

RICARDO VALERDI

Department of Systems and Industrial Engineering
University of Arizona
Tucson, AZ 85721

rvalerdi@arizona.edu
(520) 621-6561

EDUCATION

2005 Ph.D. in Industrial & Systems Engineering, *University of Southern California*
2002 M.S. in Systems Architecture & Engineering, *University of Southern California*
1999 B.S./B.A. in Electrical Engineering, *University of San Diego*

ACADEMIC POSITIONS

2011 – University of Arizona, Department of Systems & Industrial Engineering
2022 – Department Head
2020 – University Distinguished Outreach Professor
2018 – Professor
2017 – Faculty Athletics Representative (Pac-12 from 2017-2024 and
Big XII from 2024 onwards)
2017 – 2022 Director, Sports Management Program, Eller College of Mgmt.
2011 – 2017 Associate Professor
2005 – 2011 Massachusetts Institute of Technology
Research Associate & Lecturer, Engineering Systems Division

INDUSTRY EXPERIENCE

2017 Production Consultant, *SpaceX*, Hawthorne, CA
2003 – 2005 Senior Member of the Technical Staff, *Aerospace Corporation*, Los Angeles, CA
1998 – 2002 Systems Engineer, *Motorola*, San Diego, CA

ACADEMIC EXCHANGES

2022 Fulbright Scholar, Universidad Carlos III de Madrid, Spain
2018 Visiting Professor, United States Military Academy, West Point, NY (sabbatical)
2017 Visiting Professor, Universidad Politécnica de Madrid, Spain (sabbatical)
2015 Visiting Fellow, University of South Australia, Adelaide, Australia (summer)
2014 Visiting Fellow, Bath University, United Kingdom (Royal Academy of Engineering
fellowship)

HONORS

2023 Innovator of the Year (Small Company), Arizona Technology Council/Governor's
Innovation Award
2023 Made It Happen Award, Tech Launch Arizona
2022 Fellow, International Council on Systems Engineering
2022 Fulbright Scholar, Universidad Carlos III de Madrid (Spain)
2021 Fellow, Udall Center for Studies in Public Policy, University of Arizona
2020 Lifetime Achievement Award, USC Center for Systems & Software Engineering
2020 University of Arizona Distinguished Outreach Professor Award

2019	Outstanding Faculty Mentor, University of Arizona Office of the Provost
2016	Foreign Member, Mexican Academy of Engineering
2016	Best journal article of the year, <i>Systems Engineering Journal</i>
2015	Frank Freiman Award for Lifetime Achievement in Cost Estimation and Parametric Modeling (highest award given by the International Cost Estimating & Analysis Association)
2015	NCAA MindMatters Concussion Education Program winner (\$25,000 cash + \$75,000 development budget)
2015	IIE Innovations in Curriculum competition, 2 nd Place
2014	Royal Academy of Engineering (UK) Distinguished Visiting Fellow
2014	Estimator of the Year, Galorath Inc.
2013	Best paper award, 11 th Conference on Systems Engineering Research
2012	Best journal article of the year, <i>Defense Acquisition Research Journal</i>
2011	Best paper award, 7 th Conference on Predictive Models in Software Engineering
2011	IEEE Distinguished Contribution Award (6 th Int. System of Systems Conference)
2011	Best paper award, 21 st INCOSE Symposium
2010	IEEE Senior Member grade
2010	Best Thesis Advisor, MIT Technology & Policy Program
2010	Finalist, best paper competition in <i>Defense Acquisition Review Journal</i>
2009	Best journal article of the year, <i>Systems Engineering Journal</i>
2009	Best paper award, 7 th Conference on Systems Engineering Research
2009	Best Thesis Advisor, MIT Technology & Policy Program
2008	INCOSE Outstanding Achievement Award (via Space Systems Working Group)
2005	Best paper award, 27 th International Society of Parametric Analysts Conference

OTHER ACTIVITIES

2013-	Founder and Chief Scientist, Science of Sport (Educational not-for-profit focused on STEM outreach). Consultant for professional sports teams on STEM education: Arizona Diamondbacks, San Diego Padres, Colorado Rockies, Washington Nationals, Los Angeles Angels of Anaheim, Adelaide Bite (Australia), Adelaide Crows (Australia), Los Angeles Galaxy, LAFC, Houston Dynamo, Seattle Sounders, Los Angeles Dodgers, Atlanta Braves, Texas Rangers, Chicago Cubs
2012-2015	Visiting Scientist, Software Engineering Institute – Carnegie Mellon University
2008-2009	Board of Directors (Treasurer), International Council on Systems Engineering
2006-2016	Co-director, Systems Engineering and Architecting Doctoral Student Network
2005-	Visiting Associate, USC Center for Systems & Software Engineering

BOOKS, BOOK CHAPTERS

Lutfi M., Valerdi R. (2021) Framework for Integration of Virtual Reality into Model Based Systems Engineering Approach. In: Ahram T.Z., Falcão C.S. (Eds) *Advances in Usability, User Experience, Wearable and Assistive Technology*. AHFE 2021. Lecture Notes in Networks and Systems, Vol 275. Springer, Cham. https://doi.org/10.1007/978-3-030-80091-8_16

Valerdi, R., Cost Estimation Toolset, in Gorod, A., Hallo, L., Ireland, V. and Gunawan, I. (Eds.) *Evolving Toolbox for Complex Project Management*, CRC Press, 2019.

- Ryan, T., Valerdi, R., Total Cost of Ownership: An Approach for Estimating UAS Costs, in *Operations Research for Unmanned Systems*, Cares, J. R. and Dickmann, J. Q. (Eds.), Wiley, 2016.
- Cizaire, C. and Valerdi, R., Heathrow Terminal 5: Cost Management for a Mega-Construction Project, in Gorod, A., White, B., Ireland, V., Ghandi, S. J. and Sauser, B. (Eds.) *Case Studies in System of Systems, Enterprises, and Complex Systems Engineering*, CRC Press, 2014.
- Fitzgerald, B., Conboy, K., Power, K., Valerdi, R., Morgan, L., Stol, K. (Eds.), Lean Enterprise Software and Systems – Proceedings of the 4th International Conference (LESS 2013) Galway, Ireland, December 1-4, 2013.
- Valerdi, R., Systems Engineering Effort Estimation & Allocation, in Badiru, A. B. (Ed.) *Handbook of Industrial and Systems Engineering*, 2nd edition, CRC Press, 2013.
- Valerdi, R., Optimism in Cost Estimation, in *The IFPUG Guide to IT and Software Measurement*, Auerbach Publications, 2012.
- Valerdi, R. and Liu, K., Parametric Cost Estimation for Human Systems Integration, in *The Economics of Human Systems Integration: Valuation of Investments in People's Training and Education, Safety and Health, and Work Productivity*, Rouse, W. B. (Ed.), Wiley, 2010, 125-161.
- Valerdi, R., *The Constructive Systems Engineering Cost Model (COSYSMO): Quantifying the Costs of Systems Engineering Effort in Complex Systems*, Saarbrücken, Germany, VDM Verlag, 2008.

REFEREED JOURNAL PUBLICATIONS

- Lutfi, M., Valerdi, R., "Integration of SysML and Virtual Reality Environment: A Ground Based Telescope System Example," *Systems*, 11(189), 2023.
- Valerdi, R., "Lessons from the Father of Software Engineering," *IEEE Computer*, 56(1), 133-136, 2023.
- Aguilar-Cisneros, J. R., Valerdi, R., & Sullivan, B. P., "Students' Systems Thinking Competency Level Detection through Software Cost Estimation Concept Modeling," *Programming and Computer Software*, 48(8), 499-512, 2022.
- Dabkowski, M., Middlebrooks, A., & Valerdi, R., "Modeling Evolutionary Architectural Growth in Major Defense Acquisition Programs," *Journal of Cost Analysis and Parametrics*, 2022.
- Kirshner, M., & Valerdi, R., "Integrating Model-Based Systems and Digital Engineering for Crewed Mars Mission Planning," *Journal of Aerospace Information Systems*, 19(10), 668-676, 2022.

- Hallam, C., Valerdi, R. and Contreras, C., "Strategic Lean Actions for Sustainable Competitive Advantage," *International Journal of Quality & Reliability Management*, 35(2), 481-509, 2018.
- Valerdi, R., "Why Software is Like Baseball," *IEEE Software*, 34(5), 7-9, 2017.
- Valerdi, R., "Balancing Expert Opinion and Historical Data: The Case of Baseball Umpires," *Journal of Cost Analysis and Parametrics*, 9(3), 161-163, 2016.
- Valerdi, R., Dabkowski, M., Dixit, I., "Reliability Improvement of Major Defense Acquisition Program Cost Estimates – Mapping DoDAF to COSYSMO," *Systems Engineering*, 18(5), 530-547, 2015.
- Valerdi, R., "Pioneers of Parametrics: Origins and Evolution of Software Cost Estimation," *Journal of Cost Analysis and Parametrics*, 8(2), 74-91, 2015.
- Peña, M., Valerdi, R., "Characterizing the Impact of Requirements Volatility on Systems Engineering Effort," *Systems Engineering*, 18(1), 59-70, 2015.
- Lane, J., Galorath, D., Valerdi, R., "On the Shoulders of Giants: A Tribute to Prof. Barry W. Boehm," *Journal of Cost Analysis and Parametrics*, 7(3), 149-159, 2014.
- Jones, M., Webb, P., Summers, M., Baguley, P., Valerdi, R., "A Cost-benefit Framework for Assessing Advanced Manufacturing Technology Development: A Case Study," *Journal of Engineering Manufacture*, 2014.
- Basole, R. C., Bellamy, M., Clear, T. Dabkowski, M., Monreal, J., Park, H., Valerdi, R., Van Aken, E., "Challenges and Opportunities for Enterprise Transformation Research," *Journal of Enterprise Transformation*, 3(4), 330-352, 2013.
- Aguilar, J. R., Valerdi, R., "Successful Adoption of Software Process Improvement Models: A Cultural-Methodological Proposal," *Journal of Software*, 8(9), 2367-2378, 2013.
- Yang, Y., He, Z., Mao, K., Li, Q., Nguyen, V., Boehm, B., Valerdi, R., "Measuring and Handling Local Bias for Calibrating Parametric Estimation Models," *Information and Software Technology*, 55(8), 1496-1511, 2013.
- Fortune, J., Valerdi, R., "A Framework for Systems Engineering Reuse," *Systems Engineering*, 16(2), 304-312, 2013.
- Dorey, S. P., Oehmen, J., Valerdi, R., "Enhancing Cost Realism Through Risk-Driven Contracting: Designing Incentive Fees Based on Probabilistic Cost Estimates," *Acquisition Review Journal*, 19(2), 133-158, 2012.
- Wang, G., Valerdi, R., Roedler, G., Ankrum, A., Gaffney, J., "Harmonizing Software Engineering and Systems Engineering Cost Estimation," *International Journal of Computer Integrated Manufacturing*, 25(4-5), 432-443, 2012.

