Curriculum Vitae

William Joseph Tolone, Ph.D.

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1 Education

Doctor of Philosophy, Computer Science, University of Illinois at Urbana-Champaign, October 1996.
Bachelor of Science, Computer Science and **Mathematics** (double major), minor in Business Administration, Millikin University, Decatur, Illinois, May 1989.

2 Professional Appointments

Associate Dean, College of Computing and Informatics, University of North Carolina at Charlotte, October 2013 – present.
Interim Chair, Department of Computer Science, University of North Carolina at Charlotte, July 2019 – June 2020.
Interim Dean, College of Computing and Informatics, University of North Carolina at Charlotte, September 2016 – August 2017.
Interim Associate Dean for Research and Graduate Programs, College of Computing and Informatics, University of North Carolina at Charlotte, January 2013 – September 2013.
Professor, Department of Software and Information Systems, University of North Carolina at Charlotte, July 2011 – present.
Interim Chair, Department of Software and Information Systems, University of North Carolina at Charlotte, August 1, 2008 – June 2009.
Associate Professor, Department of Software and Information Systems, University of North Carolina at Charlotte, July 2002 – June 2011.
Assistant Professor, Department of Software and Information Systems, University of North Carolina at Charlotte, July 2001 – June 2002.
Assistant Professor, Department of Computer Science, University of North Carolina at Charlotte, August 1996 – June 2001.

3 Scholarship

3.1 Peer Reviewed Journal Publications

[1] Zhenhua Huang, Liping Cai, Yashica Pandey, Yong Tao, **William J. Tolone**. "Hysteresis Effect on Earthquake Risk Assessment of Moment Resisting Frame Structures." Engineering Structures. 242 (C) 112532. 2021. DOI: 10.1016/j.engstruct.2021.112532

[2] Yimin Zhu, Yong Tao, **William J. Tolone**. "Application of the Virtual Information Fabric Infrastructure (VIFI) to Building Performance Simulations." Current Trends in Civil & Structural Engineering. 4 (2). 2019. DOI: 10.33552/CTCSE.2019.04.000585

[3] Zhenhua Huang, Xun Wang, Liping Cai, Yong Tao, **William J. Tolone**, Mohammed Elshambakey, Sreyasee Das Bhattacharjee, Isaac Cho. "Blast Risk Assessment of Wood Residential Buildings: West

Fertilizer Plant Explosion Case." *Journal of Performance of Constructed Facilities*. American Society of Civil Engineers, 2020. Vol. 34(3). https://doi.org/10.1061/(ASCE)CF.1943-5509.0001414

[4] Sreyasee Das Bhattacharjee, **William J. Tolone**, Ved Suhas Paranjape. "Identifying Malicious Social Media Contents using Multi-View Context-Aware Active Learning." *Future Generation Computer Systems*. Vol 100: 365-379. November 2019. https://doi.org/10.1016/j.future.2019.03.015

[5] Yimin Zhu, Yong Tao, **William J. Tolone**. "Application of the Virtual Information Fabric Infrastructure (VIFI) to Building Performance Simulations." *Current Trends in Civil & Structural Engineering*. 4(2): 2019. CTCSE.MS.ID.000585. DOI: 10.33552/CTCSE.2019.04.000585. (mini review)

[6] Omer T. Karaguzel, Mohammed Elshambakey, Yimin Zhu, Tianzhen Hong, **William J. Tolone**, Sreyasee Das Bhattacharjee, Isaac Cho, Wenwen Dou, Haopeng Wang, Siliang Lu, Mohamed Khalefa, Yong Tao. "An Open Computing Infrastructure for Sharing Data Analytics to Support Building Energy Simulations." *ASCE Journal of Computing in Civil Engineering*, 2019. https://doi.org/10.1061/(asce)cp.1943-5487.0000857

[7] Suraj Talele, Caleb Traylor, Laura Arpan, Cali Curley, Chien-Fei Chen, Julia Day, Richard Feiock, Mirsad Hadzikadic, Stan Ingman, Omer T. Karaguzel, Khee Poh Lam, Carol Menassa, Svetlana Pevnitskaya, Thomas Spiegelhalter, **William J. Tolone**, Wei Yan, Yimin Zhu, Yong X. Tao. "Energy Modeling and Data Structure Framework for Sustainable Human-Building Ecosystems (SHBE) - A Review." *Frontiers in Energy*, Springer 2018, pp. 1-19. DOI: 10.1007/s11708-017-0530-2

