

Dan Tappan

Associate Professor, Computer Science

College of Science, Technology, Engineering, and Mathematics
Department of Computer Science
Computing and Engineering 319F
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Research Interests

Software and hardware systems engineering, especially for aviation and military applications with embedded systems and mechatronics; modeling, simulation, visualization, and analysis; intelligent systems/artificial intelligence (knowledge representation, reasoning, machine learning); natural language processing; and computer science/engineering education

Education

PhD, Computer Science

New Mexico State University, 2004

Dissertation: *Knowledge-Based Spatial Reasoning for Automated Scene Generation from Text Descriptions*

MSE, Computer Systems Engineering

University of Arkansas, Fayetteville, 1996

Thesis: *A Russian-to-English Translation System for Scientific Abstracts*

BA, Foreign Languages/Linguistics (Russian and German)

Arizona State University, 1992

Double major with Computer Science and minor in Anthropology

Certified Systems Engineering Professional and Certified Modeling and Simulation Professional;
see also Certifications on page 14

Experience

Academic

Associate Professor (tenured)

Department of Computer Science, Eastern Washington University
Fall 2015–present

Assistant Professor

Department of Computer Science, Eastern Washington University
Fall 2012–Spring 2015

Assistant Professor

Department of Mathematics and Computer Science, Western New Mexico University
Fall 2010–Spring 2012
Departed due to impending program closure

Assistant Professor

Department of Computer Science and Electrical Engineering, Idaho State University
Fall 2005–Spring 2010
Departed due to Computer Science program becoming Business Computer Systems;
recommended for tenure and promotion with respective ratings of *truly exceptional*,
above expectations, and *exceptional* in teaching, research, and service

Teaching Assistant

Department of Computer Science, New Mexico State University
Fall 1996–Spring 1997, Fall 1998–Spring 2002

GAANN (Graduate Assistance in Areas of National Need) Doctoral Research Fellow

Department of Computer Science, New Mexico State University
Fall 1998–Fall 2001

Teaching Assistant

Department of Computer Systems Engineering, University of Arkansas, Fayetteville
Fall 1994–Spring 1996

Instructor and Research Assistant

Department of Foreign Languages, Arizona State University
Fall 1989–Spring 1994

Professional

Senior Computer Scientist / Consultant

Horton Technical Associates, Inc., Las Cruces, NM; U.S. Army Research Laboratory, Army
Materiel Systems Analysis Activity, Aberdeen Proving Ground, MD
Aug. 2003–July 2006

Served as lead systems engineer, senior computer scientist, software architect, and team leader for two versions of premier modeling, simulation, visualization, analysis, and reporting system for evaluation of defunct U.S. Army/DARPA Future Combat Systems program then worth over \$220 billion; follow-on work funded by Office of Naval Research on Marine Expeditionary Fighting Vehicle. This integrated environment modeled hundreds of weapon systems and platforms (with 450+ requirements), as well as strategic and tactical acquisition, lethality, survivability, and engagement processes. It was the first analysis tool for this purpose accredited by the Army in over 20 years and received seven national and state commendations. Substantial elements of this work derived from my doctoral dissertation and have contributed to my academic research in software and systems engineering, modeling and simulation, intelligent systems, and pedagogy.

Senior Software Engineer / Systems Analyst Principal / Consultant

U.S. Army Materiel Test Directorate, Systems Test and Assessment Directorate, and National Range Directorate, White Sands Missile Range, NM; Holloman Air Force Base, NM; Fort Bliss, TX; and Electronic Proving Ground, Fort Huachuca, AZ

Independent subcontractor under AIK & Associates, Inc., NCI Information Systems, Inc., and United International Engineering, Inc., Sep. 1996–Aug. 2003

Designed, developed, documented, and maintained software for wide range of military applications including critical impact debris simulation and flight safety; pre- and post-mission analysis and reporting systems; special-purpose compilers, interpreters, and runtime systems; report-generation systems; accounting and database management systems; and infrastructure support tools. Served as system administrator and security officer. Supported Missile Defense Agency on THAAD, Patriot/PAC-3, and MLRS systems. Have stayed current in this world through contacts and activities with Alabama Modeling and Simulation Council

other projects omitted above from web version for security

Programmer / Linguist

Computing Research Laboratory, New Mexico State University
Summer 1997–Fall 1998, Summer 1999

Worked on computer-science and linguistic aspects of several large-scale projects for natural language processing and machine translation

Conducted workshop at *1999 Summer School in Language Engineering* (Las Cruces, NM) and contributed to *1997 Conference on Theoretical and Methodological Issues in Machine Translation* and *1997 International Workshop on Spanish Language Processing Technologies* (Santa Fe, NM)

Software Engineer

Industrial Engineering Department, Materials Handling Research Consortium, University of Arkansas, Fayetteville
Fall 1994–Spring 1996

Headed programming team that designed and implemented two versions of software for NSF grant on ergonomic analysis of industrial work environments. Independently designed and implemented software to process real-time biometrics telemetry generated during tool use

Technical Writer

Independently subcontracted to Compendium Corp., Dallas, TX
Fall 1995

Developed tutorials for electrical-engineering educational software

Software Engineer Intern

Siemens, Amberg, Germany
May–Aug. 1993

Independently designed and developed in-house software including online factory directory, inventory management system, and graphical user interfaces

Software Consultant

Dobro Slovo National Slavic Honor Society, Arizona State University
1989–present, on demand

Independently designed, implemented, and continue to support database management system for national membership records, as well as society web page

Miscellaneous*Administrative Assistant*

Dobro Slovo National Honor Society and Department of Foreign Languages, Arizona State University
Fall 1989–Spring 1994

Maintained membership records, handled initiations, and supported computer operations

Camp Counselor

Pionerskij lager' Stroitel' (Pioneer Camp Stroitel), Leningrad, Russia
Summer 1991

Helped plan and execute cross-cultural activities at children's camp

Translator / Interpreter / Editor / Proofreader

Translated, edited, and proofread various English, German, and Russian documents, including several Russian textbooks. Interpreted at miscellaneous events, including Russian-American high-school exchange meetings and Phoenix, AZ television interview

Publications

Refereed Publications in Near-Term Preparation

A Genetic-Algorithm Approach for Automated Test Generation and Execution in Software Engineering Classroom Projects (tentative), 3rd International Conference on Artificial Intelligence and Pattern Recognition, Lodz, Poland, 19–21 Sep. 2016

Refereed Publications in Longer-Term Preparation

This section lists a backlog of work in various stages of preparation for dissemination within the next year or so. All entries are tentatively based on work already started or on infrastructure already in place

A Mechatronic Flight-Simulation Device for a Multidisciplinary System-of-Systems Approach to Studying Software Engineering. 26th International Conference on Systems Engineering, Las Vegas, NV, Sep. 2017

Toward a Multidisciplinary Computer Science Curriculum Through Aviation Themes. American Institute of Aeronautics and Astronautics Pacific Northwest Symposium

Railroad Simulation as Practical But Manageable Exposure to Real-World Multidisciplinary Software Systems Engineering. 46th IEEE Frontiers in Education Conference, Erie, PA, Oct. 2016

Refereed Publications in Review

Model-Driven Design Thinking, Doing, and Cross-Checking for Software Systems Engineering Education. IEEE 4th Workshop on Model-Driven Approaches in System Development, Gdansk, Poland, 11–14 Sep. 2016

Refereed Journal Publications

Tappan, Dan (2014). *A Holistic Multidisciplinary Approach to Teaching Software Engineering Through Air Traffic Control*. *Journal of Computing Sciences in Colleges*, vol. 30, no. 1, pp. 199–205

Tappan, Dan (2009). *ShelbySim: A Transparent, Pedagogy-Oriented Simulator for Computer-Based Systems*. *International Journal of Engineering Education*, vol. 25, no. 4, pp. 755–762

Refereed Conference Proceedings

Tappan, Dan and Josh Czoski* (2016). *Modeling and Simulation of a Mechatronic Test Environment for Inertial Measurement Units*. WorldComp 13th International Conference on Modeling, Simulation and Visualization Methods, Las Vegas, NV, 25–28 July

Tappan, Dan and Matt Hempleman* (2016). *Image Processing for Data Acquisition and Machine Learning of Helicopter Flight Dynamics*. WorldComp 20th International Conference on Image Processing, Computer Vision, and Pattern Recognition, Las Vegas, NV, 25–28 July

Tappan, Dan (2016). *A Data Analytics Approach to a Computer Science Senior Capstone Project Management Tool*. WorldComp 12th International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, 25–28 July

Tappan, Dan (2016). *Experiencing Real-World Multidisciplinary Software Systems Engineering Through Aircraft Carrier Simulation*. American Association for Engineering Education Conference, New Orleans, LA, 26–29 June

Tappan, Dan (2016). *A Meta-Case Study of Modeling, Simulation, Visualization, and Analysis for Real-World Software Systems Engineering Education*. Alabama Modeling and Simulation Council International Conference and Exposition, Huntsville, AL, 3–5 May

Tappan, Dan (2015). *A Quasi-Network-Based Fly-by-Wire Simulation Architecture for Teaching Software Engineering*. 45th IEEE Frontiers in Education Conference, El Paso, TX, 21–24 Oct.