- Valerdi, R., "Heuristics for Systems Engineering Cost Estimation," *IEEE Systems Journal*, 5(1), 91-98, 2011.
- Valerdi, R., Nightingale, D. J., "An Introduction to the Journal of Enterprise Transformation," *Journal of Enterprise Transformation*, 1(1), 1-6, 2011.
- Purchase, V., Parry, G., Valerdi, R., Nightingale, D. J., Mills, J., "Enterprise Transformation: Why Are We Interested, What Is It, And What Are The Challenges?," *Journal of Enterprise Transformation*, 1(1), 14-33, 2011.
- Abdimomunova, L., Valerdi, R., "An Organizational Assessment Process for Enterprise Transformation," *Information, Knowledge and Systems Management*, 9(3-4), 175-195, 2010.
- Perkins, L. N., Abdimomunova, L., Valerdi, R., Shields, T., Nightingale, D. J., "Insights from Enterprise Assessment: How to Analyze LESAT Results for Enterprise Transformation," *Information, Knowledge and Systems Management*, 9(3-4), 153-174, 2010.
- Valerdi, R., Blackburn, C., "Leveraging Measurement Systems to Drive Enterprise Transformation: Two Case Studies from the U.S. Aerospace Industry," *Information, Knowledge and Systems Management*, 9(2), 77-97, 2010.
- Wang, G., Valerdi, R., Fortune, J., "Reuse in Systems Engineering," *IEEE Systems Journal*, 4(3), 376-384, 2010.
- Liu, K. K., Valerdi, R., Rhodes, D. H., Headen, A., Kimm, L., "The F119 Engine: A Success Story of Human Systems Integration in Acquisition," *Acquisition Review Journal*, 17(2), 284-301, 2010.
- Valerdi, R., Boehm, B., "COSYSMO: A Systems Engineering Cost Model," *Genie Logiciel*, March 2010.
- Valerdi, R., Davidz, H., "Empirical Research in Systems Engineering: Challenges and Opportunities of a New Frontier," *Systems Engineering*, 12(2), 169-181, 2009.
- Rhodes, D., Valerdi, R., Roedler, G., "Systems Engineering Leading Indicators: Assessing Effectiveness of Programmatic and Technical Performance," *Systems Engineering*, 12(1), 21-35, 2009.
- Valerdi, R., Nightingale, D. J., Blackburn, C., "Enterprises as Systems: Context, Boundaries and Practical Implications," *Information, Knowledge and Systems Management*, 7(4), 377-399, 2008.
- Boehm, B. W., Valerdi, R., "Achievements and Challenges in Software Resource Estimation," *IEEE Software*, 25(5), 74-83, 2008.

- Valerdi, R., Axelband, E., Baehren, T., Boehm, B., Dorenbos, D., Jackson, S., Madni, A., Nadler, J., Robitaille, P., Settles, S., "A Research Agenda for Systems of Systems Architecting," *International Journal of System of Systems Engineering*, 1(1/2), 171-188, 2008.
- Boehm, B. W., Valerdi, R., Honour, E., "The ROI of Systems Engineering: Some Quantitative Results for Software-Intensive Systems," *Systems Engineering*, 11(3), 221-234, 2008.
- Fong, A., Valerdi, R., Srinivasan, J., "Boundary Objects as a Framework to Understand the Role of Systems Integrators," *Systems Research Forum*, 2, 11-18, 2007.
- Rhodes, D., Valerdi, R., "Enabling Research Synergies Through a Doctoral Research Network in Systems Engineering," *Systems Engineering*, 10(4), 348-360, 2007.
- Lane, J., Valerdi, R., "Synthesizing System-of-Systems Concepts for Use in Cost Modeling," *Systems Engineering*, 10(4), 297-308, 2007.
- Valerdi, R., Ross, A., Rhodes, D., "A Framework for Evolving System of Systems Engineering," *CrossTalk - The Journal of Defense Software Engineering*, 20(10), 28-30, 2007.
- Valerdi, R., Madachy, R., "Impact & Contributions of MBASE on Software Engineering Graduate Courses," *Journal of Systems and Software*, 80(8), 1185-1190, 2007.
- Boehm, B. W., Valerdi, R., Lane, J., Brown, A. W., "COCOMO Suite Methodology and Evolution," *CrossTalk - The Journal of Defense Software Engineering*, 18(4), 20-25, 2005.

REFEREED CONFERENCE PROCEEDINGS

- Lutfi, M., Valerdi, R. (2020) "Executable Modeling of a CubeSat Based Space Situational Awareness System," 18th Annual Conference on Systems Engineering Research, Los Angeles, CA.
- Lutfi M., Valerdi R. (2020) Virtual Reality in Model Based Systems Engineering: A Review Paper. In: Stephanidis C., Antona M., Ntoa S. (eds) HCI International 2020 – Late Breaking Posters. HCII 2020. Communications in Computer and Information Science, Vol 1294. Springer, Cham. https://doi.org/10.1007/978-3-030-60703-6_25
- Werner, K., Raymond, C., Kumar, S., Aukerman, A., Ryan, T., Valerdi, R., "Application and refinement of the early lifecycle cost estimation model: A case study of the JLTV," 2018 Annual IEEE International Systems Conference (SysCon), Vancouver, BC, 2018, pp. 1-7.
- Moody, T., Provine, R., Todd, S., Tyler, N., Ryan, T. R., Valerdi, R., "Early Life Cycle Cost Estimation: Fiscal Stewardship with Engineered Resilient Systems," Conference on Systems Engineering Research, Hoboken, NJ, March 23-25, 2017. In *Disciplinary Convergence in Systems Engineering Research*, Madni, A., Boehm, B., Ghanem, R. G. (Eds.), Springer International Publishing, 2018.

- Dabkowski, M., Valerdi, R., "Blockmodeling and the Estimation of Evolutionary Architectural Growth in Major Defense Acquisition Programs," Acquisition Research Symposium, Monterey, CA, May 24-26, 2016.
- Ryan, T. R., Valerdi, R., "Costing for the Future: Exploring Cost Estimation for Unmanned Autonomous Systems," Acquisition Research Symposium, Monterey, CA, May 24-26, 2016.
- Ryan, T. R., Valerdi, R., "Costing for an Autonomous Future: A Discussion on Estimation for Unmanned Autonomous Systems," Conference on Systems Engineering Research, Hoboken, NJ, March 17-19, 2015.
- Latt, L. D., Monreal, J., Smith, K., Mertz, J., Patterson, J., Valerdi, R., Head, K. L., "Impact of electronic medical record implementation on orthopaedic clinic workflow," 127th Meeting of the American Orthopaedic Association, Montréal, Canada, June 18-21, 2014.
- Valerdi, R., Goldenson, D., Stoddard, B., "Techniques to Calibrate Expert Judgment of Program Uncertainties," 8th Workshop on Applications of Advanced Measurement & Analytical Methods in Software and Systems Engineering, Pittsburgh, PA, May 2014.
- Thebeau, D., Reidy, B., Valerdi, R., Gudagib, A., Kurra, H., Al-Nashifb, Y., Hariri, S., Sheldon, F., "Improving cyber resiliency of cloud application services by applying Software Behavior Encryption (SBE)," Conference on Systems Engineering Research, Redondo Beach, CA, March 21-22, 2014.
- Valerdi, R. and Christopherson, T., "COSYSMO Calibration Steps and Results," 22nd INCOSE Symposium, Philadelphia, PA, June 2013.
- Wang, G., Valerdi, R., Roedler, G. J., Pena, M., "Quantifying Systems Engineering Reuse – A Generalized Reuse Framework in COSYSMO," 22nd INCOSE Symposium, Philadelphia, PA, June 2013.
- Pan, X., Valerdi, R., Kang, R., "Systems Thinking: A Comparison Between Chinese and Western Approaches," 11th Conference on Systems Engineering Research, Atlanta, GA, March 2013.
- Dabkowski, M., Estrada, J., Reidy, B., Valerdi, R., "Network Science Enabled Cost Estimation in Support of MBSE," 11th Conference on Systems Engineering Research, Atlanta, GA, March 2013.
- Valerdi, R., Valenzuela, D., Hernandez, K., Monreal, J., "Measures of Effectiveness for a STEM Program: The Arizona Science of Baseball," 11th Conference on Systems Engineering Research, Atlanta, GA, March 2013.
- Meade, K., Marlin, S., Ramirez, J., Valerdi, R., "Impact of Systems Thinking Training on Sustainability Behaviors in College Students," 11th Conference on Systems Engineering Research, Atlanta, GA, March 2013.

- Yang, Y., Xie, L., He, Z., Li, Q., Nguyen, V., Boehm, B. W., Valerdi, R., "Local bias and its impacts on the performance of parametric estimation models," Proceedings of the 7th International Conference on Predictive Models in Software Engineering, PROMISE 2011, Banff, Alberta, Canada, September 20-21, 2011.
- Valerdi, R. and Fernandes, B., "Underestimation in the "When It Gets Worse Before it Gets Better" Phenomenon in Process Improvement," 18th ISPE International Conference on Concurrent Engineering, Cambridge, MA, July, 2011.
- Latner, A. and Valerdi, R., "Feature Performance Metrics for Software as a Service Offering," 18th ISPE International Conference on Concurrent Engineering, Cambridge, MA, July, 2011.
- Valerdi, R., "Convergence of Expert Opinion via the Wideband Delphi Method: An Application in Cost Estimation Models," 21st INCOSE Symposium, Denver, CO, June 2011.
- Boehm B. and Valerdi, R., "Impact of Software Resource Estimation Research on Practice: A Preliminary Report on Achievements, Synergies & Challenges," International Conference on Software Engineering, Honolulu, HI, May 2011.
- Madachy, R. J., Valerdi, R. and Wang, G., "Interdisciplinary and Personal Impacts: A Tribute to Prof. Barry W. Boehm," Symposium in Honor of Prof. Barry W. Boehm – Institute of Software Chinese Academy of Sciences, Beijing, China, April 2011.
- Lane, J., Galorath, D. and Valerdi, R., "On the Shoulders of Giants: A Tribute to Prof. Barry W. Boehm," Symposium in Honor of Prof. Barry W. Boehm – Institute of Software Chinese Academy of Sciences, Beijing, China, April 2011.
- Valerdi, R., Friedman, G. and Marticello, D., "Diseconomies of Scale in Systems Engineering," 9th Conference on Systems Engineering Research, Los Angeles, CA, April 2011.
- Lane, J. and Valerdi, R., "System Interoperability Influence on System of Systems Engineering Effort," 9th Conference on Systems Engineering Research, Los Angeles, CA, April 2011.
- Perkins, L. N., Hess, J. T., Valerdi, R. and Nightingale, D., "Developing Systems Thinking Competencies through Facilitated Simulation Experiences," 9th Conference on Systems Engineering Research, Los Angeles, CA, April 2011.
- Fortune, J. and Valerdi, R., "Towards a Framework for Systems Engineering Reuse," 9th Conference on Systems Engineering Research, Los Angeles, CA, April 2011.
- Young, L. Z., Farr, J. V., Valerdi, R. and Kwak, Y. H., "A Framework for Evaluating Life Cycle Project Management Costs on Systems Centric Projects," 31st American Society of Engineering Management, Rogers, AR, October 2010.
- Perkins, L. N., Hess, J. T., Dimitrov, I. Z., Valerdi, R., "Healthcare Reborn: A Systems Thinking Accelerator," 3rd International Conference on Model-Based Systems Engineering, Fairfax, VA, September, 2010.

