.** Development of A Prototype Traveler Information System for Rural Work Zones - Part 2. Presented at the 15th World Congress on Intelligent Transport Systems, New York, New York, November 16 - 20, 2008.

Kumar, M., **Galarus, D. E.** Development of A Prototype Traveler Information System for Rural Work Zones - Part 3. Presented at the 15th World Congress on Intelligent Transport Systems, New York, New York, November 16 - 20, 2008.

Galarus, D. E., Lassacher S., Jameson, W.J., Hayden, L. Rural TMC-TMS Communications – An Evaluation of Alternatives. Presented at the 15th World Congress on Intelligent Transport Systems, New York, New York, November 16 - 20, 2008.

Galarus, D. E., Strong, C., Haukom, T., Nguyen, H., Schoep, G. Development of A Dynamic Message Sign Specification for Caltrans. Presented at the 15th World Congress on Intelligent Transport Systems, New York, New York, November 16 - 20, 2008.

Galarus, D. E., Lassacher S., Jameson, W.J., Hayden, L. Rural TMC-TMS Communications – An Evaluation of Alternatives. Presented at the National Rural ITS (NRITS) Conference 2008, Anchorage, Alaska, September 2 - 5, 2008.

Galarus, D. E., Jameson, B., Lassacher, S., Wolff, R., Hayden, L., Schoep, G., Veneziano, D., Sharkey, J., Krohn, J., TMC-TMS Communications: Overview and Demonstration. Presented at the Third Annual Western States Rural Transportation Technology Implementers Forum, Mount Shasta, California, June 3 - 5, 2008.

Huijser, M., Kociolek, A. **Galarus, D.** Wildlife use of Two Existing Bridges and Citizen Documentation of Wildlife Sightings Along State Highway 75, Blaine County, ID. Presented by M. Huijser at the 2008 Annual Meeting of the Montana Chapter of The Wildlife Society, February 25th – 29th, 2008.

Galarus, D. E. The WeatherShare Project: Aggregation and Dissemination of Weather Information for Public Safety. Presented at the 2007 ITS America Annual Meeting & Expo, Palm Springs, CA. June 4-6, 2007.

Galarus, D. E. Redding Responder Project: Computing and Communication in the Middle of Nowhere. Presented as a poster session at the 2007 ITS America Annual Meeting & Expo, Palm Springs, CA. June 4-6, 2007.

Galarus, D. E. Redding Responder Project: Computing and Communication in the Middle of Nowhere. Presented at the 2007 ITS America Annual Meeting & Expo, Palm Springs, CA. June 4-6, 2007.

Galarus, D. E. The Redding Responder Project: Computing and Communication in the Middle of Nowhere. Presented at the National Rural ITS (NRITS) Conference 2006, Big Sky, Montana, August 13 – 16, 2006.

Galarus, D. E., Turnbull, I., Wang, S. The WeatherShare Project: Aggregation and Dissemination of Weather Information for Public Safety. Presented at the National Rural ITS (NRITS) Conference 2006, Big Sky, Montana, August 13 – 16, 2006.

Galarus, D. E. Jameson, W.J., The Redding Responder Project: Mobile Data Communication Challenges in Solutions Remote Rural Areas. Presented at the National Rural ITS (NRITS) Conference 2006, Big Sky, Montana, August 13 – 16, 2006.

Galarus, D. E., Wang, S. The Application of Systems and Software Engineering Process Models for Development on Small to Moderate-Sized ITS Projects: WeatherShare and the Redding Responder Projects. Presented at the National Rural ITS (NRITS) Conference 2006, Big Sky, Montana, August 13 – 16, 2006.

Kumar, M., **Galarus, D.E.**, Graham, S., Krohn, J. A Smart Work Zone Delay Estimation System for Rural Highway Operations. Presented at the National Rural ITS (NRITS) Conference 2006, Big Sky, Montana, August 13 – 16, 2006.

Galarus, D. E. The Redding Responder Project: Mobile Data Communication Challenges and Solutions Remote Rural Areas. Presented at the First Annual Western States Rural Transportation Technology Implementers Forum, Mount Shasta California, June 6-7, 2006.

Galarus, D. Interactive CD-ROM and Database-Driven Websites – Wildlife Education for the Masses using Multimedia and the Internet. Oral presentation at the Biennial Conference of the Aquatic Resources Education Association, September 28 – October 2, 2002, Chico Hot Springs Resort, Pray, Montana.