[8] Sungahn Ko, Jieqiong Zhao, Jing Xia, Shehzad Afzal, Xiaoyu Wang, Greg Abram, Niklas Elmqvist, Len Kne, David Van Riper, Kelly Gaither, Shaun Kennedy, **William J. Tolone**, William Ribarsky, David S. Ebert. "VASA: Interactive Computational Steering of Large Asynchronous Simulation Pipelines for Critical Infrastructure." *IEEE Transactions on Visualization and Computer Graphics* (IEEE VAST 2014). Vol. 20(5): 1853-1862.

[9] **William J. Tolone**, Mark Armstrong. "Integrated Analytics: Understanding Critical Infrastructure Behaviors for Resilience Analysis." *The Homeland Security Review*. Vol. 5(3): 241-258, California University of Pennsylvania, 2011.

[10] **William J. Tolone**. "Interactive Visualizations for Critical Infrastructure Analyses." *International Journal on Critical Infrastructure Protection*. Vol. 2(3): 124-134, Elsevier, 2009.

[11] **William J. Tolone,** Gail-Joon Ahn, Tanusree Pai, Seng-Phil Hong. "Access Control in Collaborative Systems." *ACM Computing Surveys*. Vol. 37 Issue 1, pp. 29-41, March 2005. **Ranked 9th in June 2005 and 8th in July 2005 for the most popular ACM magazine and computing surveys articles downloads from the ACM Digital Library.**

[12] Robert Wilhelm, Raja Chandrashekar, Rong Ming Sun, Mike Hegedus, Bei-Tseng Chu, **William J. Tolone**, Jungsheng Long. "Finite Schedule Monitoring and Filtering in a Computer Integrated Manufacturing Environment." *Annals of CIRP*, 49/1, pp. 335-338, 2000.

[13] **William J. Tolone**. "Virtual Situation Rooms: Connecting People Across Enterprises for Supply-chain Agility." Journal of Computer-aided Design, Vol. 32 (2) (2000) pp. 109-117.

[14] Yun Peng, Tim Finin, Yannis Labrou, Scott Cost, Bei-Tseng Chu, **William J. Tolone**, Junsheng Long, Akram Boughanam. "An Agent-Based Approach to Manufacturing Integration: The CIIMPLEX Experience," *Applied Artificial Intelligence, An International Journal*, Vol. 13(1-2), pp. 39-64, 1999.

[15] Rong Ming Sun, Robert G. Wilhelm, Raja Chandrasekar, Mike Hegedus, Bei-Tseng Chu, **William J. Tolone**, Junsheng Long, Mike Matthews. "Integrated Manufacturing Schedule Repair Using Temporal Constraint Propagation," *International Journal of Agile Manufacturing*, Vol 2. No. 1 pp. 13-26, 1999.

[16] **William J. Tolone**, Bei-Tseng Chu, Junsheng Long, Robert Wilhelm, Tim Finin, Yun Peng, Akram Boughannam. "Supporting Human Interactions within Integrated Manufacturing Systems," *International Journal of Advanced Manufacturing*, Vol. 1 No. 2 pp. 221-234, 1998.

[17] Yun Peng, Tim Finin, Yannis Labrou, Bei-Tseng Chu, Junsheng Long, **William J. Tolone**, Akram Boughannam. "A Multi-Agent System for Enterprise Integration," *International Journal of Agile Manufacturing*, Vol. 1 No. 2 pp. 201-212, 1998.

[18] Bei-Tseng Chu, Junsheng Long, **William J. Tolone**, Robert Wilhelm, Yun Peng, Tim Finin, Mike Matthews. "Towards Intelligent Integrated Planning-Execution," *International Journal of Advanced Manufacturing Systems* 1(1) pp.77-83, 1997.