- Hess, J., Agarwal, G., Cowart, K., Deonandan, I., Kenley, C. R., Mikaelian, T. and Valerdi, R., "Normative and Descriptive Models for Test & Evaluation of Unmanned and Autonomous Systems of Systems," 20th INCOSE Symposium, Chicago, IL, July 2010.
- Perkins, L. N., Valerdi, R. and Nightingale, D., "Organizational Assessment Models for Enterprise Transformation," 20th INCOSE Symposium, Chicago, IL, July 2010.
- Valerdi, R. and Deonandan, I., "A Study on the Effects of Professional Society Conferences on the Growth and Prosperity of Regional Chapters and Members: The Systems Engineering Example," 20th INCOSE Symposium, Chicago, IL, July 2010.
- Dickerson, C. and Valerdi, R., "Using Relational Model Transformations to Reduce Complexity in SoS Requirements Traceability: Preliminary Investigation," 5th IEEE International Conference on Systems of Systems Engineering, Loughborough, UK, June 2010.
- Deonandan, I., Valerdi, R., Lane, J. and Macias, F., "Cost and Risk Considerations for Test and Evaluation of Unmanned and Autonomous Systems of Systems," 5th IEEE International Conference on Systems of Systems Engineering, Loughborough, UK, June 2010.
- Hess, J. and Valerdi, R., "Test and Evaluation of a SoS using a Prescriptive and Adaptive Testing Framework," 5th IEEE International Conference on Systems of Systems Engineering, Loughborough, UK, June 2010.
- Cowart, K., Valerdi, R. and Kenley, C. R., "Decision Support Systems for Test & Evaluation: Requirements and Measures of Effectiveness," Test Week 2010, Huntsville, AL, June 2010.
- Aggarwal, T., Valerdi, R., Potoski, M., "When More is Better-Design Principles for Prediction Markets in Defense Acquisition Cost Forecasting," 7th Annual Acquisition Research Symposium, Monterey, CA, May 2010.
- Valerdi, R. and Rouse, W. B., "When Systems Thinking Is Not a Natural Act," 5th IEEE Systems Conference, San Diego, CA, April, 2010.
- Lane, J. and Valerdi, R., "Accelerating System of Systems Engineering Understanding and Optimization Through Lean Enterprise Principles," 5th IEEE Systems Conference, San Diego, CA, April, 2010.
- Ferreira, S., Valerdi, R., Medvidovic, N., Hess, J., Deonandan, I., Mikaelian, T. and Shull, G., "Unmanned and Autonomous Systems of Systems Test and Evaluation: Challenges and Opportunities," 5th IEEE Systems Conference, San Diego, CA, April, 2010.
- Young, L. Z., Farr, J. V. and Valerdi, R., "The Role of Influential Complexities in Systems Engineering Cost Estimating Processes," 8th Conference on Systems Engineering Research, Hoboken, NJ, March 2010.

- Smith, E. D., Pineda, R. L., Aldous, K., and Valerdi, R., "COSYSMO and COSYSMO-R Parameter Estimation Biases," 8th Conference on Systems Engineering Research, Hoboken, NJ, March 2010.
- Madachy, R. and Valerdi, R., "Automating Systems Engineering Risk Assessment," 8th Conference on Systems Engineering Research, Hoboken, NJ, March 2010.
- Valerdi, R., Brown, S. and Muller, G., "Towards a framework of research methodology choices in Systems Engineering," 8th Conference on Systems Engineering Research, Hoboken, NJ, March 2010.
- Valerdi, R., Liu, K., Fortune, J., "Lessons Learned about Mixed Methods Research Strategies in Systems Engineering: Evidence from PhD Dissertations," 8th Conference on Systems Engineering Research, Hoboken, NJ, March 2010.
- Liu, K., Valerdi, R. and Laplante, P. A., "Better Requirements Decomposition Guidelines can Improve Cost Estimation of Systems Engineering and Human Systems Integration," 8th Conference on Systems Engineering Research, Hoboken, NJ, March 2010.
- Valerdi, R. and Blackburn, C., "The Human Element of Decision Making in Systems Engineers: A Focus on Optimism," 19th INCOSE Symposium, Singapore, July 2009.
- Valerdi, R., Jain, R., Ferris, T. and Kasser, J., "An Exploration of Matching Teaching to the Learning Styles of Systems Engineering Graduate Students," 19th INCOSE Symposium, Singapore, July 2009.
- Wang, G., Shernoff, A. and Valerdi, R., "Towards a Holistic, Total Engineering Cost Model," 19th INCOSE Symposium, Singapore, July 2009.
- Wang, G., Valerdi, R., Roedler, G. J., Ankrum, A. and Gaffney, J. E., "Harmonizing Systems and Software Estimation," 19th INCOSE Symposium, Singapore, July 2009.
- Czaika, E. and Valerdi, R., "Is Different Dangerous or Curious? Are our Corporate Cultures Tuned for Innovation?" 19th INCOSE Symposium, Singapore, July 2009.
- Dixit, I. and Valerdi, R., "Re-conceptualizing the Work of Systems Engineers," 2nd International MIT Engineering Systems Symposium, Cambridge, MA, June 2009.
- Rhodes, D. H., Ross, A. M., Gerst, K. and Valerdi, R., "Leading Indicators for Human Systems Integration Effectiveness," 7th Conference on Systems Engineering Research, Loughborough, U.K., April 2009.
- Liu, K., Valerdi, R. and Rhodes, D. H., "Cost Drivers of Human Systems Integration: A Systems Engineering Perspective," 7th Conference on Systems Engineering Research, Loughborough, U.K., April 2009.

- Gaffney, J. E., Valerdi, R. and Ross, M. A., "Approaches to Calculating Systems Engineering Schedule in Parametric Cost Models," 7th Conference on Systems Engineering Research, Loughborough, U.K., April 2009.
- Blackburn, C. and Valerdi, R., "Practical Implementation of an Enterprise Measurement System: From Inception to Transformation," 7th Conference on Systems Engineering Research, Loughborough, U.K., April 2009.
- Valerdi, R. and Blackburn, C., "Navigating the Metrics Landscape: An Introductory Literature Guide to Metrics Selection, Implementation and Decision Making," 7th Conference on Systems Engineering Research, Loughborough, U.K., April 2009.
- Fortune, J., Valerdi, R., Boehm, B. W. and Settles, S. "Estimation Methods for Systems Engineering Reuse," 7th Conference on Systems Engineering Research, Loughborough, U.K., April 2009.
- Liu, K., Valerdi, R. and Rhodes, D. H. "Economics of Human Systems Integration: The Pratt & Whitney F119 Engine," Human Systems Integration: 2+2=22! Greater than the Sum of its Parts, The American Society of Naval Engineers, Annapolis, MD, March 2009.
- Valerdi, R. "Cultural Barriers to the Adoption of Systems Engineering Research," 2nd Asia-Pacific Conference on Systems Engineering, Yokohama, Japan, September 2008.
- Valerdi, R. "Zen in the Art of Cost Estimation," 2nd Asia-Pacific Conference on Systems Engineering, Yokohama, Japan, September 2008.
- Fortune, J. and Valerdi, R., "Considerations for Successful Reuse in Systems Engineering," AIAA Space 2008, San Diego, CA, September 2008.
- Wang, G., Valerdi, R., Ankrum, A., Millar, C. and Roedler, G., "COSYSMO Reuse Extension," 18th INCOSE Symposium, Utrecht, The Netherlands, June 2008.
- Wang, G., Valerdi, R., Boehm, B. and Shernoff, A., "Proposed Modification to COSYSMO Estimating Relationship," 18th INCOSE Symposium, Utrecht, The Netherlands, June 2008.
- Blackburn, C. and Valerdi, R., "Measuring Systems Engineering Success: Insights From Baseball," 18th INCOSE Symposium, Utrecht, The Netherlands, June 2008.
- Valerdi, R., Nightingale, D. and Blackburn, C., "Practical Implications of Enterprise Research," 6th Conference on Systems Engineering Research, Los Angeles, CA, April 2008.
- Becerra-Fernández, I., Madey, G., Prietula, M., Rodríguez, D., Valerdi, R. and Wright, T., "Design and Development of a Virtual Emergency Operations Center for Disaster Management Research, Training, and Discovery," In Proceedings of the 41st Annual Hawaii International Conference on System Sciences, IEEE Computer Society Press, January 2008.

- Valerdi, R., Wheaton, M. J. and Fortune, J., "Systems Engineering Cost Estimation for Space Systems," AIAA Space 2007, Long Beach, CA, September 2007.
- Valerdi, R., "Cognitive Limits of Software Cost Estimation," 1st IEEE Conference on Empirical Software Engineering & Measurement, Madrid, Spain, September 2007.
- Fong, A., Valerdi, R. and Srinivasan, J., "Using a Boundary Object Framework to Analyze Inter-Organizational Collaboration," 17th INCOSE Symposium, San Diego, CA, June 2007.
- Valerdi, R. and Miller, C., "From Research to Reality: Making COSYSMO a Trusted Estimation Tool in Your Organization," 17th INCOSE Symposium, San Diego, CA, June 2007.
- Valerdi, R., Rieff, J., Roedler, G. and Wheaton, M., "Lessons Learned from Industrial Validation of COSYSMO," 17th INCOSE Symposium, San Diego, CA, June 2007.
- Valerdi, R., "Myth Buster: Do Engineers Trust Parametric Models Over Their Own Intuition?" 28th Conference of the International Society of Parametric Analysts, New Orleans, LA, May 2007.
- Valerdi, R., "Pioneers of Parametrics," 28th Conference of the International Society of Parametric Analysts, New Orleans, LA, May 2007.
- Valerdi, R. and Gaffney, J., "Reducing Risk and Uncertainty in COSYSMO Size and Cost Drivers: Some Techniques for Enhancing Accuracy," 5th Conference on Systems Engineering Research, Hoboken, NJ, March 2007.
- Fong, A., Valerdi, R. and Srinivasan, J., "Boundary Objects as a Framework to Understand the Role of Systems Integrators," 5th Conference on Systems Engineering Research, Hoboken, NJ, March 2007.
- Valerdi, R., Gaffney, J., Roedler, G. and Rieff, J., "Extensions of COSYSMO to Represent Reuse," 21st Forum on COCOMO and Software Cost Modeling, Herndon, VA, November 2006.
- Wang, G., Lane, J., Valerdi, R. and Boehm, B., "Towards a Work Breakdown Structure for Net Centric System of Systems Engineering and Management," 16th INCOSE Symposium, Orlando, FL, July 2006.
- Valerdi, R., "A Theory of Objective Sizing," 28th Conference of the International Society of Parametric Analysts, Seattle, WA, May 2006.
- Valerdi, R. and Dixit, I., "On the Use of Architectural Products for Cost Estimation," 4th Conference on Systems Engineering Research, Los Angeles, CA, April 2006.
- Honour, E. and Valerdi, R., "Advancing an Ontology for Systems Engineering to Allow Consistent Measurement," 4th Conference on Systems Engineering Research, Los Angeles, CA, April 2006.