Student Poster Presentations

Mitchell, B., Nelson, J., Gallagher, M., Blankenship, N., **Galarus, D.** Saint Patrick's Locator App, (To be presented at) Techxpo, Montana Tech Student Research Conference, April 27, 2023, Montana Tech, Butte, MT. Best in Software Engineering/Computer Science award.

Augustine, W., Farrar, C., **Galarus, D.** Saint Patrick's Locator App, Techxpo, Montana Tech Student Research Conference, April 27, 2022, Montana Tech, Butte, MT.

Mortenson, A., Harrop, M., Hoffman, B., **Galarus, D.** Automated Safety Warning Controller (Phase 3), Utah State University Student Research Symposium, April 10-11, 2019, Utah State University, Logan, Utah.

Francom, B., Kvarfordt, T., Taylor, B., **Galarus, D.** One-Stop-Shop for Rural Traveler Information, Utah State University Student Research Symposium, April 10-11, 2019, Utah State University, Logan, Utah.

Mortenson, A., Harrop, M., Hoffman, B., **Galarus, D.** Automated Safety Warning Controller (Phase 3), Utah State University College of Engineering Research Poster Competition, April 9, 2019, Utah State University, Logan, Utah.

Francom, B., Kvarfordt, T., Taylor, B., **Galarus, D.** One-Stop-Shop for Rural Traveler Information, Utah State University College of Engineering Research Poster Competition, April 9, 2019, Utah State University, Logan, Utah.

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Galarus, D., Wolff, R., Tang, J., Larson, D. (March 20, 2007) Ad Hoc Routing for Rural Public Safety (2007-ST-086-00000) Project Plan. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the U.S. Department of Homeland Security Science and Technology Directorate Office for Interoperability and Compatibility

Galarus, D., Wang, S., Schoep, G., Graham, S., Richardson, H., Lassacher, S. (September 11, 2007) Automated Safety Warning Controller System Concept and Requirements Specification. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA.

Ament, R., **Galarus, D.**, Richardson, H., Hardy, A. (August 2, 2007) Roadkill Observation Collection System (ROCS) - Development of an Integrated Personal Digital Assistant (PDA) with a Global Positioning System (GPS) to Gather Standardized Digital Information. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Virginia Transportation Research Council and the Washington State Department of Transportation.

Lassacher, S., Schoep, G., Hayden, L., **Galarus, D.**, Jameson, W., Wolff, R. (February 13, 2007) Literature Review of Communications Methods Used to Connect Rural Field Elements to a TMC and Related Remote-Sensing Communications Techniques. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA and Caltrans District 1, Eureka, CA.

Kumar, M., **Galarus, D.**, Graham, S., Strong, C. (May 30, 2006) Evaluation of ITS Technologies in Rural Work Zones: Showcase Evaluation #12 Final Technical Report. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the US Department of Transportation Research and Innovative Technology Administration, Washington, D.C. and the California Department of Transportation, Sacramento, CA.

Graham, S., Eidswick, J., & **Galarus, D.** (2006). MDT Traveler Information Reporting System Product Evaluation. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Montana Department of Transportation, Helena, MT.

Graham, S., Galarus, D., & Eidswick, J. (2007). MDT Traveler Information Reporting System Requirements Analysis. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Montana Department of Transportation, Helena, MT.

Galarus, D. (February 8, 2006) Automated Safety Warning System Controller Project Plan Version 1.0 – Baseline. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA and Caltrans District 2, Redding, CA.

Galarus, D. (December 19, 2005) Redding Responder Phase I Final Report. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA and Caltrans District 2, Redding, CA.

Albert, S., **Galarus, D.** (December 14, 2005) WeatherShare Evaluation: Phase I Proof-of-Concept. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA and Caltrans District 2, Redding, CA.

Wang, S., **Galarus, D.**, Lassacher, S. (October 3, 2005) WeatherShare System Documentation. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA and Caltrans District 2, Redding, CA.

Galarus, D., Wang, S. (July 11, 2005) WeatherShare User Guide Version 1.0. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA.

Shi, X., **Galarus, D.** (April 25, 2005) Baseline User Requirements for the WeatherShare System. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the Caltrans Division of Research & Innovation, Sacramento, CA.

Galarus, D. (December 2004) Tablet-Based Electronic Reporting Form Proof of Concept. Western Transportation Institute / Montana State University.

Galarus, D., Leader, S. (August 2004) WTI Systems Engineering and Integration of Transportation Technology Program (SEITTP) Concept Document. Bozeman, Montana: Western Transportation Institute / Montana State University. Prepared for the US Department of Transportation Research and Innovative Technology Administration, Washington, D.C.