Tappan, Dan (2014). *A Holistic Multidisciplinary Approach to Teaching Software Engineering Through Air Traffic Control*. 16th Annual Consortium for Computing Sciences in Colleges Northwestern Regional Conference, Spokane, WA, 19–20 Oct.

Tappan, Dan (2014). *Multiagent Test Range: Fostering Disciplined Software Engineering Practices in Students via Modeling, Simulation, Visualization, and Analysis*. Alabama Modeling and Simulation Council International Conference and Exposition, Huntsville, AL, 6–7 May

Tappan, Dan and Matt Hempleman* (2014). *Toward Introspective Human Versus Machine Learning of Simulated Airplane Flight Dynamics*. 25th Modern Artificial Intelligence and Cognitive Science Conference, Spokane, WA, 26 Apr.

Tappan, Dan (2013). *Student-Friendly Java-Based Multiagent Event Handling*. Association for the Advancement of Artificial Intelligence, Bellevue, WA, 14–18 July

Tappan, Dan and Tiffany Blount* (2011). *Modeling and Simulation as a Quantitative Pedagogical Approach to Teaching E-Commerce to Diverse Audiences*. WorldComp International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government, Las Vegas, NV, 18–21 July

Tappan, Dan (2009). *A Hybrid Systems-Engineering Framework for Holistic, Agent-Based Simulation*. Huntsville Simulation Conference, Huntsville, AL, 27–29 Oct.

Tappan, Dan (2009). *ShelbySim: A Holistic Pedagogy-Oriented Simulator for Computer-Based Systems*. 39th IEEE Frontiers in Education Conference, San Antonio, TX, 18–21 Oct.

Tappan, Dan (2009). *Pedagogy-Oriented Software Modeling and Simulation of Component-Based Physical Systems*. 21st Annual Conference on Software Engineering and Knowledge Engineering, Boston, MA, 1–3 July

Tappan, Dan (2009). *A Pedagogy-Oriented Modeling and Simulation Environment for AI Scenarios*. WorldComp International Conference on Artificial Intelligence, Las Vegas, NV, 13–16 July

Tappan, Dan (2009). *Pragmatic Scenario Inference on Static Spatial Configurations*. International Joint Conference on Artificial Intelligence Workshop on Spatial and Temporal Reasoning, Pasadena, CA, 11–17 July

Tappan, Dan (2008). *Knowledge-Based Spatial Reasoning for Scene Generation from Text Descriptions*. Association for the Advancement of Artificial Intelligence, Chicago, IL, 13–17 July

Tappan, Dan (2008). *Monte Carlo Simulation for Plausible Interpretation of Natural-Language Spatial Descriptions*. WorldComp International Conference on Artificial Intelligence, Las Vegas, NV, 14–17 July

Tappan, Dan (2008). *Augmentation of Explicit Spatial Configurations by Knowledge-Based Inference on Geometric Fields*. 2nd International Conference on Knowledge Generation, Communication and Management, Orlando, FL, 29 June–2 July; awarded best paper of session

Tappan, Dan (2004). *Knowledge-Based Spatial Constraint Satisfaction*. Florida Artificial Intelligence Research Society International Conference, Special Track on Spatio-Temporal Reasoning, Miami Beach, FL, 17–19 May

Tappan, Dan (2002). *Toward Automated Scene Generation from Textual Descriptions*. Fifth Conference of High Desert Linguistics Society, Albuquerque, NM, 1 Nov.

Tappan, Dan (2001). *A Knowledge-Driven, Constraint-Based Inference Mechanism for Semantic Analysis of Sentence Structures*. Fourth Conference of High Desert Linguistics Society, Albuquerque, NM, 30–31 Mar.

Tappan, Dan (2000). *A Simplicity-Based Interactive Machine Translation System for Conversational Domains*. Third Conference of High Desert Linguistics Society, Albuquerque, NM, 7–9 Apr.

Tappan, Dan (1999). *Using Multiple Machine Translation Packages to Produce ‘Averaged’ Results*. Second Conference of High Desert Linguistics Society, Albuquerque, NM, 27–29 Mar.

Mengel, Susan and Dan Tappan (1995). *Program Design in File Structures*. ASEE/IEEE Frontiers in Education Conference, Atlanta, GA, 1–4 Nov.

*student co-author

Refereed Conference Presentations Without Formal Proceedings

Tappan, Dan (2008). *A Transparent, Pedagogy-Oriented Compiler for Computer-Based Systems*. American Society for Engineering Education northwest region spring meeting, Cheney, WA, 26 Apr.

Tappan, Dan and Joyce Engle (2005). *The AMSAA SURVIVE Model*. U.S. Army 16th Annual Ground Vehicle Survivability Symposium, Monterey, CA, 11–15 Apr.

Tappan, Dan (1998). *Ontological Representation of Implicit World Knowledge in Natural Language Processing*. Association for Computing Machinery regional conference, El Paso, TX, 27 Mar.

Tappan, Dan (1997). *A Connectionist Approach to Grammaticality Determination in Natural Language Learning*. Association for Computing Machinery regional conference, Albuquerque, NM, 7 Nov.

Tappan, Dan (1997). *Toward a Machine Translation Method for German Compound Technical Nouns*. Association for Computing Machinery regional conference, Las Cruces, NM, 2 May; awarded as best paper of conference

Tappan, Dan (1996). *A Brute-Force Machine Translation Method for a Restricted Class of Russian Sentences*. Association for Computing Machinery regional conference, Albuquerque, NM, 25 Oct. awarded as runner-up for best paper of conference

Refereed Conference Poster Presentations

Tappan, Dan (2016). *A Data Analytics Approach to a Computer Science Senior Capstone Project Management Tool*. WorldComp 12th International Conference on Frontiers in Education: Computer Science and Computer Engineering, Las Vegas, NV, 25–28 July 2016

Tappan, Dan and Matt Hempleman* (2016). *Image Processing for Data Acquisition and Machine Learning of Helicopter Flight Dynamics*. EWU Successful Mentoring, Administration, Advising, Arts, Research, and Teaching Symposium, Cheney, WA, 16 May

Tappan, Dan (2013). *Student-Friendly Java-Based Multiagent Event Handling*. Association for the Advancement of Artificial Intelligence, Bellevue, WA, 14–18 July

Tappan, Dan (2008). *Knowledge-Based Spatial Reasoning for Scene Generation from Text Descriptions*. Association for the Advancement of Artificial Intelligence, Chicago, IL, 13–17 July

Tappan, Dan (2008). *A Pedagogical Framework for Modeling and Simulating Intelligent Agents and Control Systems*. Association for the Advancement of Artificial Intelligence, Chicago, IL, 13–17 July

Tappan, Dan (2003). *A Framework for Scene Generation from Spatial Descriptions*. Third Conference of the New Mexico Alliance for Graduate Education and the Professoriate, Socorro, NM, 11–13 Sep.

Tappan, Dan (2003). *Text-Based Scene Generation*. NMSU Graduate Research and Arts Symposium, Las Cruces, NM, 15 Apr.

Tappan, Dan (2002). *Simulated Effects of Communication Deficiencies on Pilot Situational Awareness in a Non-Towered Airport Environment*. NMSU Graduate Research and Arts Symposium, Las Cruces, NM, 17 Apr.

Tappan, Dan (2001). *Simulated Effects of Language-Related Communication Errors on Fault Tolerance in Air Traffic Control*. NMSU Graduate Research and Arts Symposium, Las Cruces, NM, 27 Apr.