- Valerdi, R., Merrill, J. and Maloney, P., "Cost Metrics for Unmanned Aerial Vehicles," AIAA 16th Lighter-Than-Air Systems Technology Conference and Balloon Systems Conference, Arlington, VA, September 2005.
- Valerdi, R. and Wheaton, M., "ANSI/EIA 632 As a Standard WBS for COSYSMO," AIAA 1st Infotech@Aerospace Conference, Arlington, VA, September 2005.
- Valerdi, R. and Raj, J., "Sea Level Requirements as Systems Engineering Size Metrics," 15th INCOSE Symposium, Rochester, NY, July 2005.
- Yang, Y., Chen, Z., Valerdi, R. and Boehm, B., "Effect of Schedule Compression on Project Effort," 27th Conference of the International Society of Parametric Analysts, Denver, CO, June 2005.
- Valerdi, R. and Eiche, B., "On Counting Requirements," 3rd Conference on Systems Engineering Research, Hoboken, NJ, March 2005.
- Valerdi, R., Miller, C. and Thomas, G., "Systems Engineering Cost Estimation by Consensus," 17th International Conference on Systems Engineering, Las Vegas, NV, September 2004.
- Valerdi, R., Chen, Y. and Yang, Y., "System Level Metrics for Software Development Estimation," 3rd ACM-IEEE International Symposium on Empirical Software Engineering, Redondo Beach, CA, August 2004.
- Chen, Y., Boehm, B. W., Madachy, R. and Valerdi, R., "An Empirical Study of eServices Product Sizing Metrics," 3rd ACM-IEEE International Symposium on Empirical Software Engineering, Redondo Beach, CA, August 2004.
- Valerdi, R., Ernstoff, M., Mohlman, P., Reifer, D. and Stump, E., "Systems Engineering Sizing in the Age of Acquisition Reform," 14th INCOSE Symposium, Toulouse, France, June 2004.
- Valerdi, R., Rieff, J., Roedler, G. and Wheaton, M., "Lessons Learned for Collecting Systems Engineering Data," 2nd Conference on Systems Engineering Research, Los Angeles, CA, April 2004.
- Valerdi, R. and Kohl, R., "An Approach to Technology Risk Management," 1st MIT Engineering Systems Division Symposium, Cambridge, MA, March 2004.
- Valerdi, R. and Majchrzak, A., "Individual Players in a Team Sport: Stakeholder Change in Commitment in ISD Projects," Americas Conference on Information Systems, Tampa, FL, August 2003.
- Valerdi, R., Boehm, B. W. and Reifer, D., "COSYSMO: A Constructive Systems Engineering Cost Model Coming of Age," 13th INCOSE Symposium, Crystal City, VA, July 2003.
- Boehm, B. W., Reifer, D. and Valerdi, R., "COSYSMO-IP: A Systems Engineering Cost Model," 1st Conference on Systems Integration, Hoboken, NJ, March 2003.

Martin, K. and Valerdi, R., "Opening the Windows of Motorola's Closed LANs," Motorola Systems Symposium, Schaumburg, IL, April 2001.

Valerdi, R., "UHF RF Signal Strength Variations in the Far Field Region," IEEE Southwest Area Student Technical Paper Competition, San Diego, CA, November 1999.

OTHER PUBLICATIONS & PRESENTATIONS

Valerdi, R., Does Conway's Law Apply to Your Organization?, *Industrial Engineer*, 2018.

Valerdi, R., Counterintuitive Results...or not, *Industrial Engineer*, 2018.

Valerdi, R., Decision Analysis Revisited, *Industrial Engineer*, 2018.

Valerdi, R., The Systems Columbus Had to Navigate, *Industrial Engineer*, 2017.

Valerdi, R., A Systems Thinking Habit: Pareto Improvement, *Industrial Engineer*, 2017.

Valerdi, R., What we can learn from baseball analytics, *Industrial Engineer*, 2017.

Valerdi, R., When It's Big Data and When It's Not, *Industrial Engineer*, 2017.

Valerdi, R., What is Bitcoin and why should you care?, *Industrial Engineer*, 2016.

Valerdi, R., Revisiting Brooks' Law, *Industrial Engineer*, 2016.

Valerdi, R., The Buzz About Virtual Reality, *Industrial Engineer*, 2016.

Valerdi, R., Ridesharing Apps are Transforming More than Just Transportation Systems, *Industrial Engineer*, 2016.

Valerdi, R., Unintended Consequences of Electric Vehicles, *Industrial Engineer*, 2015.

Valerdi, R., Interagency Panel on Systems Engineering, *Industrial Engineer*, 2015.

Valerdi, R., Teaching Systems Engineering With Robotics, *Industrial Engineer*, 2015.

Valerdi, R., Why Architectures Matter, *Industrial Engineer*, 2015.

Valerdi, R., Doctoral Research in Systems Engineering, *Industrial Engineer*, 2014.

Valerdi, R., Systems Engineering in Healthcare, *Industrial Engineer*, 2014.

Valerdi, R., Verification Methods, *Industrial Engineer*, 2014.

Valerdi, R., "Play Ball: The Science of Baseball Program," 1st Annual California STEM Summit, Sacramento, CA, Nov 18-19, 2013.

- Goldenson, D., Stoddard, B., Valerdi, R., Dunar, B., Menzies, T., "Improving Group Decision Making Under Uncertain Circumstances: Applications in Defense Acquisition," *28th Forum on COCOMO and Systems/Software Cost Modeling*, Los Angeles, CA, November 2013.
- Valerdi, R., Is Game Theory the new Sabermetrics?, *Industrial Engineer*, 2013.
- Valerdi, R., Cloud Computing as a System of Systems, *Industrial Engineer*, 2013.
- Valerdi, R., Modeling the STEM Ecosystem, *Industrial Engineer*, 45(5), May 2013.
- Valerdi, R., A System is Not Just the Sum of Its Parts, *Industrial Engineer*, 2013.
- Valerdi, R., Requirements Are King, *Industrial Engineer*, 25(2), 2013.
- Valerdi, R., Systems Engineering: A New Era of Space Exploration has Begun, *Industrial Engineer*, 24(4), 2012.
- Valerdi, R., What is systems engineering?, *Industrial Engineer*, 24(2), 2012.
- Valerdi, R., Hihn, J., Chattopadhyay, D., "How Engineers Really Think About Risk: A Study of JPL Engineers," *25th Forum on COCOMO and Systems/Software Cost Modeling*, Los Angeles, CA, November 2010.
- Pena, M. and Valerdi, R., "Characterizing the Impact of Requirements Volatility on Systems Engineering Effort," *25th Forum on COCOMO and Systems/Software Cost Modeling*, Los Angeles, CA, November 2010.
- Young, L. and Valerdi, R., "A Systematic Approach to Estimate the Life Cycle Cost and Effort of Project Management for Technology Centric Systems Development Projects," *25th Forum on COCOMO and Systems/Software Cost Modeling*, Los Angeles, CA, November 2010.
- Deonandan, I., Valerdi, R. and Lane, J., "Cost Elements and Policy Implications for Testing Unmanned and Autonomous Systems of Systems," *25th Forum on COCOMO and Systems/Software Cost Modeling*, Los Angeles, CA, November 2010.
- Valerdi, R., Sousa, G. and Loureiro, G., "Brazil: INCOSE's New Frontier," *INCOSE INSIGHT*, Vol. 13, No. 4, p. 50, December 2010.
- Valerdi, R. and Rhodes, D. H., "Report from the 2010 Workshop of INCOSE's Systems Engineering and Architecting Doctoral Student Network (SEANET)," *INCOSE INSIGHT*, Vol. 13, No. 2, pp. 53-55, July 2010.
- Kalawsky, R. and Valerdi, R., "Highlights from the 2009 Conference on Systems Engineering Research and Systems Engineering and Architecting Doctoral Network," *INCOSE INSIGHT*, Vol. 13, No. 2, pp. 7-9, July 2010.

- Valerdi, R., "Optimizing Optimism in Systems Engineers," INCOSE Conference on Decision Analysis and Its Applications to Systems Engineering, Newport News, VA, November 18, 2009.
- Fortune, J. and Valerdi, R., "COSYSMO 2.0: A Cost Model and Framework for Systems Engineering Reuse," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Valerdi, R., Potoski, M., Giombetti, M., Kim, J., Liu, K. and Fortune, J., "When More is Better: Design and Implementation Principles for Prediction Markets in Defense Acquisition Cost Forecasting," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Valerdi, R., Newnes, L., Goh, Y., Kreye, M. and Hihn, J., "Mental Models of Cost Estimation: A Focus on Uncertainty Assessment," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Giombetti, M., Valerdi, R. and Wagner, S., "The Influence of Software Quality Requirements on the Suitability of Software Cost Estimation Methods," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Newnes, L., Huang, X., Parry, G. and Valerdi, R., "Costing for Availability," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Madachy, R. and Valerdi, R., "Risk Analysis and Mitigation with Expert COSYSMO," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Liu, K., Valerdi, R., Rhodes, D. and Greene, F., "Better Early Estimation of Human Systems Integration Effort as a Means of Reducing Life Cycle Cost," *24th Forum on COCOMO and Software Cost Modeling*, Cambridge, MA, November 2009.
- Valerdi, R., "Using Cost Models to Capture Project Risk: A Knowledge-Based Approach," EADS/ECALAS Alumni Conference, Madrid, Spain, October 2009.
- Valerdi, R., "Economic Impact of Reuse on Systems Engineering, 4th Annual Innovative Electronics Manufacturing Conference, Loughborough University (U.K.), September 2, 2009.
- Valerdi, R., "Achieving Enterprise Excellence," Shingo Prize Mexico - ITESM Queretaro, August 2009.
- Valerdi, R. and Rhodes, D. H., "Report from the 2009 Workshop of INCOSE's Systems Engineering & Architecting Doctoral Student Network (SEANET)," *INCOSE INSIGHT*, Vol. 12, No. 2, pp. 50-51, July 2009.
- Adcock, R., Pyster, A. and Valerdi, R., "A Draft Reference Curriculum for Software Engineering Master's Programs," *INCOSE INSIGHT*, Vol. 12, No. 1, p. 40, April 2009.