3.2 Peer Reviewed Conference Publications

[19] Abdullah al-Raihan Nayeem, Huikyo Lee, Dongyun Han, Mohammed Elshambakey, **William J. Tolone**, Todd Dobbs, Daniel Crichton, Isaac Cho. "DCPViz: A Visual Analytics Approach for Downscaled Climate Projections," in the *2022 IEEE International Conference on Big Data*, Osaka, Japan, December 17-20, 2022, pp. 291-300. DOI: 10.1109/BigData55660.2022.10020827

[20] Adullah al-Raihan Nayeem, Mohammed Elshambakey, Todd Dobbs, Huikyo Lee, Daniel Crichton, Yimin Zhu, Chanachok Chokwitthaya, **William J. Tolone**, Isaac Cho. "A Visual Analytics Framework for Distributed Data Analysis Systems," in the *2021 IEEE International Conference on Big Data*, Orlando, FL, December 15-18, 2021, pp. 229-240. DOI: 10.1109/BigData52589.2021.9671768

[21] Sreyasee Das Bhattacharjee, **William J. Tolone**, Ashish Mahabaly, Mohammed Elshambakey, Isaac Cho, Adullah al-Raihan Nayeem, Junsong Yuan, George Djorgovski. "Multi-View, Generative, Transfer Learning for Distributed Time Series Classification," in the *2019 IEEE International Conference on Big Data*, Los Angeles, CA, December 9-12, 2019, pp. 5585-5594. https://doi.org/10.1109/BigData47090.2019.9005452 (**Best Paper Award** for the *4th Big Data Transfer Learning Workshop* held in conjunction with *IEEE Big Data*.)

[22] Sreyasee Das Bhattacharjee, **William J. Tolone**, Roy Chrian, Urmimala Sarkar. "Multimodal, Context-Aware, Feature Representation Learning for Classification and Localization," in *2019 IEEE International Conference on Big Data*, Los Angeles, CA, December 9-12, 2019, pp. 1034-1039. https://doi.org/10.1109/BigData47090.2019.9005499

[23] Sreyasee Das Bhattacharjee, **William J. Tolone**, Mohammed Elshambakey, Isaac Cho, Ashish Mahabaly, George Djorgovski. "Context-Aware Deep Sequence Learning with Multi-View Factor Pooling for Time Series Classification," in *2018 IEEE International Conference on Big Data*, Seattle, WA, December 10-13, 2018, pp. 959-966. https://doi.org/10.1109/BigData.2018.8622253

[24] Mohammed Elshambakey, Mohamed Khalefa, **William J. Tolone**, Sreyasee Das Bhattacharjee, Huikyo Lee, Luca Cinquini, Shannon Schlueter, Isaac Cho, Wenwen Dou, Daniel Crichton. "Towards a Distributed Infrastructure for Data-Driven Discoveries & Analysis," in *2017 IEEE International Conference on Big Data*, Boston, MA, December 11-14, 2017, pp. 4738-4740. https://doi.org/10.1109/BigData.2017.8258526

[25] Sreyasee Das Bhattacharjee, Bala Venkatram Balantrapu, **William J. Tolone**, Ashit Talukder, "Identifying extremism in social media with multi-view context-aware subset optimization," in *2017 IEEE International Conference on Big Data*, December 11-14, 2017, Boston, MA, IEEE 2017, pp. 3638-3647. DOI: 10.1109/BigData.2017.8258358

[26] Saeed Al-Haj, **William J. Tolone**, "FlowTable pipeline misconfigurations in Software Defined Networks," *2017 IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)*, May 1-4, 2017, Atlanta, GA, IEEE 2017, pp. 247-252. DOI: 10.1109/INFCOMW.2017.8116384

[27] Todd Eaglin, Xiaoyu Wang, William Ribarsky, **William J. Tolone**. "Ensemble Visual Analysis Architecture with High Mobility for Large-Scale Critical Infrastructure Simulations." Proceedings SPIE 9397, Visualization and Data Analysis 2015, 939706. February 2015. doi:10.1117/12.2076472

[28] Sebastian Mittelstaedt, Xiaoyu Wang, Todd Eaglin, Dennis Thom, Daniel A. Keim, **William J. Tolone**, William Ribarsky. "An Integrated In-Situ Approach to Impacts from Natural Disasters on Critical Infrastructures." In *Proceedings 48th Hawaii International Conference on Systems Science* (HICSS 2015). pp. 1118-1127. DOI 10.1109/HICSS.2015.136.