Tappan, Dan (2000). *Analysis of Common Errors from Machine Translation Software*. NMSU Graduate Research and Arts Symposium, Las Cruces, NM, 19 Apr.

Tappan, Dan (1999). *Pseudo-Parallel Execution of Machine Translation Software as a Means of Improving Output Quality and Fault Tolerance*. NMSU Graduate Research and Arts Symposium, Las Cruces, NM, 21 Apr.

*student co-author

Refereed Conference Demonstrations

Tappan, Dan (2008). *A Pedagogical Framework for Modeling and Simulating Intelligent Agents and Control Systems*. Association for Advancement of Artificial Intelligence Colloquium on AI Education, Chicago, IL, 13–17 July

Tappan, Dan (2008). *Knowledge-Based Spatial Reasoning for Scene Generation from Text Descriptions*. Association for Advancement of Artificial Intelligence Intelligent Systems Demonstrations, Chicago, IL, 13–17 July

Refereed Technical Reports

Tappan, Dan (2008). *A Pedagogical Framework for Modeling and Simulating Intelligent Agents and Control Systems*. Technical Report WS-08-02, AAAI Press

Miscellaneous Technical Reports

Nichols, Tor, William Horton, and Dan Tappan (2005). *The SURVIVE Analysts Guide*. U.S. Army Materiel Systems Analysis Activity (AMSAA) internal documentation

Tappan, Dan (2001). *Knowledge Representation for Natural Language Processing*. Computing Research Laboratory, New Mexico State University

Miscellaneous Publications

Tappan, Dan (2004). *Knowledge-Based Spatial Reasoning for Automated Scene Generation from Text Descriptions*. Doctoral Dissertation, New Mexico State University Libraries

Tappan, Dan (1996). *A Russian-to-English Translation System for Scientific Abstracts*. Master's Thesis, University of Arkansas Libraries

Miscellaneous Publication Collaborations and Acknowledgments

Michele Brumley, Megan Roberto, Misty Strain (2012). *Sensory feedback modulates quipazine-induced stepping behavior in the newborn rat*. *Behavioural Brain Research* 229, pp. 257–264

Lundeen, Rich, and Charles Burns (2009). *Simplified Single Packet Authorization*. WorldComp International Conference on Security and Management, Las Vegas, NV

Wiebe, Janyce (2000). *Learning Subjective Adjectives from Corpora*. 17th National Conference on Artificial Intelligence, American Association for Artificial Intelligence, Austin, TX

Méndez-Mateos, José Enrique (1998). *Design and Implementation of an Advising and Degree Audit System*. Master's Thesis, New Mexico State University Libraries

Keller, Charles (1997). *The Tide Disambiguation Support System (TiDSS)*. Master's Technical Project, Computing Research Laboratory, New Mexico State University

Kupriyanova, Elena K. and I. A. Jirkov (1997). *Serpulidae (Annelida, Polychaeta) of the Arctic Ocean*. *Sarsia* 82(3), pp. 203–236

Kupriyanova, Elena K. (1995). *Biotic Interactions between Benthic Macroinvertebrates and Largemouth Bass (Macropterus salmoides) during the Fish Reproductive Period in Lake Wedington, Arkansas, U.S.A.* Master's Thesis, University of Arkansas Libraries

Dime, Mary Michele (1995). *The Development and Implementation of a Computer-Based Job Analysis System to Reduce Cumulative Trauma Disorders*. Master's Thesis, University of Arkansas Libraries

Yoder, Timothy (1994). *Der Singende Baum [The Singing Tree]*. Master's Thesis, Arizona State University Libraries

Collaborative, Synergistic, and Miscellaneous Scholarly Work

Development and deployment of integrated learning management system at shelby.ewu.edu built around my teaching philosophy and approach and used for data analytics in pedagogy research; Fall 2012–present

Non-funded member with Michele Brumley in ISU Neuroscience on infant-rat experimentation treadmill for \$164,000 NIH grant. My contribution was to the entire system (see shelby.ewu.edu/research/rat). Fall 2009–Summer 2011

Non-funded member with Nuri Omar in ISU Chemistry on automated pellet press for preparing infrared-spectroscopy samples (see shelby.ewu.edu/research/press). Fall 2009–Spring 2011

Non-funded member with Nicole Prause in ISU Psychology on study of male arousal resulting from viewing erotic imagery while under the influence of alcohol (see shelby.ewu.edu/research/sensor). My contribution was to the electromechanical aspects of the data-acquisition system. Summer 2009–Summer 2010

Non-funded member with Ken Rodnick and Curt Anderson in Biology and Alpine Animal Hospital on ISU grant to design and build combination flotation tank and treadmill for veterinary hydrotherapy rehabilitation of dogs. My in-kind contribution was at least 400 hours on the drive, heating, and control systems, as well as National Electrical Code compliance (see shelby.ewu.edu/research/aquadog). I was approached too late to be added as a co-PI, but my engineering contribution was actually by far the largest on the grant. I also helped fund undergraduate student Hollie Chivers \$1,200 on this project through the ISU Undergraduate Research Committee, and she (and my dog) later won first place for it at the ISU 2010 Undergraduate Research Symposium. Fall 2008–Summer 2011

Non-funded member of ISU Planetary Working Group, a highly multidisciplinary team assembled to coordinate with NASA on a wide range of potential space-related exploration applications and tasks. Spring 2007–Summer 2010

Non-funded member of collaborative effort between ISU geospatial sciences, history, and computer science to develop software to track and analyze historical trends in geography, geology, and demographics, Spring 2007–Spring 2008

Participant in Air Force Research Laboratory simulation and study of airplane and helicopter crew resource management. New Mexico State University Department of Psychology, Fall 1998

Developer of Russian-language support software for Department of Foreign Languages, Arizona State University, Spring 1989–Spring 1994

Also see over two dozen recent real-world projects that holistically integrate computer science, electrical and mechanical engineering, and fabrication and interweave throughout my teaching, research, and service; see shelby.ewu.edu/research

Conference Attendance Without Publication or Presentation

Advancing Public-Private Partnerships in Aerospace, Joint Center for Aerospace Technology Innovation second annual research symposium, Pullman, WA, Apr. 2014

New Mexico Higher Education Assessment and Retention Conference, Albuquerque, NM, Feb. 2012

Conference on Research Integrity, Pocatello, ID, Oct. 2005

Science, Engineering, and Technology Education Conference, Las Cruces, NM, Jan. 2004

Language, Logic, and Logistics: Agent Modeling and Cross-Disciplinary Discourse, Las Cruces, NM, Jan. 2002

Conferences of the Association for Computational Linguistics, College Park, MD, July 1999; Seattle, WA, Apr. 2000; Toulouse, France, July 2001

Theoretical and Methodological Issues in Machine Translation, Santa Fe, NM, July 1997

International Workshop on Spanish Language Processing Technologies, Santa Fe, NM,
July 1997

Grants, Contracts, and Proposals

Funded: approx. \$131,300

Active: \$4,295

“Adaptive Electromechanical Stability Control for Model Aircraft.” EWU Faculty Research Grant. July 2016–June 2017. Funded \$4,295 for model-airplane components and fabrication materials and equipment for hexapod gimbal and gyroscopic stability system (see shelby.ewu.edu/research/hexapod)

Completed: approx. \$127,000

“An Exploratory Framework for Introspective Machine Learning of Helicopter Flight Dynamics.” EWU Faculty Research Grant. July 2014–June 2015. Funded \$5,245 for equipment and 20+ hours of Robinson R22 and R44 helicopter flight time; directly contributed to Matt Hempleman’s master’s thesis *Image Processing for Machine Learning of Helicopter Flight Dynamics* (see shelby.ewu.edu/research/uav) and indirectly to Josh Czoski’s *A Violin Practice Tool Using 9-Axis Sensor Fusion* (see shelby.ewu.edu/research/bow)

NSF EPSCoR Faculty Leadership Workshop Award, Jemez Springs, NM, Jan. 2012.
Funded \$600

Liaison to Early College Program for computer science and engineering in Idaho Snake River School District. AY08 awarded \$1,250; AY09 \$575