- Valerdi, R. "INCOSE's Operations and Finances: Looking Back at 2008 and Forward to 2009," *INCOSE INSIGHT*, Vol. 12, No. 1, pp. 45-46, April 2009.
- Valerdi, R., "Heuristics and Biases in Software Cost Estimation," Recife Summer School - Centro de Estudos e Sistemas Avançados do Recife (Brazil), February 17, 2009.
- Valerdi, R., Fortune, J. and Wheaton, M. J., "Estimating the Cost of Systems Engineering for Space Systems," *INCOSE INSIGHT*, Vol. 11, No. 5, pp. 34-38, December 2008.
- Fortune, J., Valerdi, R. and Wang G., "Systems Engineering Reuse: A Report on the State of the Practice," *23rd Forum on COCOMO and Software Cost Modeling*, Los Angeles, October 2008.
- Valerdi, R. and Rhodes, D. H., "Report from the 2008 Workshop of INCOSE's Systems Engineering & Architecting Doctoral Student Network (SEANET)," *INCOSE INSIGHT*, Vol. 11, No. 3, pp. 53-54, July 2008.
- Rhodes, D. H. and Valerdi, R., "Enabling Research Synergies Through a Doctoral Research Network for Systems Engineering," *INCOSE INSIGHT*, Vol. 10, No. 3, pp. 17-18, July 2007.
- Lane, J. and Valerdi, R., "System of Systems Engineering Cost Modeling: What Makes it Different from Traditional Systems Engineering Cost Modeling," *22nd Forum on COCOMO and Software Cost Modeling*, Los Angeles, November 2007.
- Valerdi, R., Srinivasan, J. and Nightingale, N., "From Good to Lean: The Bottom Line Impact of Lean Thinking," Lean Aerospace Initiative Conference, Cambridge, MD, April 2007.
- Collar, E. and Valerdi, R., "Role of Software Readability on Software Development Cost," *21st Forum on COCOMO and Software Cost Modeling*, Herndon, VA, November 2006.
- Valerdi, R., El Fatatry, A. and Wang, G., "Counting the Cost," *The System – BAE Systems (Systems Engineering Innovation Centre)*, pp. 1-2, Summer 2006.
- Wang, G. and Valerdi, R., "Cost Effective? An Architecture-Based Cost Estimation Model," *The System – BAE Systems (Systems Engineering Innovation Centre)*, p. 3, Summer 2006.
- Valerdi, R. and Nightingale, D., "Coupling Lean Thinking and Systems Thinking at the Enterprise Level," *15th Industrial Engineering Research Conference*, Orlando, FL, May 2006.
- Valerdi, R., "Industry Calibration Results for COSYSMO," *INCOSE Los Angeles Chapter Mini Conference*, Los Angeles, CA, June 2005.
- Valerdi, R., "Systems Engineering: What's In a Name?" *14th Industrial Engineering Research Conference*, Atlanta, GA, May 2005.
- Valerdi, R. and Lane, J., "Steps Toward Model Unification for Software, Systems Engineering and Systems of Systems," *19th Forum on COCOMO and Software Cost Modeling*, Los Angeles, CA, October 2004.

Valerdi, R., "COSYSMO Working Group Report," *INCOSE INSIGHT*, Vol. 7, No. 3, pp. 24-25, October 2004.

RESEARCH FUNDING

\$10,000, Fellowship from the Udall Center for Studies in Public Policy (2021).

\$1,898,740, National Science Foundation for STEM, growth mindset, and sports: Investigating STEM program design features that impact youth engagement (2020-2024). Collaboration with Erin Turner (Education).

\$35,000, University of Arizona's Phased Approach to Reopening Research for Field Experiments of Interventions to Increase Use of Face Coverings on UA Campus (2020). Collaboration with Jeff Stone (Psychology), Anastasiya Ghosh (Marketing), Jennifer Savary (Marketing), Laura Brandimarte (Management Information Systems).

\$40,000, Sandia National Laboratories for systems engineering and program management cost support (2020).

\$20,000, Lockheed Martin Advanced Technology Laboratories for cost modeling for Artificial Intelligence-enabled platforms (2020).

\$25,000, University of Arizona Consortium on Gender-Based Violence for the enhancement of the Step UP! Bystander Intervention Program through Systems Thinking (2020). Collaboration with the Department of Intercollegiate Athletics.

\$25,000, Sandia National Laboratories for a workshop on storytelling with models (2019).

\$20,000, Sandia National Laboratories for cost estimation of nuclear weapon systems (2019).

\$15,000, University of Arizona Office of Research, Discovery & Innovation for a pilot study to improve student-athlete wellbeing through the use of a self-care app (2019). Collaboration between the Andrew Weil Center for Integrative Medicine, Athletics Department, and College of Engineering.

\$148,000, Office of Naval Research for the development of a taxonomy and ontology for expeditionary cyber systems applied to cognitive radio (2018). Collaboration with Army Research Laboratory.

\$147,970, U.S. Military Academy at West Point for sabbatical appointment as Visiting Professor (2017).

\$30,000, Raytheon Missile Systems for the tailoring of a cost model for agile projects (2016).

\$120,000, U.S. Navy Acquisition Research Program for the validation of Leading Indicators for Systems Engineering using Bayesian Belief Networks (2016).

\$100,000, NCAA Mind Matters Challenge for the development of a virtual reality smart phone app to improve concussion education among student athletes and soldiers (2015). Collaboration with the UA College of Medicine and Athletics Department. Led to the creation of a new company Concussion Discussion, LLC.

\$120,000, U.S. Navy Acquisition Research Program for Cost Model for Autonomous Systems (2015).

\$20,000, Confluentcenter for Creative Inquiry Faculty Collaboration Grant for an analysis of baseball swing mechanics from a biomedical and artistic perspective (2014). Collaboration between College of Engineering, School of Dance, and College of Medicine.

\$120,000, U.S. Navy Acquisition Research Program for Making Big Data, Safe Data: A Test Optimization Approach (2014).

\$5,000, Raytheon Missile Systems for the development of a systems engineering productivity metric (2013).

\$33,000, Raytheon Integrated Defense Systems for the tailoring of a systems engineering cost model (2013).

\$120,000, U.S. Navy Acquisition Research Program for Modeling "Should Cost" and "Will Cost" Using Model-Based Systems Engineering (2013).

\$792,484, U.S. Air Force Office of Scientific Research, DDDAS-based Resilient Cyberspace (2012-2016). Joint project with UA Electrical & Computer Engineering and Oak Ridge National Laboratory.

\$9,000, University of Arizona Green Fund for the development of a systems thinking educational module to promote sustainable behaviors among freshmen residents (2012). Joint project with UA Residence Life & Systems Thinking in Schools Project.

\$95,880, Raytheon Network Centric Systems for the Independent Validation and Assessment of Integrated Fixed Towers for border security (2012).

\$30,000, Raytheon Missile Systems for the calibration of a systems engineering cost model (2011).

\$125,000, Lockheed Martin for the evaluation of cost, risk and technical scalability of Ocean Thermal Energy Conversion plants (2011).

\$22,000, MIT-Brazil Seed Fund for Systems Engineering a Brazilian Pico-satellite: A Focus on Test & Evaluation (2011). Joint project with Brazilian Space Agency.

\$120,000, The Aerospace Corporation for the development of a predictive model to quantify the economic benefits of reuse in the context of systems engineering (2010).

\$50,000, U.S. Air Force Acquisition Chief Process Office for a study on reform approaches for rapid acquisition programs (2010).

\$20,000, IBM Center for the Business of Government for a report on credible and accurate cost estimates (2010).

\$120,000, U.S. Navy Acquisition Research Program for the development of a prediction market to improve cost estimation of DoD weapons systems (2009). Joint project with Iowa State University.

\$208,121, U.S. Air Force Acquisition Chief Process Office for the development of a methodology for risk assessment of a portfolio of programs (2009).

\$3,819,746, U.S. Army White Sands Missile Range for the development of a decision support system for Unmanned & Autonomous Systems of Systems test & evaluation (2009-2011). Joint project with University of Southern California and University of Texas Arlington.

\$427,620, U.S. Air Force Office of the Surgeon General for the development of a cost model and leading indicators for Human Systems Integration (2008-2010).

\$40,000, U.S. Air Force Space & Missile Systems Center for a pilot study of systems engineering cost estimation in the space systems context (2007).

\$40,000, The Aerospace Corporation for an exploration of boundary objects as a framework for understanding the interfaces between systems integrators and the U.S. Air Force (2007).

\$75,000, BAE Systems North America for the development of a cost model for capabilities-based acquisition and enterprise architecting (2005-2007).

EDUCATIONAL/OUTREACH PROGRAM FUNDING

\$10,000, IBM Faculty Award for the development of teaching modules using Watson Analytics using baseball examples (2015).

\$8,000, GaN Corporation for the continuation of the Arizona Science of Baseball STEM outreach program at the Tucson Boys & Girls Club and Tucson Children's Museum (2015).

\$500, University of Arizona Student/Faculty Interaction Grant - Office of the Senior Vice President for Student Affairs and Enrollment Management (Fall 2014).

\$500, University of Arizona Student/Faculty Interaction Grant - Office of the Senior Vice President for Student Affairs and Enrollment Management (Spring 2014).

\$7,500, Dorrance Family Foundation for the support of the Arizona Science of Baseball STEM outreach program (2014).

\$500, University of Arizona Student/Faculty Interaction Grant - Office of the Senior Vice President for Student Affairs and Enrollment Management (Fall 2013).

\$419,741, U.S. Department of Education in support of the STEM Futures Grant to develop systems engineering curriculum and experiential components at Arizona Western College (2013-2016).

\$336,141, Arizona Diamondbacks Foundation for the establishment of the Diamondbacks Science of Baseball STEM outreach program (2013-2015).

\$1,000, Hughes Federal Credit Union for the support of the Arizona Science of Baseball STEM outreach program (2013).

\$10,000, University of Arizona Outreach College for the development of "SIE 454A/554A Systems Engineering" for online delivery (2013).

\$3,000, Zuckerman Community Outreach Foundation for the support of the Arizona Science of Baseball STEM outreach program (2012).

\$15,000, GaN Corporation for the establishment of the Arizona Science of Baseball STEM outreach program (2012).

\$10,000, University of Arizona Outreach College for the development of "SIE 464-564 Cost Estimation" for online delivery (2012).

INVENTION DISCLOSURES AND INTELLECTUAL PROPERTY

Medical Task Recorder for Clinical Settings – University of Arizona Technology Licensing Office (November 2013)

Science of Baseball STEM Curriculum – University of Arizona Technology Licensing Office (October 2013) Resulted in a University of Arizona spinoff company (Science of Sport) that generates revenue to the University through a license agreement.