[29] William Ribarsky, Xiaoyu Wang, Wenwen Dou, **William J. Tolone**. "Towards a Visual Analytics Framework for Handling Complex Business Processes." In *Proceedings 47th Hawaii International Conference on System Sciences* (HICSS 2014). pp. 1374 – 1383. DOI 10.1109/HICSS.2014.177.

[30] **William J. Tolone**, Xiaoyu Wang, William Ribarsky. "Making Sense of the Operational Environment through Exploratory Visual Analysis." NATO Science and Technology Organization, Information Systems Technology Panel, IST-116 Symposium of Visual Analytics. October 2013.

[31] **William J. Tolone** and Mark Armstrong. "Integrated Analytics: Understanding Critical Infrastructure Behaviors for Resilience Analysis." *In Proceedings 2nd Annual West Point Critical Infrastructure Symposium*. April 29-30, 2011.

[32] **William J. Tolone,** E. Wray Johnson, Seok-Won Lee, Wei-Ning Xiang, Lydia Marsh, Cody Yeager, Joshua Blackwell. "Enabling system of systems analysis of critical infrastructure behaviors." In *Proceedings of the 3rd International Workshop on Critical Information Infrastructure Security (CRITIS*

2008). Lecture Notes in Computer Science #5508, Setola, R., Geretshuber, S., eds., pp. 24 – 35, Springer, 2009.

[33] Joshua Blackwell, **William J. Tolone**, Seok-Won Lee, Wei-Ning Xiang, and Lydia Marsh. "An ontology-based approach to blind spot revelation in critical infrastructure protection planning." In *Proceedings of the 3rd International Workshop on Critical Information Infrastructure Security (CRITIS 2008). Lecture Notes in Computer Science #5508*, Setola, R., Geretshuber, S., eds., pp. 352 – 359, Springer, 2009.

[34] David C. Wilson, Okan Pala, **William J. Tolone**, and Wei-Ning Xiang. "Recommendation-Based Geovisualization Support for Reconstitution in Critical Infrastructure Protection." In *Proceedings of 2009 SPIE Defense, Security and Sensing Conference on Visual Analytics for Homeland Defense and Security,* Vol. 7346 02, SPIE, April 2009.

[35] Seok-Won Lee, **William J. Tolone**, Ajeet Murty, Rashna Vatcha, Xiaoyu Wang, Wenwen Dou, Remco Chang, William Ribarsky, Wanqiu Liu, Shenen Chen, Edd Hauser. "Toward sustainable infrastructure management: knowledge-based service-oriented computing framework for visual analytics." In *Proceedings of 2009 SPIE Defense, Security and Sensing Conference on Visual Analytics for Homeland Defense and Security*, Vol. 7346 04, SPIE, April 2009.

[36] Steven Castongia, Andrew Schumpert, Seok-Won Lee, **William J. Tolone**, Wei-Ning Xiang. "A Spatial Approximation Method for Electrical Substation Service Area Delineation." In proceedings, *ESRI International User Conference*, San Diego, CA, August 7-11, 2006.

[37] Wei-Ning Xiang, Seok-Won Lee, **William J. Tolone**. "Informational Vividness, Scenarios, and Model Validation." In proceedings, *Fourth International Symposium on Spatial Data Quality (ISSDQ 2005)*, Beijing, China, August 25-26, 2005.

[38] Wei-Ning Xiang, **William J. Tolone**, Anita Raja, David Wilson, Qianhong Tang, Ken McWilliams, Robert McNally. "Mining Critical Infrastructure Information from Municipality Data Sets: A Knowledge Driven Approach and its Applications." In proceedings, *Auto-Carto 2005*, Las Vegas, March 18-23, 2005.

[39] **William J. Tolone**, David Wilson, Anita Raja, Wei-ning Xiang, E. Wray Johnson. "Applying Cougaar to Integrated Critical Infrastructure Modeling and Simulation." In proceedings, *Open Cougaar Conference 2004*, New York City, July 2004, pp. 3-10.