“Robotics and Engineering in the K–12 Classroom.” NASA EPSCoR (Idaho Space Grant Consortium) Special Project Grant. PI: Larry Stout; co-PIs: Steve Chiu, Mike Ellis, Dan Tappan. Mar. 2007. Funded \$4,988 over one year

“Middle School Engineering Math.” Idaho Snake River School District grant for continuing-education training of mathematics teachers under No Child Left Behind Act. First award May 2006, renewed May 2007. PI: Dan Tappan. Funded \$23,256 over two years; concurrent with separate College of Education grant with PI David Coffland

“Cooperative Robotic Sensor Platform.” NASA EPSCoR (Idaho Space Grant Consortium) Research Initiation Preparation Grant. PI: Larry Stout; co-PIs: Steve Chiu, Dan Tappan. Apr. 2006. Funded \$14,489 over one year

AMI Semiconductor (now ON Semiconductor) short course on Java and XML for microcontroller and embedded-systems testing. PI: Dan Tappan. Nov. 2005. Funded \$2,840 over four weeks

Department of Education GAANN (Graduate Assistance in Areas of National Need) Doctoral Research Fellowship, Aug. 1998. Funded approx. \$75,000 over four years

Unfunded: approx. \$22,264,400

“Diversity and Outreach in Cyber Education.” NSF Federal Cyber Service: Scholarship for Service (NSF 12-531). PI: Dan Tappan; co-PIs: Gerald Burgess, Doug Medin. Feb. 2012. Requested \$186,876 over three years

“Vámonos a STEM [*Let’s Do STEM*].” US Department of Education Title V Hispanic-Serving Institutions STEM Program. PI: Beth Walker; numerous WNMU co-PIs. Apr. 2011. Requested \$4,293,650 over five years

“Collaborative Research: SFS Information Assurance Capacity Building with Western New Mexico University and Albany State University.” NSF Federal Cyber Service: Scholarship for Service (NSF 11-506). PI: Dan Tappan; co-PIs: Gerald Burgess, Doug Medin, Virginia Huegel, and DeAnne Miller. Feb. 2011. Requested \$120,000 over two years

“A Cost-Effective Automated Pellet Press for Preparing Infrared-Spectroscopy Samples.” ISU Faculty Research Committee. PI: Dan Tappan; co-PIs: Nuri Omar and Mary Hofle. Fall 2009. Requested \$1,750 over one year

“Instruction Modules that Focus on Critical Mathematics Concepts and Receptive Mathematics Language Learning.” Department of Education. PI: Al Strickland; co-PIs: Jane Strickland, Shane Moulton, David Coffland, Ken Bosworth, Mary Hofle, and Dan Tappan. Oct. 2008. Requested \$1,400,000 over three years

“Screen Interactive Database for Aggregate Sources Used in ITD Projects.” Idaho Transportation Department. PI: Habib Sadid; co-PI: Dan Tappan. Nov. 2007. Requested \$85,009 over one year

“Wireless Networked Sensor System for Environmental Monitoring of Residential and Commercial Buildings.” Idaho State Board of Education Small Research Grant. PI: Larry Stout; co-PIs: Steve Chiu, Dan Tappan. Apr. 2007. Requested \$50,000 over one year

“An Interactive, Pedagogy-Oriented Simulator for Comprehensive Analysis, Design, and Implementation of Computer-Based Systems.” Idaho Technology Incentive Grant. PI: Dan Tappan. Apr. 2007. Requested \$16,400 over one year

“Distributed Robotic Multi-Platform Imaging and Control.” NASA EPSCoR (Idaho Space Grant Consortium) Research Initiation Preparation Grant. PI: Larry Stout; co-PIs: Steve Chiu, Mike Ellis, Dan Tappan, Brian Williams. Dec. 2006. Requested \$286,695 over three years

“Temporal and Spatial Reasoning Methodologies to Improve Noisy Multiple-Source Intelligence Algorithms.” Air Force Research Laboratory Information Directorate. PI: Dan Tappan; co-PI: Heather Pfeiffer. Dec. 2006. Requested \$725,000 over three years

“Simulation of Friction Stir Processing.” Department of Energy SciDAC (Scientific Discovery through Advanced Computing) Grant. Lead institution: Idaho National Laboratory (PI: Charles Tolle). Supporting institutions: Massachusetts Institute of Technology, South Dakota School of Mines and Technology, and Idaho State University (PI: Ken Bosworth; co-PIs: Steve Chiu and Dan Tappan). Mar. 2006. Requested \$15,000,000 over five years

In Review: \$0

None

In Preparation: Approx. \$65,000

NSF GenCyber cybersecurity summer camp for high school students: gen-cyber.com. PI: Dan Tappan; co-PI: Stu Steiner, others TBD. Expected request approx. \$65,000 for one year

Cybersecurity project TBD. Collaborative Research Experiences for Undergraduates, Computing Research Association – Women: cra.org/cra-w/creu. PI: Dan Tappan; co-PI: Stu Steiner, others TBD. Budget TBD

In Consideration: approx. \$45,000

EWU Start Something Big grant with Charlie Cleanthous in Psychology to build full-motion cockpit simulator for coursework and studies on crew resource management. Budget to be determined

Joint Center for Aerospace Technology Innovation funding in support of seed grant, mainly for airplane and helicopter flight time, plus additional hardware, with goal of developing genetic algorithms for machine learning of flight maneuvers; see shelby.ewu.edu/research. Expected request approx. \$25,000 for one year

"An interactive approach to mining student intentions, actions, results, and responses in computer-literacy courses." Gates Foundation Next Generation Learning Challenges. PI: Dan Tappan; co-PI: Rob Lemelin. Expected request approx. \$20,000 for one year; postponed due to still undefined changes expected in computer-literacy curriculum

Consulting

Engineering consultant for Psi Star Solutions, Pocatello, ID, Feb. 2017–present

Eastern Washington University Office of Community Engagement beta-tester for deployment of UJoiner project-management software, AY14, funded \$500

Eastern Washington University Office of Information Technology personnel development and mentoring for software engineering and web applications, Apr. 2013–May 2014, negotiated \$4,000 but conducted pro bono

Horton Technical Associates, Inc., Las Cruces, NM, for U.S. Army Research Laboratory, Army Materiel Systems Analysis Activity, Aberdeen Proving Ground, MD, July 2005–May 2006, funded approx. \$23,000

AMI Semiconductor (now On Semiconductor) short course on Java and XML for microcontroller and embedded-systems testing, Nov. 2005, funded \$2,840

AIK & Associates, Inc., NCI Information Systems, Inc., and United International Engineering, Inc., for U.S. Army Materiel Test Directorate, Systems Test and Assessment Directorate, and National Range Directorate, Flight Safety, White Sands Missile Range, NM, Fort Bliss, TX, and Electronic Proving Ground, Fort Huachuca, AZ, Sep. 1996–Aug. 2003, funded approx. \$225,000

Compendium Corp., Dallas, TX, Fall 1995, funded approx. \$500

Dobro Slovo National Slavic Honor Society at Arizona State University, Fall 1989–present, funded approx. \$1,500

Total: approx. \$257,340

Licenses, Ratings, and Certifications

Accreditation Board for Engineering and Technology (ABET) Program Evaluator for Computing Accreditation Commission (CAC), Mar. 2017–present

Certified Systems Engineering Professional (CSEP) granted by International Council on Systems Engineering (INCOSE), expected fall 2017

Certified Modeling and Simulation Professional (CMSP Practitioner) granted by Modeling and Simulation Professional Certification Commission and National Training and Simulation Association, expected fall 2017

Modeling and Simulation Professional Certificate; University of Alabama, Huntsville professional development program; 56 hours/5.6 CEUs*: *Fundamentals of Modeling & Simulation; Developing Simulations; Simulation Verification, Validation, and Accreditation; and Systems Analysis, Modeling, and Simulation*; Apr. 2017

Systems Engineering Professional Certificate; Massachusetts Institute of Technology professional development program *Architecture and Systems Engineering: Models and Methods to Manage Complex Systems*; 85 hours/8.5 CEUs*: *Architecture of Complex Systems; Models in Engineering; Model-Based Systems Engineering: Documentation and Analysis; and Quantitative Methods in Systems Engineering*; Aug. 2017