Smart Phone App for Improving Risk Intelligence – University of Arizona Technology Licensing Office (December 2012)

TEACHING & GRADUATE STUDENT SUPERVISION

Courses

At the University of Arizona

HNRS195I Esports, Spring 2020; Spring 2021; Spring 2022; Spring 2023

HNRS195I The Science of Baseball, Fall 2013; Fall 2014; Fall 2015; Fall 2016

HNRS195I Social Networks, Fall 2012

SIE 464/564 Cost Estimation (new course at UA) Spring 2012; Spring 2013; Spring 2014; Spring 2015; Spring 2016; Spring 2017; Spring 2019; Spring 2020; Spring 2021

SIE 454A/554A The Systems Engineering Process; Fall 2011; Fall 2012; Fall 2013; Fall 2014; Fall 2015; Fall 2016

MGMT 359 Sports Analytics (new course at UA) Summer 2017; Fall 2018; Fall 2019; Fall 2020; Fall 2021

SIE 432/532 Sports Analytics (new course at UA) Summer 2019; Summer 2020; Summer 2021; Summer 2022; Summer 2023

At the United States Military Academy

SE 385 Decision Analysis; Spring 2018

At the Massachusetts Institute of Technology

ESD.361 Cost Estimation & Measurement Systems (new course at MIT); Fall 2007;
Fall 2008; Fall 2009; Fall 2010

Committee Member or External Examiner

Scott Simmonds, Ph.D. in Systems Engineering, University of South Australia (2020)

Keith Allen, Ph.D. in Systems & Industrial Engineering, University of Arizona (2018)

Christopher Oster, Ph.D. in Systems Engineering, Stevens Institute of Technology
(2015)

Ross Arnold, Ph.D. in Systems Engineering, Stevens Institute of Technology (2015); in
progress

Michael Edwards, Ph.D. in Systems Engineering, University of South Australia (2015)

Leone Young, Ph.D. in Systems Engineering, Stevens Institute of Technology (2015)

Xuan-Linh Tran, Ph.D. in Systems Engineering, University of South Australia (2014)

Chris Miller, Ph.D. in Systems Engineering, George Washington University (2011)

Mohammad Saravi, Ph.D. in Mechanical Engineering, University of Bath (2010)

Tsoline Mikaelian, Ph.D. in Aero/Astro, MIT (2009)

Caroline Lamb, Ph.D. in Aero/Astro, MIT (2009)

Jesal Bhuta, PhD. in Computer Science, USC (2007)

Jatin Raj, M.S. in Computer Science, San Diego State University (2006)

Doctoral Thesis Advisor or co-Advisor

Mostafa Lutfi, Ph.D. in Systems & Industrial Engineering, UA (in progress)

Mitchell Kitshner, Ph.D. in Systems & Industrial Engineering, UA (2023)

James Dianics, Ph.D. in Systems & Industrial Engineering, UA (did not finish)

Matt Dabkowski, Ph.D. in Systems & Industrial Engineering, UA (2016)

Mauricio Pena, Ph.D. in Industrial & Systems Engineering, USC (2012)

Jorge Aguilar Cisneros, Ph.D. in Software Engineering, Universidad Popular
Autonoma Estado de Puebla, Mexico (2009)

Jared Fortune, Ph.D. in Industrial & Systems Engineering, USC (2009)

SERVICE

Outreach

Founder, Science of Sport - STEM outreach program for K-12 teachers
and students

Licensed to the Arizona Diamondbacks (2013)

Licensed to the Adelaide Bite (Australia) (2013)

Licensed to the Los Angeles Angels of Anaheim (2014)

Licensed to the San Diego Padres (2014)

Licensed to the Colorado Rockies (2015)

Licensed to the Washington Nationals (2015)

Licensed to Major League Baseball (2016)

Licensed to Atlanta Braves (2017)

Licensed to Oakland Athletics (2018)

Licensed to Texas Rangers (2018)

Licensed to Kansas City Royals (2018)

Licensed to Los Angeles Dodgers (2018)

Licensed to Philadelphia Phillies (2021)
Licensed to Tampa Bay Rays (2022)
Licensed to Chicago Cubs (2022)
Creator of RoboCup Jr. curriculum, soccer robotics program for Arizona schools, that teaches product development, software engineering, and systems engineering
Used in summer course at UA by engineering undergraduate students from ITESM Sonora
Used in after school program at Sunnyside Unified School District in Tucson

Department Service

Faculty search committee Chair (2016, 2021)
Faculty peer review committee Chair (2020, 2021)
SIE Undergraduate Committee (2015)
SIE Graduate Committee (2013, 2014, 2015)
Institutional Review Board representative (2013, 2014, 2015)
Faculty search committee (2013, 2015, 2016, 2018, 2019, 2021)
Promotion & Tenure Committee for G. Bayraksan (2011), H. Liao (2012), Liu (2013), Furfaro (2015), Fan (2018), Salado (2021)

College Service

Dean of Engineering search committee (2019)
College Representative, Faculty Senate (2014-2016; 2020-2021)
College of Engineering Post Tenure Review Audit Committee (2015-16)
Reviewer, College of Engineering PhD Student Fellowships (2015)
Search Committee, Department of Electrical & Computer Engineering – 5 positions (2015)
Search Committee, College of Engineering Proposal Services Coordinator (2015)
Search Committee, Assistant Dean of Graduate Education (2014)
Reviewer, Thomas R. Brown Scholarship (2013)
Guest lecture for ENGR 102 (freshman design course) Fall 2011, Spring 2012, Fall 2012, Spring 2013, Spring 2014, Fall 2014, Fall 2015, Fall 2016, Fall 2017, Fall 2018)

University Service

Chair, University Ombuds Committee (2021 – 2022)
Search Committee, Deputy Director for Title IX, Office of the President (2019)
Member of the Conduct Advisory Committee (2018 – present)
Member of the Intercollegiate Athletics Committee (2017 – present)
Member of search committee for Director of the Race Track Industry Program (RTIP) in the College of Agriculture and Life Sciences (2016)
Member of search committee for Associate Director of Business Development for Water and Energy Sustainable Technology (WEST) Center (2016)
Member of faculty search committee for University-wide cluster hire in Space Situational Awareness (2016)
Faculty Fellow - Gila Hall (2014), Likins Hall (2015, 2016)
Search committee, Eller College of Management/Technology Licensing Office search for embedded Licensing Manager (2013)
Reviewer, Packard Faculty Fellowships (2013)

Committee member, Vice President of Research/University of Arizona Foundation campus-wide business processes (2012-2014)

External Service

Board of Advisors, Systems Engineering Department at the United States Military Academy (2015 – present)
Promotion letter for faculty at SUNY Binghamton (2016)
Promotion letter for faculty at United States Military Academy (2016)
Promotion and tenure letter for faculty at University of Texas El Paso (2015)
Promotion and tenure letter for faculty at Air Force Institute of Technology (2020)

Editorial Activities

Editor-in-Chief, *Journal of Cost Analysis and Parametrics* (published three times per year by Taylor & Francis on behalf of the International Cost Estimating and Analysis Association), 2012-2018
Founder and co-Editor-in-Chief, *Journal of Enterprise Transformation* (published quarterly by Taylor & Francis on behalf of the International Council on Systems Engineering and Institute of Industrial Engineers), 2010-2015
Selection committee for Editor-in-Chief for *Systems Engineering Journal* on behalf of the International Council on Systems Engineering (2012)
Guest Editor (special issue on cost estimation), *International Journal of Computer Aided Manufacturing* (2010)
Editorial Advisory Board, *Enterprise Information Systems Journal* (since 2007)
Editorial Advisory Board, Complex and Enterprise Systems Engineering Book Series (2008)

Reviewer

Taylor & Francis Group; IEEE Software; IEEE Systems Journal; International Journal of E-Collaboration; Information, Knowledge, and Systems Management Journal; Journal of Systems Engineering; Journal of Systems & Software; Empirical Software Engineering Journal; Journal of Engineering Design

Conferences

Master of Ceremonies, INCOSE Symposium, Orlando, FL (2019)
Program co-Chair, World Automation Congress, Kona, Hawaii (2014)
Advisory Committee, 37th National Systems Conference – Center of Excellence in Systems Science, IIT Jodhpur (Rajasthan, India; 2013)
Lean Enterprise Software and Systems Conference, (Galway, Ireland; 2013)
General co-Chair, 8th IEEE International Conference on System of Systems Engineering (Maui, Hawaii; 2013)
Program Committee, 11th Annual Conference on Systems Engineering Research (Atlanta, GA; 2013)
Co-Chair, 1st Annual Enterprise Transformation Research Workshop (Atlanta, GA; 2013)
Program Committee, 10th Annual Conference on Systems Engineering Research (St. Louis, MO; 2012)
Program co-Chair, 6th IEEE International Conference on System of Systems Engineering (Albuquerque, NM; 2011)
General Chair, 24th International Forum on COCOMO and Software Cost Modeling (Los Angeles, CA; 2009)
Technical co-chair, MIT Lean Aerospace Initiative Conference (2007)
Program Committee, Forum on COCOMO and Software Cost Modeling (2004-

present)
Co-Director, INCOSE Systems Engineering & Architecting Doctoral Student Network (SEANET) (2006-present)
Program Committee, Conference on Systems Engineering Research (Los Angeles, CA 2004; Hoboken, NJ 2015)

MEDIA COVERAGE

- “UArizona I-Squared Awards & Expo celebrates innovation, commercialization and impact,” *Tech Launch Arizona* (Paul Tumarkin), September 12, 2023.
<https://techlaunch.arizona.edu/news/uarizona-i-squared-awards-expo-celebrates-innovation-commercialization-and-impact>
- “USC Viterbi-Led Startup Science of Sport Connects Kids to STEM,” *USC Viterbi School of Engineering News* (Arya Desai), September 1, 2023
<https://viterbischool.usc.edu/news/2023/09/usc-viterbi-led-startup-science-of-sport-connects-kids-to-stem/>
- “Embracing the Future: Ricardo Valerdi Leads SIE into the Next 60 Years of Innovation,” *UA College of Engineering News* (Angelique Leon), July 17, 2023
<https://news.engineering.arizona.edu/news/embracing-future-ricardo-valerdi-leads-sie-next-60-years-innovation>
<https://sie.engineering.arizona.edu/news-events/embracing-future-ricardo-valerdi-leads-sie-next-60-years-innovation>
- “Systems & Industrial Engineering Professor Furthers Software Research as a Fulbright Specialist,” *UA College of Engineering News* (Katy Smith), March 30, 2022
<https://news.engineering.arizona.edu/news/systems-industrial-engineering-professor-furthers-software-research-fulbright-specialist>
- “2021-22 Udall Center Fellows Announced!” *Udall Center for Studies in Public Policy*, June 4, 2021 <http://udallcenter.arizona.edu/news/articles/2021-22-udall-center-fellows-announced>
- “LADF launches Science of Baseball home kits to address pandemic learning loss,” *Dodger Insider Magazine* (Erin Edwards), March 12, 2021 <https://dodgers.mlblogs.com/ladf-launches-science-of-baseball-home-kits-to-address-pandemic-learning-loss-5ad2fd6282ef>
- “Los Angeles Dodgers Foundation Launches Science of Baseball Home Kits to Address Learning Loss,” *Sentinel New Service*, March 11, 2021 <https://lasentinel.net/los-angeles-dodgers-foundation-launches-science-of-baseball-home-kits-to-address-learning-loss.html>
- “Today’s Lesson, Home Run Science. Your Teacher? The Dodgers,” *Los Angeles Times* (Bill Shaikin), June 1, 2019 <https://www.latimes.com/sports/dodgers/la-sp-dodgers-science-launch-angle-geometry-elementary-students-20190531-story.html>
- “STEMfooty Partners With Science of Sport,” *Adelaide Football Club* (Katie Gloede), May 7, 2019 <https://m.afc.com.au/news/2019-04-30/stemfooty-partners-with-science-of-sport>
- “Sugar Bowl helps bring ‘Science of Football’ into classrooms,” *Crescent City Sports* (Lenny Vangilder), October 26, 2018 <https://crescentcitysports.com/video-sugar-bowl-helps-bring-science-of-football-into-classrooms/>
- “Science of Sport Seeks to Grow Its Impact in STEM Education,” *Sporttechie* (Jesse Lovejoy), October 19, 2018 <https://www.sporttechie.com/science-of-sport-seeks-to-grow-stem-education/>