[40] **William J. Tolone**, David Wilson, Anita Raja, Wei-Ning Xiang, Huili Hao, Stuart Phelps, E. Wray Johnson. "Critical Infrastructure Integration Modeling and Simulation." In proceedings, *Second Symposium on Intelligence and Security Informatics (ISI-2004). Lecture Notes in Computer Science #3073.*, Chen, H., Moore, R., Zeng, E., and Leavitt, J., eds., pp. 214 – 225, Springer, 2004. *Note: In 2005, this symposium became an IEEE-sponsored conference*.

[41] **William J. Tolone**, Robin A. Gandhi, Gail-Joon Ahn. "Locale-Based Access Control: Placing Collaborative Authorization Decisions in Context." In proceedings, *2003 IEEE International Conference on Systems, Man & Cybernetics,* Washington D.C., Oct. 2003, pp. 4120-4127.

[42] **William J. Tolone**, Bei-Tseng Chu, Gail-Joon Ahn, Robert G. Wilhelm, John E. Sims. "Challenges to Multi-Enterprise Integration: the EECOMS Experience." In proceedings, *International Conference on Enterprise Integration and Modeling Technology (ICEIMT'02)* – held jointly with – the *International Enterprise Modeling Conference (IEMC'02)*, pp 205-216, Polytechnic University of Valencia, Spain, April 24-26, 2002.

[43] Bei-Tseng Chu, Rong Ming Sun, Robert Wilhelm, Jian Yao, **William J. Tolone**. "Modeling Integrated Supply Chains." In proceedings, *Conference of Pacific Rim Management*, pp. 250-254, Aug. 1999.

[44] Yun Peng, Tim Finin, L. Chen, L. Wang, Scott Cost, Yannis Labrou, Bei-Tseng Chu, **William J. Tolone**, V. Cross, M. Russell, A. Boughannam. "A Multi-Agent System for Application Initialization in an Integrated Manufacturing Environment." In proceedings, *SCI/ISAS'99: The 3rd. World Multiconference on Systemics, Cybernetics and Informatics,* and *Fifth International Conference on Information Systems Analysis and Synthesis*, Orlando, July 1999.

[45] Yun Peng, Tim Finin, Yannis Labrou, Bei-Tseng Chu, Junsheng Long, **William J. Tolone**, Akram Boughannam. "A Multi-Agent System for Enterprise Integration." In proceedings, *Practical Applications of Intelligent Agents and Multi-Agents Conference*, London, UK, March 1998, 155-169.

[46] Bei-Tseng Chu, Junsheng Long, **William J. Tolone**, Robert Wilhelm, Yun Peng, Tim Finin, Mike Matthews. "Towards Intelligent Integrated Manufacturing Planning-Execution." In proceedings, *International Conference on Agile Manufacturing. (ICAM '97)*. Lafayette, LA, February, 1997.

[47] Simon M. Kaplan, Geraldine Fitzpatrick, Tim Mansfield, **William J. Tolone**. "MUDdling Through." In proceedings, *Thirtieth Annual Hawaii International Conference on System Sciences (HICSS30)*. Jay F. Nunamaker and Ralph H. Sprague, editors, IEEE Computer Society Press, Hawaii, January 1997, pp. 539-548. **Finalist for Best Paper award in the Information Systems Track**.

[48] Bei-Tseng Chu, **William J. Tolone**, Robert Wilhelm, Mike Hegedus, Joan Fesko, Tim Finin, Yun Peng, Chris Jones, Junsheng Long, Mike Matthews, J. Mayfield, J. Shimp, Stanley Su. "Integrating manufacturing software for intelligent planning execution: a CIIMPLEX perspective." In proceedings, *SPIE Conference on Plug and Play Software for Agile Manufacturing*. Barbara Goldstein, editor, Boston, MA, November 1996, pp. 96-108.

[49] Simon M. Kaplan, Geraldine Fitzpatrick, Tim Mansfield, **William J. Tolone**. "Shooting into Orbit." In proceedings, *Inaugural Australian National Symposium on Computer-Supported Cooperative Work*. Michael Rees and Tim Mansfield, editors, DSTC Pty. Ltd. Brisbane, Australia, Aug. 1996, pp. 38-48.