Applied Systems Engineering Certificate; University of Alabama, Huntsville coursework; 70 hours/7.0 CEUs*: *Systems Engineering Overview; Requirements Development; Applied System Design and Decision Making; System Validation and Verification; and Systems Analysis, Modeling, and Simulation*; expected fall 2017

Test and Evaluation Certificate; University of Alabama, Huntsville coursework; 77 hours/7.7 CEUs*: *Test and Evaluation Foundation; Requirements Development; Data Collection, Analysis and Reporting; and Test Design, Planning and Conduct; and System Validation and Verification*; expected fall 2017

**continuing education units, certified credits for certification/licensure renewal*

Passed Goethe Institute *Zentrale Oberstufenprüfung* for German proficiency, Apr. 1993; equivalent to at least Common European Framework of Reference for Languages CEFR Level C1 (5 of 6, C2 highest)

Private pilot FAA rated airplane single-engine land (high-performance, complex, high-altitude, tailwheel, and B-25 SIC ground endorsements), airplane multiengine land, airplane single-engine sea, glider, rotorcraft helicopter (Robinson R22 and R44 endorsements), and commercial unmanned aircraft systems; varied training and experience at civilian and military levels with aerobatic, turbine, gyrocopter, warbird, jet fighter, ultralight, weight-shift trike, parasail, hot air balloon, skydiving, wind tunnel, hypobaric altitude chamber, weightlessness/microgravity (NASA “Vomit Comet”), and crew resource management activities; airplane single-engine instrument and commercial single-engine airplane and commercial helicopter ratings in progress; co-owner of Cessna 182 N8465M, previously N2870Y and N8534T; second-class commercial medical certificate, expiration Dec. 2017 (see shelby.ewu.edu/research/flying)

Academy of Model Aeronautics approved for radio-controlled airplanes (including large scale), helicopters, and drones

See also Professional Development/Continuing Education on page 25

other entries omitted from web version for security

Awards, Honors, and Miscellaneous

Eastern Washington University *Excellence in Teaching and Mentoring* recognition, Apr. 2015

Idaho State University *Master Teacher* award in first year of eligibility; chosen by students, faculty, staff, and alumni from 46 candidates, AY 09

Best paper of session award, Second International Conference on Knowledge Generation, Communication and Management, Orlando, FL, July 2008

Inducted into Sigma Xi Scientific Honor Society, Apr. 2007

Inducted into Tau Beta Pi Engineering Honor Society as Eminent Engineer, Nov. 2006

Outstanding Performance Certificates of Recognition, NCI Information Systems, Inc., White Sands Missile Range, Nov. 2000, Sep. 2002, May 2003

Garrison Commander’s Letter of Appreciation, White Sands Missile Range, Aug. 2002

GAANN (Graduate Assistance in Areas of National Need) Doctoral Research Fellowship, Fall 1998–2001

Best paper of conference, Association for Computing Machinery regional conference, Las Cruces, NM, May 1997

Personal and team honors as architect and team leader of modeling-and-simulation system for Army Future Combat Systems program, Aug. 2003–May 2006:

First analysis tool accredited for its purpose by the U.S. Army in over 20 years

National commendation by Director of Army Training and Doctrine Command Analysis Center

Certificate of Appreciation by Department of the Army

Statewide commendation as leading technology firm by New Mexico Flying 40

Finalist for Best Solution Custom Software by New Mexico Technology and Software Association

Finalist for Best Solution Integrated Systems by New Mexico Technology and Software Association

Selection as protégé firm by Sandia National Laboratory and Science Applications International Corporation

other entries omitted from web version for security

Professional Memberships and Affiliations

Artificial Intelligence / Natural Language Processing

Association for the Advancement of Artificial Intelligence

Association for Computational Linguistics

Computer Science and Engineering / Education

International Council on Systems Engineering

Association for Computing Machinery

Special Interest Groups: Artificial Intelligence, Simulation and Modeling,
Computer Science Education

Institute of Electrical and Electronics Engineers

Special Interest Groups: Aerospace and Electronic Systems Society, Computational Intelligence Society, Computer Society, Education Society

Society for Modeling and Simulation

American Association for Engineering Education

Consortium for Computing Sciences in Colleges

Alabama Modeling and Simulation Council

Miscellaneous

Sigma Xi Scientific Honor Society

Tau Beta Pi Engineering Honor Society, Eminent Engineer

Dobro Slovo National Slavic Honor Society

Also subscribe to over three dozen popular magazines ranging across these areas and others, which contribute daily in lecture to endless case studies and contemporary real-world examples and assignments:

AAAI AI Magazine, ACM Communications, Air & Space, AOPA Pilot, Archaeology, ASEE Computers in Education Journal, ASEE Prism, Aviation History, Aviation Week, Circuit Cellar, Computing Edge, Digital Machinist, Discover, Elektor (German edition), Flight Journal, Flying, Focus, Home Shop Machinist, IEEE Instrumentation and Measurement, IEEE Spectrum, IEEE Transactions on Aerospace and Electronics System, IEEE Transactions on Education, Journal of Computing Sciences in Colleges, Machinist's Workshop, Make, Military History, Model Aviation, National Geographic, National Geographic Traveler, Natural History, Nuts & Volts, Plane & Pilot, Popular Mechanics, Popular Science, Science Focus, Science News, Science World, Scientific American, Servo, Smithsonian, Soaring, Sport Aviation, The Economist, The Week, Time, Transactions on Techniques in STEM Education, UAS Magazine, USA Today, Wired, World War II

Service / Administrative

National / International

EWU

Panelist, Department of Defense National Defense Science and Engineering Graduate Fellowship, Feb. 2018

Panelist, Department of Defense National Defense Education Program, SMART (Science, Mathematics & Research for Transformation) Fellowship, Jan. 2018

Reviewer, 2017 World Symposium on Computer Applications and Research, Istanbul, Turkey

Reviewer and panelist, NSF Graduate Research Fellowship Program, Nov. 2016, Jan. 2017

Reviewer, 2017 ASEE Annual Conference and Exposition, Aerospace, Computers in Education, Electrical Engineering, Multidisciplinary Engineering, and Systems Engineering Divisions, Columbus, OH

Reviewer, 2016 Third International Conference on Artificial Intelligence and Pattern Recognition, Lodz, Poland

Reviewer, 2016 IEEE Frontiers in Education Conference, Erie, PA

Reviewer, 2016 ASEE Annual Conference and Exposition, Software Engineering, Systems Engineering, and Aerospace Divisions, New Orleans, LA

Reviewer, 2015 Annual Consortium for Computing Sciences in Colleges Northwestern Regional Conference, Seattle, WA

Reviewer, 2015 International Symposium on Women in Computing and Informatics, Kerala, India

Reviewer and session chair, 2015 IEEE Frontiers in Education Conference, El Paso, TX

Coordinator, abstract reviewer, session chair, moderator, and project sponsor for 2015 National Conference on Undergraduate Research, Cheney, WA

Member of organizing committee and professional development committee, promotional liaison, reviewer, and session chair, Alabama Modeling and Simulation Council International Conference and Exposition, Huntsville, AL, 2014–present

Judge of student poster presentations, 2014 Annual Consortium for Computing Sciences in Colleges Northwestern Regional Conference, Spokane, WA

Session chair, 2014 Alabama Modeling and Simulation Council International Conference and Exposition, Huntsville, AL

EWU institutional representative, Alabama Modeling and Simulation Council, Apr. 2014–present

Reviewer, 2014 IEEE Frontiers in Education Conference, Madrid, Spain

Reviewer, 2013 American Society for Engineering Education Conference, Atlanta, GA

Reviewer, 2013 IEEE Frontiers in Education Conference, Oklahoma City, OK

WNMU

Reviewer, 2011 IEEE Frontiers in Education Conference, Rapid City, SD

Reviewer, 2010 IEEE Frontiers in Education Conference, Alexandria, VA

Reviewer, 2010 International Multi-Conference on Complexity, Informatics and Cybernetics, Orlando, FL

ISU

Reviewer, 2009 IEEE Conference on Networked Digital Technologies, Ostrava, Czech Republic

Reviewer, 2009 and 2010 International Symposia on Management, Engineering, and Informatics, Orlando, FL

Reviewer, 2009 International Symposium on Peer Reviewing, Orlando, FL

Session chair, 2009 21st Annual Conference on Software Engineering and Knowledge Engineering, Boston, MA