“Crows Launch Innovative STEM Program,” September 28, 2018
<http://www.afc.com.au/news/2018-09-28/crows-launch-innovative-stem-program>

“From UA Engineering to SpaceX to West Point and Back: A Q&A With Ricardo Valerdi,” *UA College of Engineering News* (Emily Dieckman), September 14, 2018
<https://news.engineering.arizona.edu/news/ua-engineering-spacex-west-point-and-back-qa-ricardo-valerdi>

“Science of Basketball,” *Fox Sports Southwest*, March 31, 2018
<https://www.foxsports.com/southwest/video/1199571523996>

“PAC-12 Reform,” *Arizona Public Media*, March 16, 2018.
<https://www.youtube.com/watch?v=tXx8DT2TdRg>

“UA President Appoints Engineer as Faculty Athletic Representative to PAC-12 and NCAA,” *Arizona Engineer* (Jill Goetz), December 5, 2017
<https://news.engineering.arizona.edu/news/ua-president-appoints-engineer-faculty-athletic-representative-pac-12-and-ncaa>

“New sports analytics class proves popular at University of Arizona,” *Arizona Daily Star* (Michael Lev), June 24, 2017 http://tucson.com/sports/arizonawildcats/new-sports-analytics-class-proves-popular-at-university-of-arizona/article_d09f9d54-90d3-5d62-9133-30fc84032d05.html

“Cats are Out, But will Tucson Benefit from the Final Four?” *Arizona Public Media* (Tony Perkins), March 31, 2017 <https://www.azpm.org/p/home-articles-news/2017/3/31/108390-episode-131-cats-are-out-but-can-tucson-benefit-from-final-four/>

“The Science of Sport,” *Arizona Science, 89.1 FM NPR Arizona Public Media* (Tim Swindle), March 24, 2017 <https://radio.azpm.org/p/radio-azscience/2017/3/23/107994-episode-73-the-science-of-sport/>

“Mexico’s Academy of Engineering Inducts Systems Engineer Ricardo Valerdi,” *Arizona Engineer* (Jill Goetz), January 16, 2017.
<http://news.engineering.arizona.edu/news/mexico%E2%80%99s-academy-engineering-inducts-systems-engineer-ricardo-valerdi>

“Mexicano es reconocido internacionalmente por creación de modelo de ingeniería de costos,” *Investigación y Desarrollo*, January 12, 2017.
<http://invdes.com.mx/innovacion/5076-mexicano-es-reconocido-internacionalmente-por-creacion-de-modelo-de-ingenieria-de-costos.html>
<http://www.ai.org.mx/noticias/mexicano-es-reconocido-internacionalmente-por-creaci%C3%B3n-de-modelo-de-ingenier%C3%ADa-de-costos>
<http://diarioportal.com/post/155728421754/mexicano-es-reconocido-internacionalmente-por>
<http://laeducacion.us/mexicano-es-reconocido-internacionalmente-por-creacion-de-modelo-de-ingenieria-de-costos/>
<http://periodicoentretodos.com/2017/01/12/mexicano-es-reconocido-internacionalmente-por-creacion-de-modelo-de-ingenieria-de-costos/>

“Nearly 6,000 football helmets recalled for head injury risk,” *KVOA Tucson News* (Aalia Shaheed), August 18, 2016.
<http://www.kvoa.com/story/32793770/nearly-6000-football-helmets-recalled-for-head-injury-risk>

“Students get a lesson in math and science through Angels baseball,” *Los Angeles Times* (Alex Chan), June 30, 2016 <http://www.latimes.com/socal/daily-pilot/news/tn-dpt-me-0701-baseball-science-20160701-story.html>

"Inning of Giving – Science of Baseball," *MLB.TV*, June 29, 2016
http://m.mlb.com/ari/video/topic/69972746/v872117883/?c_id=ari

"Students Explore Innovation at STEAMworks," *UA News*, April 19, 2016
<https://uanews.arizona.edu/story/students-explore-innovation-steamworks>

"How a smartphone app and \$15 piece of cardboard are taking on football concussions," *SB Nation* (Louis Bien), March 29, 2016
<http://www.sbnation.com/2016/3/29/11318382/nfl-college-football-concussions-diagnosis-smartphone-app>

"Students Get a Kick out of STEM," *The Coast News Group* (Steve Puterski), March 11, 2016
<http://www.thecoastnews.com/2016/03/11/students-get-a-kick-out-of-stem>

"D-backs teach science on Tucson trip: Team uses fun activities to present STEM education," *MLB.com* (Angela Denogean), March 8, 2016 atmlb.com/1QF9ivd

"Why The Knuckleball Pitch Is So Hard To Master In Baseball," *KJZZ* (Steve Goldstein), March 4, 2016 <http://kjzz.org/content/274086/why-knuckleball-pitch-so-hard-master-baseball>

"Program mixes soccer, science lessons," *The Press-Enterprise* (Laurie Williams), February 26, 2016 <http://www.pe.com/articles/soccer-795549-school-stem.html>

"Let's have a concussion discussion: UA researchers team with athletes to cut concussions," *The Daily Wildcat* (Mackenzie Boulter), February 18, 2016
<http://www.wildcat.arizona.edu/article/2016/02/lets-have-a-concussion-discussion-ua-researchers-team-with-athletes-to-cut-concussions>

"University Of Arizona Football Players Develop App To Help Recognize Concussion Symptoms," *Sport Techie* (Josh Shanes), February 10, 2016
<http://www.sporttechie.com/2016/02/10/university-of-arizona-football-players-develop-app-to-help-recognize-concussion-symptoms/>

"This virtual reality app will show you what it's like to have a concussion," *Mashable* (Adario Strange), February 9, 2016 <http://mashable.com/2016/02/09/virtual-reality-concussion/#kywUPF3tsmq>

"Virtual reality concussion app presented to NCAA officials," *KOLD 13 Tucson/FOX 11* (Janice Yu), February 8, 2016 <http://www.tucsonnewsnow.com/story/31162567/virtual-reality-concussion-app-presented-to-ncaa-officials>

"App Simulates Concussion Issue for Football Players," *Facility Safety Management*, February 8, 2016. <http://fsmmag.com/Articles/2016/02/Daily-Articles/App-Simulates-Concussion-Issue-for-Football-Players.html>

"UA-built App Tackles Concussion Issue Head-On," *UA News* (Emily Litvack), February 3, 2016 <https://uanews.arizona.edu/story/ua-built-app-tackles-concussion-issue-head-on>

"UA App Designed to Help Athletes Tackle Concussion Symptoms," *KJZZ 91.5* (Sara Hammond), February 2, 2016 <http://kjzz.org/content/259243/ua-app-designed-help-athletes-tackle-concussion-symptoms> and *Arizona Public Media NPR*
<https://news.azpm.org/p/state-and-local/2016/2/1/81170-ua-app-uses-virtual-reality-to-simulate-concussion-effects/>

"UA Team to Present Concussion App to NCAA," *KOLD Tucson/FOX 11* (Teresa Jun), February 1, 2016. <http://www.tucsonnewsnow.com/story/31112093/ua-team-to-present-its-concussion-app-to-ncaa>

"Students program soccer-playing robots with help of UA professor," *The Daily Wildcat* (Natalie Robbins), January 22, 2016.
<http://www.wildcat.arizona.edu/article/2016/01/students-program-soccer-playing-robots-with-help-of-ua-professor>

"Take Fewer Knocks to the Head: App Makes Athletes Think About Concussions," *Industrial Engineer*, Industrial Engineer Magazine, December 2015.

"Baseball and softball: They're a science," *The Daily Wildcat* (Elizabeth Hannah), December 11, 2015. <http://www.wildcat.arizona.edu/article/2015/12/baseball-and-softball-theyre-a-science>

"N4T Investigators: Helmet Hazards," *NBC News 4 Tucson* (Bret Buganski), Oct 29, 2015. <http://www.kvoa.com/story/30386728/n4t-investigators-helmet-hazards>

"UA developing virtual reality concussion awareness app for athletes," *AZ Tech Beat* (Chloe Nordquist), October 6, 2015. <http://aztechbeat.com/2015/10/ua-developing-virtual-reality-concussion-awareness-app-for-athletes/>

"Know the symptoms of concussion? There's an app for that," *AZ Family KTKV* (Jason Volentine), October 1, 2015. <http://www.azfamily.com/story/30158532/concussions-theres-an-app-for-that>

"App helps athletes recognize concussions," *KSAZ Fox 10 Arizona* (Marcy Jones), September 30, 2015. <http://www.fox10phoenix.com/arizona-news/27051516-story>

"University of Arizona researchers are building a Google Cardboard app that will let users familiarize themselves with head injury as a form of precaution," *PSFK* (Emma Hutchins), September 30, 2015. <http://www.psfk.com/2015/09/side-effects-of-a-concussion-student-athletes-google-cardboard.html>

"UA researchers, athletes work to develop concussion education app," *KOLD 13 Tucson/FOX 11* (Barbara Grijalva), September 29, 2015. <http://www.tucsonnewsnow.com/story/30136578/ua-scientists-and-athletes-work-to-develop-concussion-education-app>

"App has athletes seeing double to make them think twice about concussions," *Phys.org* (Brie DeFelice), September 28, 2015. <http://m.phys.org/news/2015-09-app-athletes-concussions.html>

"The Science of Baseball: Using the Game to Draw Students to STEM, Arizona Diamondbacks Partner With U. of Arizona Professor to Engage Kids," *Chase Bank* (Kelsey Perry), September 29, 2015. https://www.chase.com/news/092815-science-of-baseball?jp_cmp=en/Share/ema/na/Email

"UA group developing app to educate athletes and parents about concussions," *KTAR News* (Bob McClay), September 28, 2015. <http://ktar.com/story/661905/uofa-group-developing-app-to-educate-athletes-and-parents-about-concussions/>

"Concussion Awareness: Virtual Reality App Makes Athletes See Double," *Medical Design Technology Magazine*, September 28, 2015. <http://www.mdtmag.com/news/2015/09/concussion-awareness-virtual-reality-app-makes-athletes-see-double>

"Virtual Reality App Simulates Concussions," *Training & Conditioning* September 28, 2015. <http://training-conditioning.com/content/virtual-reality-app-simulates-concussions>

"App Makes Athletes Think About Concussions," *UA News* (Jill Goetz), September 23, 2015. <http://uanews.org/story/app-makes-athletes-think-about-concussions>

"The Perfect Home Run: Academy Scholar-Athletes Learn the 'Science of Baseball'," *Nationals Community Newsletter* (Zach Jamison), August 2015. <http://washington.nationals.mlb.com/was/community/newsletter.jsp?partnerId=ed-9553431-822880373>

"Angels Program Teaches Kids Science, Math Through Baseball," *ABC7 Los Angeles* (Greg Lee), July 24, 2015 <http://abc7.com/879159>

"Ricardo Valerdi Receives Top Honor from International Cost Estimating Society," *Arizona Engineer* (Jill Goetz), June 30, 2015. <http://news.engr.arizona.edu/news/ricardo-valerdi-receives-top-honor-international-cost-estimation-society>

"D-Backs Teach the Teachers," MLB.tv, June 19, 2015. <http://atmlb.com/1GyFskW>

"New 'Science of Baseball' Ready for Takeoff at Nationals Youth Baseball Academy," *MLB.com* (Stephen Neill), June 9, 2015. <http://atmlb.com/1QSpp6c>

"Ricardo Valerdi and the Science of Baseball," *ICEAA World* (Joe Wagner), Issue 1, April 2015.