[50] Geraldine Fitzpatrick, **William J. Tolone**, Simon M. Kaplan. "Work, Locales and Distributed Social Worlds." In proceedings, *Fourth European Conference on Computer Supported Cooperative Work (ECSCW '95)*, pp. 1-16, Stockholm, Sweden, September 10-14, 1995.

[51] **William J. Tolone**, Simon M. Kaplan, Geraldine Fitzpatrick. "Specifying Dynamic Support for Collaborative Work within WORLDS." In proceedings, *ACM 1995 Conference on Organizational Computing Systems*, pp. 55-65, Milpitas, CA, August 13-16, 1995.

[52] **William J. Tolone,** Simon M. Kaplan. "A Semantic Definition for Introspect using Δ-Grammars." *Fifth International Workshop on Graph Grammars and their Application to Computer Science*, Williamsburg, VA, November 13-18, 1994.

[53] Simon M. Kaplan, Celsina Bignoli, **William J. Tolone**. "Process, Space & Software Development Support." In proceedings, *Ninth International Software Process Workshop*, pp. 100-103, Airlie, VA, October 5-7, 1994.

[54] Simon M. Kaplan, Susan Leigh Star, **William J. Tolone**, Celsina Bignoli. "Grounding the Metaphor of Space in CSCW: Meta-Structures and Boundary Objects." In proceedings, *Schaerding International Conference on the Design of CSCW Systems*. June 1994.

[55] Douglas P. Bogia, **William J. Tolone**, Simon M. Kaplan, Eric de la Tribouille. "Supporting Dynamic Interdependencies among Collaborative Activities." In proceedings, *ACM Conference on Organizational Computing Systems*, pp. 108-118, Milpitas, CA, November 1-4, 1993.

[56] Simon M. Kaplan, **William J. Tolone**, Alan M. Carroll, Douglas P. Bogia, Celsina Bignoli. "Supporting Collaborative Software Development with ConversationBuilder." In proceedings, *Fifth ACM SIGSOFT Symposium on Software Development Environments*, pp. 11-20, Washington, DC, Dec. 1992.

[57] Simon M. Kaplan, **William J. Tolone**, Douglas P. Bogia, Celsina Bignoli. "Flexible, Active Support for Collaborative Work with ConversationBuilder." In proceedings, *ACM Conference on Computer-Supported Cooperative Work (CSCW '92)*, pp. 378-385, Toronto, Canada, Oct. 31 – Nov. 4, 1992.

[58] Simon M. Kaplan, **William J. Tolone**, Celsina Bignoli, Douglas P. Bogia, Alan M. Carroll. "Orthogonal Support Aids Collaborative Tasks." In proceedings, *Schaerding International Conference on Task Analysis, Human-Computer Interaction and CSCW*. June 1992.

[59] Celsina Bignoli, **William J. Tolone**, Simon M. Kaplan, Douglas P. Bogia. "Using ConversationBuilder to Support Office Procedures and Information Flow in Public Administration Contexts." *ESPRIT Conference on Public Administration and Information Systems*, Linz, Austria, February 1992.

3.3   Peer Reviewed Extended Abstracts/Short Papers

[60] Mohammed Elshambakey, Mohamed Khalefa, **William J. Tolone**, Sreyasee Das Bhattacharjee, Huikyo Lee, Luca Cinquini, Shannon Schlueter, Isaac Cho, Wenwen Dou, Daniel J. Crichton, "Towards a distributed infrastructure for data-driven discoveries & analysis," in *2017 IEEE International Conference on Big Data (BIGDATA)*, December 11-14, 2017, Boston, MA, IEEE 2017, pp. 4738-4740. DOI: 10.1109/BigData.2017.8258526

[61] Amy J. Weeks, Andrew Schumpert, Seok-Won Lee, **William J. Tolone**, Wei-Ning Xiang. "A New Approach to V&V in CIP Modeling and Simulation." In proceedings, *ESRI International User Conference*, San Diego, CA, August 7-11, 2006. Published abstract.