Member, program committee, 2009 IEEE Conference on Software Engineering Research, Management and Applications, Hainan Island, China

Reviewer, 2009 IEEE Frontiers in Education Conference, San Antonio, TX

Reviewer, 2009 Association for the Advancement of Artificial Intelligence Doctoral Consortium, Pasadena, CA

Reviewer, 2009 International Conference on Knowledge Generation, Communication and Management, Orlando, FL

ISU institutional representative (as Chair of Undergraduate Research Committee), National Council on Undergraduate Research, AY08

Member, program committee, 2008 IEEE Symposium on Signal Processing and Information Technology, Sarajevo, Bosnia-Herzegovina

Reviewer and preliminary editor, *Advanced Undergraduate Applied Mathematical Techniques for Engineering and Science* by Ken Bosworth, 2008

Session chair, 2008 International Conference on Knowledge Generation, Communication and Management, Orlando, FL

Reviewer, 2003–2009 World Multiconferences on Systemics, Cybernetics and Informatics, Orlando, FL

Reviewer, *Data Structures and Algorithms in C++*, 3rd Edition, by Adam Drozdek, Jan. 2007

Session chair, 2004 Florida Artificial Intelligence Research Society International Conference, Miami Beach, FL

Reviewer, 2004 Hawaiian International Conference on Computer Sciences, Honolulu, HI

University

EWU

Member, College of Science, Technology, Engineering, and Mathematics Associate Dean search committee, W17

Session chair, EWU Successful Mentoring, Administration, Advising, Arts, Research, and Teaching Symposium, May 2016

Computer science representative for German study-abroad and internship program with University of Ingolstadt, Sep. 2016–present

Computer science representative for German internship program with ZF Friedrichshafen and the University of Passau, May 2014–present; exploratory trip July 2015

Sponsored eight student posters at Research and Creative Works Symposium, May 2014

Faculty Senator for College of Science, Technology, Engineering, and Math, AY15

Faculty Senator for College of Health, Science, and Engineering, AY14

Alternate Faculty Senator for College of Health, Science, and Engineering, AY13

Office of Information Technology personnel development and mentoring for software engineering and web applications, Apr. 2013–Dec. 2013

Member, Office of Information Technology development manager search committee, S13

Third member of master's defenses for Anthony Baraconi (Math) and James Hinz (Health Informatics Technology and Management), S13, Amanda Swan (Communication Studies), S16

Volunteer for helping establish international student opportunities with Office of Global Initiatives, F12–present

Beta-tester for Office of Community Engagement on deployment of UJoiner project-management software, W14–S14

WNMU

Faculty advisor for outgoing transfer students in engineering, AY11

Member, Assessment Convocation Subcommittee, AY11

Member, Online Course Design Committee, AY11

Member, Assessment Committee, AY10–11

Member, Graduate Monitoring Committee, F10, AY11

ISU

Faculty Advisor, Dragon's Den Gaming Association, AY09

Chair and College of Engineering Representative, Undergraduate Research Committee, AY08

Member, Graduate Research Faculty, nominated AY08

Faculty Advisor, Student Chapter of the Association for Computing Machinery, AY06–07

Member, Academic Dishonesty Board, AY06–09

Member, Enterprise Resource Planning Communication Advisory Committee, S08

Member, Research Coordinating Council, S08, AY08

Vice Chair and College of Engineering Representative, Undergraduate Research Committee, AY07

College of Engineering Representative, Undergraduate Research Committee, AY06, AY09

Member, Recruitment Committee for Math, Science, and Engineering, AY06

Member, Enrollment Planning Task Force Retention Committee, AY06

College

EWU

Co-led student trip to Pacific Northwest National Laboratory, exp. 2017

Developed and coordinated pilot interdisciplinary capstone courses across the Computer Science, Electrical Engineering, and Mechanical Engineering programs, W15–present

Conducted student trip to Microsoft and Nintendo headquarters with EWU Career Services to support women in computing, Apr. 2014

Reviewer of resumes at Career Services workshops and related events, F12–present, many throughout the year

Conducted CS/EE/ME student trip to Boeing Everett plant with EWU Career Services to help establish internship opportunities, May 2013

Contributor to Career Services Career Mentoring Program, May 2013–present

Co-coordinator for Interview IQ workshops connecting students with local employers, 2013–present

ISU

Member, Tenure and Promotion Review Committee, AY07, F08, AY09

Member, Engineers Week Activity Committee, AY07–08

Member, College of Engineering Computer User Advisory Committee, AY07

Teaching evaluator for three-year faculty review of Steve Chiu, F07

Member, Nuclear Engineering Chair Hiring Committee, AY06

Member, Pre-Engineering Advisory Board, AY06

Member, Computer Science System Administrator Hiring Committee, F06
Member, Tenure and Promotion Revision Committee, AY05
Member, Nuclear Engineering Faculty Hiring Committee, AY05
Member, College Scholarship Committee, AY05
Member, Promotion Review Committee for Solomon Leung, F05
Supported activities during Engineers Week, Feb. 2006–2010
Represented college at Career Fair, Apr. 2006–2010
Represented college at High Honors Progressive Reception, Oct. 2007–2009
Represented college at College Majors and Graduate School Fair, Oct. 2005–2009
Represented college at Idaho National Laboratory Science and Engineering Expos, Sep. 2006–2007
Represented college at Tech Expos, Mar. 2006–2009
Represented college at AMI SEMI High Tech U. Program, Oct. 2006
Supported activities at Engineering Day, Sep. 2005–2007

Department / Lab

EWU

Mentored undergraduate Rob Humpres' project "TBD" at Research and Creative Works Symposium, May 2017
Scholarship evaluator, Grace Hopper Celebration of Women in Computing conference, Mar. 2017
Accreditation Board for Engineering and Technology (ABET) Program Evaluator for Computing Accreditation Commission (CAC), Jan. 2017–present
Faculty sponsor of Mechanical Engineering Rocketry Club and Baja Challenge, 2015–present
Co-led student trip to Google headquarters for *Passport to Google* career preparation program, Sep. 2016
Judge for SkillsUSA programming competition, Cheney, WA, Jan. 2015, 2016, 2017
Teaching evaluator for faculty review of Shamima Yasmin, Brian Kamp, Tony Tian, and Stu Steiner, AY16
Chair, Department Personnel Committee, AY16–present; AY15 member
Graduate Program Director, AY14–present
Chair, CS tenure-track hiring committee, AY14
Mentor for Stu Steiner on development and delivery of CSCD 488/490 Senior Project/Capstone, CSCD 500 Graduate Colloquium, and CSCD 555 Graduate Research Methods, which consolidated to CSCD 506 Research Methods in Computer Science

Member, Assessment Committee, AY13–AY15

Member, Graduate Affairs Committee, AY12–present

Represent college at Career Fairs, AY12–present

Teaching evaluator for faculty review of Brian Kamp, W14

Grader for Advancement Programming Exam, W13, F13, W15, F15, F16

Teaching evaluator for faculty review of Stu Steiner, S13, W15

Served as Russian language liaison for visiting scholar Dmytro Lobanov studying EWU internship processes, S13

WNMU

Represented Computer Science and Math for Kirtland Central High School visit, Apr. 2012

Represented Computer Science and Math for Cochise Community College visits, tours, and luncheons, Sep., Nov. 2010, Apr. 2011 (twice)

ISU

Advisor for approx. 15 majors and 25 pre-majors, AY05–09

Provided software and hardware support for infrared-spectroscopy lab in chemistry department, F09

Representative from Computer Science for New Freshmen Orientation, Apr. 2006–2010

Developed curriculum for proposed Computer Science Master's program, including courses in modeling and simulation and natural language processing, AY08

Representative from Computer Science for Introduction to Engineering, AY05–09

Representative from Computer Science for Senior Design, AY05–09

Unofficial Computer Science assistant department chair, AY05–AY08

Provided significant comprehensive contributions to department ABET accreditation and assessment efforts, AY05–09

NMSU

Conducted knowledge-representation workshop at Summer School in Language Engineering, Computing Research Laboratory, Las Cruces, NM, July 1999

Contributed to Conference on Theoretical and Methodological Issues in Machine Translation and International Workshop on Spanish Language Processing Technologies, Santa Fe, NM, sponsored by Computing Research Laboratory, July 1997