Media

(Front Page) Article in the Montana Standard, Butte Archives partners with Tech software engineering class to help locate gravesites, May 5, 2023. https://mtstandard.com/news/butte-archives-partners-with-tech-software-engineering-class-to-help-locate-gravesites/article_d0420f60-ead5-11ed-b5de-eb88bcf73214.html

Interview with KXLF (CBS), Montana Tech professor operating travel website to help motorists find safest route. December 22, 2021. <https://www.kxlf.com/montana-tech-professor-operating-travel-website-to-help-motorists-find-safest-route>

Interview with KTVM (NBC), One Stop Shop for Rural Traveler Information. December 23, 2021.

Interview with ABC/Fox Montana, 'One-Stop-Shop' provides winter weather info for travelers. December 29, 2021. https://www.montanarightnow.com/butte/one-stop-shop-provides-winter-weather-info-for-travelers/article_910d5526-68f8-11ec-8892-574612f43758.html

Interview at Future of Information and Communication Conference 2019, Accurate, Timely, Reliable: A High Standard and Elusive Goal for Traveler Information Data Quality. San Francisco, CA. March 15, 2019. <https://www.youtube.com/watch?v=Nrold1U44Ns>

Interview with ABC/Fox Montana. One Stop Shop for Traveler Information. November 14th, 2014.

<http://www.westernstates.org/Projects/OSS/Updates/2015-04-06.html>

Interview with KTVM (NBC Montana). One Stop Shop for Traveler Information. November 17th, 2014.

<http://www.westernstates.org/Projects/OSS/Updates/2015-04-06.html>

SOFTWARE AND APPLICATIONS

- One-Stop-Shop for Rural Traveler Information (Web-based application) <http://oss.weathershare.org/> , 2008-2023
- WeatherShare (Web-based application), 2003-2023
- Automated Safety Warning System Controller (Linux Controller), 2006-2023
- WTI Time and Effort Reporting System (Web-based application), 2003-2023
- Mobile One-Stop-Shop for Rural Traveler Information (Web-based application, mobile) <http://oss.weathershare.org/m/> , 2016-2019
- Aviation WeatherShare, Integration of Aviation AWOS with RWIS (Web-based application), 2008-2019
- Caltrans Road Weather for QuickMap Weather Data Feeds (Web service, KML data feeds), 2014-2017
- Redding Responder Incident Report System (Windows Application, Tablet-based), 2003-2013
- Roadkill Observation Collection System (ROCS) (Windows Mobile Application, PDA-based), 2004-2013
- Washington I-90 Wildlife Watch, Citizen Science Wildlife Reporting on Snoqualmie Pass, Washington (Web-based application), 2010-2012
- Colorado I-70 Wildlife Watch Golden - Glenwood Springs, Citizen Science Wildlife Reporting (Web-based application), 2009-2017
- Ketchum on the Road: Wildlife Sightings, Citizen Science Wildlife Reporting on Idaho State Highway 75 in Blaine County, Idaho (Web-based application) , 2006-2008
- American Wildlands Roadwatch, I-90 Bozeman Pass Citizen Science Wildlife Reporting (Web-based application), 2007
- Cellular and Satellite “Monitor/Logger”, to monitor and log cellular and satellite modem signal strength for Redding Responder project. (Windows Application), 2004
- Augmented Speed Enforcement (aSE) control and data collection software: Reduce speed-related crashes on Rural Roads. (Linux Controller, Distributed System on Mesh Network), 2010-2013
- MANETS Meshbox, Tablet-based Incident Reporting for Public Safety Mesh Network Demonstration (Windows Application, Tablet-based), 2007-2011
- Smart Work Zone Delay Estimation System for Rural Highway Operations, 2006
- Satellite Coverage Simulator for Redding Responder Project. (Windows Application), 2005
- Blackfeet Automated Accident Reporting System (Windows Application, Tablet-based), 2004
- Montana Fish, Wildlife and Parks’ Advanced and Remedial Hunter Education Website 2000-2003
- Montana Fish, Wildlife and Parks’ Bear Identification Program Website, 1999-2003
- Montana Fish, Wildlife and Parks’ Bull Trout Identification Program Website, 2000-2003
- America’s Wars in Asia Digital Teaching Library (Web-based application) , 1999-2001
- Greater Yellowstone Rural Intelligent Transportation Systems Corridor Kiosk Project, 1998-2003
- Lewis and Clark Intelligent Kiosk ITS System, 2000-2003