"Colorado Rockies Announce New Science of Baseball School Program," *KKTV News, Channel 11 CBS* (Rockies PR), March 20, 2015. <http://www.kktv.com/sports/headlines/Colorado-Rockies-Announce-New-Science-of-Baseball-School-Program-297109921.html> and <http://atmlb.com/1FkGS6c>

"Anaheim students will learn science through sports with help from Angels, Galaxy," *Orange County Register* (Sarah Tully), Feb 9, 2015. <http://www.ocregister.com/articles/science-650675-angels-galaxy.html>

"Science of baseball is big hit with middle-school students," *Arizona Daily Star* (Caitlin Schmidt), Feb 7, 2015. http://tucson.com/news/article_e5d5daf9-72e6-54a9-a5be-ea725c9318b3.html

"Discussion Set for UA Campus in Downtown Phoenix During Football Festivities," UA College of Medicine Press Release, Jan 21, 2015. <http://phoenixmed.arizona.edu/news/concussion-discussion-tackle-brain-challenges>

"Ricardo Valerdi UA's First Distinguished Visiting Fellow at UK Royal Academy of Engineering," *Arizona Engineer* (Jill Goetz), Dec 10, 2014. <http://news.engr.arizona.edu/news/ricardo-valerdi-ua%E2%80%99s-first-distinguished-visiting-fellow-uk-royal-academy-engineering>

"Systems Engineer Ricardo Valerdi Is Galorath Estimator of the Year," *Arizona Engineer* (Jill Goetz), Dec 10, 2014. <http://news.engr.arizona.edu/news/systems-engineer-ricardo-valerdi-galorath-estimator-year>

"Presenting the Galorath Estimator of the Year: Dr. Ricardo Valerdi," *Galorath Press Release* (Kelly Wellper), Dec 9, 2014. <http://www.galorath.com/wp/presenting-the-galorath-estimator-of-the-year-dr-ricardo-valerdi.php>

"Galorath, Inc. Awards 2014 Estimator of the Year to Dr. Ricardo Valerdi," *California Newswire* (Christopher Simmons), Dec 9, 2014. http://californianewswire.com/2014/12/09/CNW22413_121834.php/galorath-inc-announces-its-estimator-of-the-year-award-for-2014-goes-to-dr-ricardo-valerdi/

"Diamondbacks Science Promo Is A Big Winner..." *Sports Marketing & PR Roundup* (Joe Favorito), September 26, 2014. <http://joefavorito.com/2014/09/26/diamondback-science-promo-is-a-big-winner/>

"D-backs Welcome 14,000 Students for Science of Baseball and STEM Showcase," MLB Press Release, September 24, 2014. <https://www.mlb.com/news/d-backs-welcome-14000-students-for-science-of-baseball-and-stem-showcase/c-96209826>

"Volunteerism Increases at Arizona Colleges," *Arizona Sonora News Service* (Reham Alawadhi), Sept 24, 2014. <http://arizonasonoranewsservice.com/volunteerism-increases-arizona-colleges>

"LA Galaxy Announce LA Galaxy Science of Soccer Program," *LA Galaxy Communications Department*, September 15, 2014. <http://www.lagalaxy.com/news/2014/09/la-galaxy-announce-la-galaxy-science-soccer-program>

"This One's for You, Memo!" *Arizona Engineer* (Jill Goetz), July 28, 2014.
<http://news.engr.arizona.edu/news/one%E2%80%99s-you-memo>
 Reprinted in *Global Reach*, Vol. 13, pp. 6-7, November 2014 (cover article).

"Soccer-Playing Robots Invade UA," *Arizona Public Media/NPR* (Zachary Ziegler), July 24, 2014. <https://radio.azpm.org/p/azspotlight/2014/7/24/40348-soccer-playing-robots-invade-ua/>

"Ingenieros al grito de gooooooooool," *La Estrella de Tucson* (Liliana Lopez), July 23, 2014.
http://tucson.com/laestrella/ciudad/ingenieros-al-grito-de-gooooooooool/article_7f571462-5c0b-5419-bcee-1a8092677c0f.html

"Visiting Mexican Students Compete in RoboCup Soccer Event," *UA News*, July 21, 2014.
<http://uanews.org/photos/visiting-mexican-students-compete-robocup-soccer-event>

"GOOOOOOAAAL!!! U of A exchange students build fútbol playing robots," *AZ Tech Beat* (Ryan Loebe), July 21, 2014. <http://aztechbeat.com/2014/07/ua-exchange-students-mx-futbol-robots/>

"Students meet goals building soccer-playing robots," *Arizona Daily Star* (Tom Beal), July 18, 2014. http://tucson.com/news/science/students-meet-goals-building-soccer-playing-robots/article_180c93df-15b2-5fcd-a126-616db888348f.html

"Coded to win: Student-built soccer robots set to battle at UA," *KTAR.com*, July 16, 2014.
<http://ktar.com/22/1750931/Coded-to-win-Studentbuilt-soccer-robots-set-to-battle-at-UA>

"UA-Developed STEM Curriculum Hits Homerun with Science of Sport Startup," *Tech Launch Arizona* (Paul Tumarkin), July 16, 2014. <http://techlaunch.arizona.edu/article/science-sport-starts>

"Testing the Limits," *BizTucson* (Dan Sorenson), p. 115, Summer 2014.

"Earworms, Baseball and Poetry: Faculty Collaboration Grants Fund Interdisciplinary Research," *UA@Work* (Alexis Blue), June 3, 2014.

"Sports in STEM Series: Arizona Science of Baseball," *Sport Techie* (Josh Hoffert), May 27, 2014. <http://www.sporttechie.com/2014/05/27/sportsinstem-series-arizona-science-of-baseball-program/>

"Engineers Enlist Social Science to Yield Cost Savings in Systems Design," *Arizona Engineering Research Magazine*, p. 42, 2014.

"Science of Baseball a Big Hit in Arizona, and Beyond," *Arizona Engineering Research Magazine*, p. 43, 2014.

"Science of Sport," ABC Channel 9 Morning Blend Show, *KGUN Tucson*, April 9, 2014.
<http://www.tucsonmorningblend.com/videos/254450441.html>

"Oak Grove School Education Foundation Talks Sports, STEM With Kids," *Libertyville Review* – Libertyville, Illinois (Linda Ford), April 8, 2014. http://libertyville.suntimes.com/submit-content/oak_grove_school_education_foundation_talks_sports-LIB-04082014:article

"Sixth Grade Students Got To Combine Athletics Science at the Arizona Diamondbacks Foundation Camp This Week," *NBC Channel 11 Evening Report*, KYMA Yuma, April 4, 2014. <http://beta.criticalmention.com/app/#clip/view?9970686/token/98440827-3323-467a-aa04-8b6649b5f6e6>

"Local students to learn about roles of math, science in baseball," *Yuma Sun* (Sarah Wormer), March 26, 2014.

"Teach Me Out at the Ballgame," *American Society of Mechanical Engineers* (Michael Abrams), March 2014.

"Cactus League: Spotlight on Spring Training (Insert: A Festival and a Trail)," *US Airways Magazine* (Charlie Vascellaro), p. 84, January 2014.

"Diamondbacks Host Camp for Kids in Tucson," *KGUN Channel 9 News Tucson*, November 9, 2013. <http://www.jrn.com/kgun9/news/AZ-Diamondbacks-host-camp-for-kids-in-Tucson-231417221.html>

"Here's the windup, the pitch, the vector and the Pythagorean theorem," *Arizona Daily Star* (Drew McCullough), October 20, 2013. http://tucson.com/news/science/here-s-the-windup-the-pitch-the-vector-and-the/article_e4bb0d37-0232-5b08-b27f-dfe4db9ee6ae.html

"Bats, Balls and Engineers," Editorial in *Industrial Engineer Magazine* (Michael Hughes), October 2013.

"Major League Learning," *Industrial Engineer Magazine* (Michael Hughes), October 2013 (cover story).

"Students Learn Science of Diamondbacks Baseball," *Yuma Sun* (Sarah Womer), September 14, 2013. http://www.yumasun.com/students-learn-science-of-diamondbacks-baseball/article_52965303-863f-573f-aa3a-2ecd6dc445e0.html

"Science of Baseball Hits Home Run," *Arizona Daily Wildcat* (Zane Johnson), September 12, 2013.

"College of Engineering Program for Middle Schoolers Drives Home STEM," *UA News* (Pete Brown), August 27, 2013.

"UA Engineering Student Researchers Win International Best Paper Award," *Arizona Engineer Online* (Pete Brown), April 23, 2013.

"Baseball Science Program Urges Students to Follow STEM Education," p. 11 of *Arizona Engineer*, Vol. 26, No. 1, Spring 2013.

"Science, Baseball Play Well Together," *Arizona Daily Star* (Pat Finley), Front page of the Sports Section (Page B1), November 1, 2012. http://tucson.com/sports/patrick-finley-science-baseball-play-well-together/article_dc4cc267-cab9-5592-a46a-4b6123b4d2df.html

"Baseball Science Program Brings Kids Closer to Math, Physics," *UA News* (Steve Delgado), Oct 30, 2012. <http://uanews.org/story/baseball-science-program-brings-kids-closer-math-physics>

"New UA Program teaching kids 'STEM' subjects through baseball," *NBC News 4 Tucson* (Sarah Arevalo), Oct 30, 2012. <http://www.kvoa.com/news/new-ua-program-teaching-kids-stem-subjects-through-baseball/>

"Engineering Professor is Recognized for Cost Containment Work," *Arizona Engineer Online* (Pete Brown), October 12, 2012.

"Romney Advisors Speak to Social Media Class," *Arizona Daily Wildcat*, September 25, 2012.

"Manning the Unmanned: Taking a Closer Look at Drone Warfare," *The College Hill Independent – Brown University* (Emily Gogolak), February 12, 2012. http://students.brown.edu/College_Hill_Independent/?p=6240

"Of Analytics, Systems Thinking, & the Dalai Lama," *Internet Evolution* (Mary Jander), October 19, 2011. http://www.internetevolution.com/author.asp?section_id=774&doc_id=234724

"La Automocion Aprende 'Jugando' (Automotive Industry Learns Through 'Games')," *Faro de Vigo* (Spain), December 11, 2010.

"Make or Break: Why Accurate Cost Estimation is Key," *ExecutiveBrief.com*, November 19, 2008.

"MIT Tool Aids Cost Estimates for Complex Projects," *MIT News Office*/front page of mit.edu (Michelle Gaseau – Lean Aerospace Initiative), September 19, 2006.