Outreach, Student Support, and Community Service

EWU

Presented at Cheney High School Career Exploration Day on computer science and engineering industries, Feb. 2016

Judged projects at Washington Mathematics, Engineering, Science Achievements Design Contests, Mar. 2014, 2017

Member of Spokane CS10K Community for promoting computer science in local schools, F13–present

Co-site director for FIRST Lego League regional competition held at EWU, F12

Member of planning committee for FIRST Lego League regional activities, F12–F13

Volunteer for FIRST Lego League regional robotics competition, Jan. 2013, 2014

WNMU

Internship coordinator and student mentor for Aldo Leopold High School, Silver City, NM, AY11

Team mentor at Down to Earth Middle School for New Mexico Supercomputing Challenge, AY11; team awarded as Best Newcomer

Faculty mentor for CS student, S11–S12

ISU

Served as panelist for *Passages* grade promotion at Pocatello Community Charter School, May 2010

Presented engineering careers at Grace Lutheran Middle School, May 2010

Supported ISU team for IEEE Micromouse competition, winning first place at regional qualifier, S10

Served on advisory board for electronics and computer programming at Idaho School District 25, Jan. 2010–Aug. 2010

Served as advisor and disc jockey for Idaho FIRST Lego League Robotics Challenge State Competition, Jan. 2010

Served as head referee for Northwest Idaho FIRST Lego League Robotics Challenge Regional Competition (largest qualifier in the world), Dec. 2009

Served as head referee for FIRST Lego League Robotics Challenge local practice competition at Gate City Elementary School, Nov. 2009

Proctored IEEE Extreme Programming Challenge, Oct. 2009

Taught day of 8th-grade technology courses at Irving Middle School, Apr. 2009

Served as representative for Arabic at ISU Language Fair, Feb. 2009

Served as faculty liaison to Early College Program for computer science and engineering in School District 25, Nov. 2008–Aug. 2010

Served as invited speaker on community panel about electronic voting, Oct. 2008

Served as head referee for Southeast Idaho FIRST Lego League Robotics Challenge Regional Competitions, Dec. 2007–2008

Served as head referee for FIRST Lego League Blackfoot Invitational, Oct. 2008

Proctored and scored MathCounts competition, Feb. 2007–2008, Feb. 2010

Served as engineering representative for *Forays into the Field* program through Idaho Museum of Natural History, Aug. 2007, 2009

Judged presentations and posters at Undergraduate Research Symposium, Apr. 2007, 2009

Judged events at Science Olympiad, Feb. 2007

Judged and refereed FIRST Vex Robotics Challenge, Dec. 2006–2008

Judged and refereed FIRST Lego League Robotics Challenges, Dec. 2005, Nov. 2006

Judged science projects at Pocatello Community Charter School, Apr. 2006, 2010

Judged science projects for Invent Idaho competition, Feb. 2006

NMSU

Judged teams for New Mexico Association for Computing Machinery regional programming competitions, 2003–2004

Judged presentations and posters at Alliance for Minority Participation Student Research Conferences, 1999–2004

Mentored students and reviewed projects for New Mexico High School Supercomputing Challenges, 1997–2004

Mentored students and reviewed projects for New Mexico Adventures in Supercomputing competitions, 1997–2004

Judged projects and chaired at Southwest Regional Science and Engineering Fairs, 1997–2004

Served as Computer Science representative to Hispanic Association of Colleges and Universities, 2000–2003

Judged presentations at New Mexico State University Graduate Research and Arts Symposia, 1999–2003

Judged projects at White Sands Middle School Science Fair, Apr. 2002

Judged projects at New Mexico Mathematics, Engineering, Science Achievements Design Contests, 2000–2002

Proctored sessions of U.S. Academic Decathlon, Dec. 2001

Miscellaneous

Discuss computer science and engineering at all levels of local public schools, present interactive talks on careers in computer science and engineering, and serve in various other capacities for educational recruitment and retention efforts, 1996–present

Professional Development / Continuing Education

See Certifications on page 14

Systems Engineering Body of Knowledge Course, IEEE short course (four hours) on ISO/IEC/IEEE standard 15288:2015, Apr. 2017

Systems Engineering Case Studies and Applications Course, IEEE short course (six hours), Apr. 2017

University of Alabama, Huntsville

Associated with UAH as organizing member of Alabama Modeling and Simulation Council Huntsville Simulation and AlaSim conferences, 2009–present

EWU

University carpool driving training, Mar. 2017

Banner 101 and 102 training, Mar. 2017

Faculty Development Workshops

Using Evidence to Improve Student Learning, Jan. 2017

High-Impact Practices, Feb. 2017

Transparent Teaching I and II, Mar. and Apr. 2017

Banner SOAR Advising Workshop, May 2014

NSF Proposal Development Workshop, Apr. 2014

WNMU

University carpool driving training, Nov. 2011

Faculty Development Workshops

What the Best College Teachers Do, Oct. 2011

Faculty Readings Across the Curriculum, Apr. 2011

Writing Across the Curriculum, Oct., Nov. 2010, Feb., Mar., Sep., Nov. 2011

Information Technology Infrastructure Workshop, Oct. 2010

Tenure and Promotion Workshops, Sep. 2010, 2011

Advising Workshops, Sep., Oct. 2010, Feb., Mar., Apr. 2011

ISU

Arabic 101 and 102 in support of my research in natural language processing, AY08

Faculty Development Workshops

From Teaching to Learning, Oct. 2008

How We Learn and Why Engagement Is Important, Oct. 2008

Retention, Student Success, and First-Year Experience, Oct. 2007

Making Connections: Teaching, Learning, and Community, Feb. 2007

Teaching seminars, AY05–06

Conference on Research Integrity, Oct. 2005

NMSU

Dissertation Support Round Table, AY03

Teaching Academy seminars, AY02–03

University carpool training course, June 1997

Non-University

New Mexico Higher Education Assessment and Retention Conference, Albuquerque, NM, Feb. 2012

New Mexico NSF EPSCoR Faculty Leadership Workshop, Jemez Springs, NM, Jan. 2012

Teaching History

Eastern Washington University: 2012–present

	<u>Course</u>	<u>Quarters</u>	<u>Rating²</u>
CSCD 327	Relational Database Systems	F12	4.3, 4.5
CSCD 349	Design Patterns ¹	F14, F15	4.2, 4.2
CSCD 350	Software Engineering	F12, W13, S13, F13, W14, W15, W16, F16, S17	4.3, 4.3
CSCD 439/539	Artificial Intelligence ¹	S13, F13	4.3, 4.4
CSCD 439/539	Modeling and Simulation ¹	W17	<i>tbd</i>
CSCD 439/539	Prog. Lang. and Compiler Construction ¹	W18	<i>tbd</i>
CSCD 439/539	Natural Language Processing ¹	W19	<i>tbd</i>
CSCD 480/580	Intelligent Systems ¹	S15, F15	4.4, 4.4
CSCD 488	Senior Project	W14, F14, W16, F16	4.6, 4.6
CSCD 490	Senior Capstone	S14, W15, S16, W17, S17	4.6, 4.6
CSCD 506	Research Methods in Computer Science ³	W15, W16	
CSCD 524	Advanced Software Engineering	W13, S14, S15, S16	4.3, 4.4
CSCD 599	Master's interdisciplinary study	every quarter	
CSCD 600	Master's thesis	every quarter	
CSCD 601	Master's research project	every quarter	
<i>Overall course and instructor ratings:</i>			<u>4.4, 4.4</u>

¹ New course I designed and added to the curriculum; existing courses I revamped from scratch

² Respective averages of evaluation questions “the course as a whole” and “the instructor’s overall contribution,” both scaled from 5 (excellent) to 1 (inadequate); ; empty fields indicate course not evaluated or not evaluated on individual instructor basis