- MyUMT Recruitment Website for the University of Montana Admissions Department, 2000-2003
- UM Non-Enrolled Survey for the University of Montana Admissions Department, 2001-2002
- Travel Montana Website Development – Interactive Applets for the kids’ version of the Montana Department of Commerce’s Travel and Tourism website, 1997-2015

MULTIMEDIA

- Montana Fish, Wildlife and Parks’ Fish of Montana Interactive CD-ROM, 1999-2003
- University of Montana Admissions Recruitment Interactive CD-ROM, 2000-2002
- NxLevel for Entrepreneurs e-Learning Website and Interactive CD-ROM, 2000

WEB SITES

- Western States Forum (<http://www.westernstatesforum.org/>) , 2006-2023
- Western States Rural Transportation Consortium (WSRTC) (<http://www.westernstates.org>), 2010-2023
- Federal Lands Transportation Institute (FLTI) Website, 2012-2017
- The Paul S. Sarbanes Transit in Parks Technical Assistance Center (TRIPTAC) Website, 2009-2012
- University Transportation Centers Lab Resource Database / Website, 2010-2012
- Road Dust Institute Website, 2009-2011

SERVICE

Paper Reviewer:

- Joint Intermountain Junior Science and Humanities Symposium (IJSHS), March 2-3, 2023
- Joint Intermountain Junior Science and Humanities Symposium (IJSHS) and California-Southern Junior Science and Humanities Symposium (CA-S JSHS), March 3-4, 2022
- GEOProcessing 2021, Nice, France, July 18 – 22, 2021.
- Joint Intermountain Junior Science and Humanities Symposium (IJSHS) and California-Southern Junior Science and Humanities Symposium (CA-S JSHS), March 3-4, 2021
- I-ETC Conference, Computing Conference Track, May 4-5, 2020
- ITS America 2018
- ITS World Congress, 2007
- Joint 50th IEEE Int'l Midwest Symposium on Circuits & Systems/5th IEEE International Northeast Workshop on Circuits & Systems, 2007

Abstract/Presentation Reviewer:

- NRITS 2018: Rural ITS
- NRITS 2016: Data Collection and Management
- NRITS 2015: Data Collection
- NRITS 2014: Operations and Maintenance
- NRITS 2012: Operations and Maintenance
- NRITS 2012: Communications in Rural Areas
- NRITS 2011: Communications in Rural Areas
- NRITS 2010: Road and Weather Information Systems (RWIS)
- NRITS 2009: Communications

Moderator/Session Chair:

- Future of Information and Communications Conference (FICC), March 14-15, San Francisco, California. Session 10 – Data Science, Session 16 – Data Science.
- National Rural ITS Conference, August 23-27, 2009, Seaside, Oregon, Session A3: Wireless Network Solutions - Moving Beyond Fiber

Panel Member:

- Expert Panel GEOProcessing / ALLSENSORS 2019, February 24-28, 2019, Athens, Greece

Proposal Review Panel Member:

- NSF Proposal Review Panel, Washington, DC, May 9-10, 2019.

Program Committee Member

- GEOProcessing 2021, Nice, France, July 18 – 22, 2021.
- GEOProcessing 2020, Barcelona, Spain, March 22 - 26, 2020.

Steering Committee Member:

- Western States Rural Transportation Consortium (2009-2023). Members oversee projects and other activities.
- Western States Forum (2008-2023). Members selected venue, reviewed presentations, determined program, co-emcee/host/facilitate meetings, conduct evaluation, etc.
- Caltrans Professional Capacity Building for Communication Systems (2008-2017). Members determine curriculum scope and sequence, assess needs, identify courses and venues, select training providers, facilitate and evaluate courses, etc.

Search Committee Member:

- Member: Montana Tech Search – Instructor, Cybersecurity and Network Administration, 2022
- Member: Montana Tech Search – Assistant Professor, Computer Science, 2022
- Member: Montana Tech Search – Assistant Professor, Software Engineering, 2022
- Chair: Montana Tech Search – Professor and Department Head, Computer Science, 2022
- Chair: Montana Tech Search – Assistant Professor, Computer Science, 2022
- Chair: Montana Tech Search – Instructor, Computer Science, 2022
- Chair: Montana Tech Search – Instructor / Assistant Professor, Cybersecurity and Network Administration, 2022
- Member: Montana Tech Search – Instructor, Cybersecurity and Network Administration, 2021
- Member: USU Search – Assistant Professor, Computer Science 2019-2020
- Member: USU Search – Assistant Professor, Computer Science 2018-2019
- Member: WTI ITS/Safety Search 2005-09
- Member: WTI Corrosion 2005-09
- Member: WTI Systems Administrator 2006-10
- Chair: WTI Research Associate / Systems Engineer 2007-04
- Chair: WTI Senior Systems / ITS Research Professional 2008-11
- Chair: WTI Net/Comp Systems Administrator II Search Committee Orientation Meeting 2009-11
- Chair: WTI Research Associate 2 Software Engineer 2012-06
- Chair: WTI Research Associate 2 Software Engineer 2012-09
- Collaborator Meetings: Various prospective faculty interviews for Electrical Engineering and Computer Science at MSU.

Strategic Planning / Policy Development / Program Development/ Lab Development:

- WTI Strategic Planning: Technical Lead, Project Progress Tracking 2003-2004
- Strategic Planning for WTI Systems Engineering, Development and Integration Program
- Development of WTI IT and Purchasing Policy
- Development of Systems Engineering Lab, Systems IT Lab
- Supervision of Technical Staff who were Responsible for TRAIL Lab and Driving Simulator Labs.
- Supervision of WTI IT Support Staff

Outreach Activities and Funding:

- Computer Science Outreach to prospective students, Montana Tech “Tech Day”, Outreach Presentation, “From Games to Autonomous Vehicles”. March 24th, 2023.
- Computer Science Outreach to Montana Tech Engineering Freshmen, EGEN 194 Freshman Engineering Class, Guest Lecture, “Computer Science, Software Engineering, Data Science”. February 21st, 2023.
- Computer Science Outreach to prospective students, Montana Tech “Tech Day”, Outreach Presentation, “From Games to Autonomous Vehicles”. November 18th, 2022.
- Computer Science Outreach to Montana Tech Engineering Freshmen, EGEN 194 Freshman Engineering Class, Guest Lecture, “Computer Science, Software Engineering, Data Science”. October 4th, 2022.
- Ethics Presentation for Engineering Senior Design Students, Guest Lecture, September 29th, 2022.
- Computer Science Outreach to prospective students, Butte Sciences Day, Outreach Presentation, “From Games to Autonomous Vehicles”. April 29th, 2022.
- Computer Science Outreach to Montana Tech Engineering Freshmen, EGEN 194 Freshman Engineering Class, Guest Lecture, “Computer Science, Software Engineering, Data Science”. January 25th, 2022.
- Computer Science Outreach to prospective students, Montana Tech “Tech Day”, Outreach Presentation, “From Games to Autonomous Vehicles”. October 22nd, 2021.
- Computer Science Outreach to Montana Tech Engineering Freshmen, EGEN 194 Freshman Engineering Class, Guest Lecture, “Computer Science, Software Engineering, Data Science”. October 6th, 2021.
- Computer Science Outreach to prospective students, Montana Tech “Tech Day”, Outreach Presentation, “Computer Science, Software Engineering, Data Science”. April 9th, 2021.
- Computer Science Outreach to Montana Tech Engineering Freshmen, EGEN 194 Freshman Engineering Class, Guest Lecture, “Computer Science, Software Engineering, Data Science”. January 19th, 2021.
- Computer Science Outreach to prospective students, Montana Tech “Tech Day”, Outreach Presentation, “Computer Science, Software Engineering, Data Science”. October 23rd, 2020.
- Computer Science Outreach to Montana Tech Engineering Freshmen, EGEN 194 Freshman Engineering Class, Guest Lecture, “Computer Science, Software Engineering, Data Science”. October 6th, 2020.
- IEEE Professional Activities: M-PAC (Member Professional Awareness Conferences): “Stuff You Don’t Learn in Engineering School” – Soft Skills for Engineers, 2006. \$500 award from IEEE M-PAC and \$500 award from IEEE PACE. Additional funds provided by Montana Section and WTI.
- IEEE Professional Activities: Montana Section Pre-College Outreach Planning and Coordination. Purchased Lego MindStorms kits and teamed IEEE Life-Members with Student Branches for pre-college engineering outreach. \$500 award. Additional funds provided by Montana Section.

Science Fair Judge:

- Montana State Science Fair, University of Montana. Numerous times from 1985-2003.
- Anderson Elementary School Science Fair, Bozeman, MT: 2014, 2015

Undergraduate Research Service:

- Utah State University College of Engineering Undergraduate Research Program (EURP) Committee Member. October 2018 – present.
- Utah State University Undergraduate Research & Creative Opportunities (URCO) Grant Proposal Reviewer: 2018
- Utah State University College of Engineering Undergraduate Research Program (EURP) Committee Member: 2018

Faculty Senate:

- Montana Tech Faculty Senate – Computer Science Representative, 2021-present