³ Voluntarily team-taught

Western New Mexico University: 2010–2012

	<u>Course</u>	<u>Semesters</u>	<u>Rating⁴</u>
CMPS 111	Computer Literacy – PC	F10 (3), S11 (2), F11 (3), S12 (2)	4.4, 4.4
CMPS 296	Associate Degree Project ^{1,2}	S11, F11, S12	
CMPS 320	Computer Architecture and Organization	S12	4.6, 4.7
CMPS 385	Survey of Advanced Computer Science ^{2,3}	F11	
CMPS 415/515	Database Design and Implementation II	S11	4.5, 4.6
CMPS 435/535	eCommerce	S11	4.4, 4.6
CMPS 450	Software Engineering ³	F11	4.4, 4.5
CMPS 470	Topics in Computer Science	S12	4.6, 4.6
CMPS 493	Senior Project Proposal ^{1,2}	F10, S12	
CMPS 496	Senior Project and Seminar ^{1,2}	S11, S12	
CMPS 501	Introduction to Information Assurance	F10	4.6, 4.8
CMPS 525	Computer Forensics	F11	4.7, 4.8
CMPS 580	Computer Science Workshop	S12	4.6, 4.6
MATH 210/243	Discrete Mathematics/Theory of Proofs ¹	S11	

Overall course and instructor ratings: 4.6, 4.7

¹ Team-taught

² Voluntary uncompensated overload

³ New course I designed and added to the curriculum; existing courses I revamped from scratch

⁴ Respective averages of evaluation question “overall I would rate this course and instructor as 5 (excellent) to 1 (inadequate)”; empty fields indicate course not evaluated or not evaluated on individual instructor basis

Idaho State University: 2005–2010

Awarded by students, faculty, staff, and alumni as ISU 2009 *Master Teacher* in first year of eligibility; chosen from 46 candidates

I prepared or revised 13 new courses in the first two years to help establish the program and get ABET accreditation.

	<u>Course</u>	<u>Semesters</u>	<u>Rating⁶</u>
CS 181L	Introduction to Computer Programming I	F05 (2), S06	4.3, 4.4
CS 263	Advanced Object-Oriented Design	S06, S07, S08 ⁴ , S09 ⁴ , S10 ⁴	4.2, 4.4
CS 282	Advanced Computer Programming	F05, F06, F07 ⁴ , F08 ⁴ , F09 ⁴	4.2, 4.3
CS 321	Fundamentals of Software Engineering ³	F06, F07 ⁴ , F08 ⁴ , F09 ⁴	4.4, 4.6
CS 344	Artificial Intelligence ³	S07, S09 ⁴	4.3, 4.5
CS 445/545	Data Compression	S06	4.4, 4.6
CS 475/575	Computer Architecture and Organization ³	F07 ⁴	4.2, 4.3
CS 481/581	Compiler Construction	F05, S08 ⁴ , S10 ⁴	4.8, 4.8
CS 491	Ethical and Societal Issues in Computing ^{2,3}	F08, F09 ⁴	4.8, 4.8
CS 496A/B	Senior Project Design ¹	AY05–09 ⁴	
CS 6xx	Advanced Modeling and Simulation ³		
CS 6xx	Natural Language Processing ³	never offered ⁵	
ENGR 120	Introduction to Engineering ¹	AY05–09 ⁴	
ENGR 597	Middle School Engineering Math ³	summer 08, 09	
AMI/On Semiconductor	short course on Java and XML	F05	4.5, 4.7

Overall course and instructor ratings: 4.4, 4.6

- ¹ Team teaching and course development
² Team teaching and course development, with me as coordinator
³ New course I designed and added to the curriculum; existing courses I revamped from scratch
⁴ Via face-to-face and distance learning
⁵ Prepared, but never offered because approval for new EECS MS program was withdrawn
⁶ Respective averages of evaluation question “overall I would rate this course and instructor as 5 (excellent) to 1 (inadequate)”; empty fields indicate course not evaluated or not evaluated on individual instructor basis

New Mexico State University: 1996–2002

Taught introduction to C programming for non-majors (rescued course mid-semester after student revolt against visiting professor); served as teaching assistant for compiler construction (10 times), software engineering, and artificial intelligence

University of Arkansas, Fayetteville: 1994–1996

Served as teaching assistant for assembly-language programming, modeling and simulation, database systems, file structures, and artificial intelligence

Arizona State University: 1990–1994

Taught eight courses at all levels of undergraduate Russian curriculum

Student Supervision

Senior Design/Capstone Projects Supervised/Sponsored

EWU

2016 *Senior Project Tracker v1; Visit Tracking and Management Software; Math is Cool; There and Back Again; EmbroidIt; Magpie v1 (Android); Campus Nabber; Online Student Interview Practice System; Senior Project Tracker v2; Capstone Project Report System; Spokane Club Child Care Logging System; Recreation Center Swim Activity Logger; Sailplane Launch Manager; Psycholinguistic Therapy App; Magpie v2 (iOS); Senior Project Tracker v3; Photo Geotagger*

2014 *Network-Based Irrigation System; Virtual Battlespace 3; Knit Social Media App; Fish Database; Electronic Field Input System; Distributed Theatre Sound System; Building Maintenance Manager; CEB Infomonitors; EWU Online Course Evaluator; Online Compiler and Tester; Spokane Arts Sculpture Walk Android Application; Spokane Civic Theatre Sound System; The Cork District Winery Project; UKNO Android Mobile Application*

WNMU

2012 *E-Commerce Site for Textbooks*

2010 *E-Commerce Site for Big-Game Hunting in South Africa; Automated Course Evaluation System; Revised Web Site for Puppy Dog Ranch*

ISU

2009 *Alternative to Hotcell Windows; Myoelectric (EMG) Array Sensor Development; Smart Prosthetic Hand Simulation*

- 2008 *Energy Management; Soccer Line Painter*
- 2007 *Automated Advising; OpenGL Browser*
- 2006 *NASA Robotic Sensor Platform*
- 2005 *Digital Scanning of Three-Dimensional Objects; FIRST Robotics Senior Design Team*

Undergraduate Software Engineering Projects Supervised

EWU

- 2017 Space flight mission planner TBD
- 2016 Railroad operations simulator; aircraft accident re-enactment simulator
- 2015 Modeling-and-simulation toolkit for heavy construction equipment
- 2014 Aircraft-carrier operations simulator
- 2013 Real-time air traffic control system; multiagent testbed simulator for theater-based military agents; fly-by-wire aircraft systems simulator
- 2012 Instrument-based unmanned-aerial-vehicle flight simulator

WNMU

- 2011 Unmanned-aerial-vehicle simulator

ISU

- 2009 Computer-aided design and manufacturing system driving computer-controlled milling machine
- 2008 Retro Battlezone multiplayer networked video game
- 2007 Inventory system for nationwide chain of home-improvement stores
- 2006 E-commerce bidding site

Undergraduate Students Supervised

- 2017 *TBD*, faculty mentor for Rob Humpres at EWU Research and Creative Works Symposium, May 2017
- 2010 *Implementing Computational Vision in an Autonomous Land Vehicle Simulator*, faculty supervisor for Mason Krei on ISU Undergraduate Research Committee grant; funded approx. \$2,000

Graduate Students Supervised¹

EWU

- Current Olin Anderson, MSCS, *COTS SSVEP-Based PWC Control Using the Emotiv EPOC*
- Adam Bortfeld, MCSC², *Title TBD* (related to Hadoop for video transcoding on Raspberry Pi cluster)
- Kevin Chumbley, MSCS², *Title TBD* (related to visualization of helicopter flight)
- Josh Cotes, MSCS², *Title TBD* (related to virtual-reality visualization of big data)
- Evan Daley, MSCS², *Title TBD* (related to natural language processing)
- Isaac Pfleegor, MSCS², *Title TBD* (related to digital signal processing and control system for coffee roasting)

- 2015 Josh Czoski, MSCS², *A Violin Practice Tool Using 9-Axis Sensor Fusion*
Matt Hempleman, MSCS², *Image Processing for Machine Learning of Helicopter Flight Dynamics*
- 2014 Shawn Cowles, MSCS², *The Dynamic World Engine*
Ken Farr, MSCS², *kForth – A Simple Tiny Portable Interpreted Language*
- 2013 Ed Hogan, MSCS, *Wireless, Electronic Scoring of Kendo Competition Matches Using an Embedded System*

ISU

- 2010 Oksana Kelly, PhD, *Automated Amphibian Digital Identification System*; member of ISU committee in Engineering and Applied Science with emphasis in Computer Science
- 2009 Rich Lundeen, MSCS, *Simplified Single Packet Authentication and Concerns with Time-Space Based Wireless Security*; conferred through University of Idaho

¹No ISU or WNMU graduate programs in Computer Science

²As major advisor; otherwise as second member; as third member indicated under University Service on page 19

References

omitted from web version for privacy