[62] Robert K. McNally, Seok-Won Lee, **William J. Tolone**, Wei-Ning Xiang. "An Ontology Driven GIS (ODGIS) Approach to Scenario Based Critical Infrastructure Protection (CIP) Planning." In proceedings, *ESRI Homeland Security GIS Summit*, September 11-14, 2005, Denver, CO. Published presentation.

[63] Simon M. Kaplan, **William J. Tolone**, Douglas P. Bogia, Theodore Phelps. "Flexible, Active Support for Collaboration with ConversationBuilder." In proceedings, *INTERCHI '93 Conference Proceedings: Conference on Human Factors in Computing Systems (INTERACT '93 and CHI '93)*, page 248, Amsterdam, The Netherlands, April 24-29, 1993. Published abstract.

3.4 Peer Reviewed Posters

[64] Joshua Blackwell, **William J. Tolone**, Seok-Won Lee, Wei-Ning Xiang, and Lydia Marsh. "An Ontology-based Approach to Blind Spot Revelation in Critical Infrastructure Protection Planning." *The 3rd International Workshop on Critical Information Infrastructure Security (CRITIS 2008)*. Poster Session. October, 2009.

3.5 Peer Reviewed Books and Book Chapters

[65] Mohammed Elshambakey, Abdullah al-Raihan Nayeem, Hossein Hematialam, Todd Dobbs, Isaac Cho, Wlodek Zadrozny, Yimin Zhu, Yong Tao, Tianzhen Hong, Omer Karaguzel, Zhenhua Huang, Liping Cai, **William J. Tolone**, "Virtual Information Fabric Infrastructure (VIFI) for Sustainable Human-Building Ecosystems." Yong, T., ed., *Virtual Information Fabrics for Built Environment Sustainability and Resilience*. Begell House. ISBN: 9781567005028. (Publication Forthcoming)

[66] Zhenhua Huang, Liping Cai, Yong Tao, **William J. Tolone**. "Blast Risk Evaluation of Building Fragility and Geo-data Based VIFI Platform." Yong, T., ed., *Virtual Information Fabrics for Built Environment Sustainability and Resilience*. Begell House. ISBN: 9781567005028. (Publication Forthcoming)

[67] **William J. Tolone**, "Rich Analytical Environments for Sustainable Building Scale Ecosystems." *Analytics for Building-Scale Sustainable Ecosystems*. (Note: presented at the NSF-sponsored *US-China Workshop on Analytics for Building-Scale Sustainable Ecosystems*). Tao, Y. and Jiang, Y., eds. Begell House, 2015.

[68] **William J. Tolone.** "Making Sense of Complex Systems through Integrated Modeling and Simulation." *Advances in Information and Intelligent Systems*. Ras, Z. and Ribarsky, W., eds., pp. 21-40, *Studies in Computational Intelligence*, Volume 251, 2009.

[69] **William J. Tolone,** Seok-Won Lee, Wei-Ning Xiang, Joshua Blackwell, Cody Yeager, Andrew Schumpert, E. Wray Johnson. "An Integrated Methodology for Critical Infrastructure Modeling and Simulation." In IFIP International Federation for Information Processing, Volume 290; *Critical Infrastructure Protection II*, 2nd Edition, Goetz, E. and Shenoi, S. eds., pp. 257 – 268, Springer, 2008. Note: published proceedings of the *IFIP International Conference on Critical Infrastructure Protection*.

[70] **William J. Tolone**, Wei-Ning Xiang, Anita Raja, David Wilson, Qianhong Tang, Ken McWilliams, Robert McNally. "Mining Critical Infrastructure Information from Municipality Data Sets: a Knowledge-Driven Approach and its Applications." *Emerging Spatial Information Systems and Applications*, Hilton, B., Ed., pp. 310 – 325, Idea Group Publishing, 2006.

[71] **William J. Tolone**, Bei-Tseng Chu, Gail-Joon Ahn, Robert G. Wilhelm, John E. Sims. "Challenges to Multi-Enterprise Integration: the EECOMS Experience." In *Enterprise Inter- and Intra- Organizational Integration: Building International Consensus*. Kluwer Academic Press, pp. 205 – 216, Boston, 2003.

[72] Douglas P. Bogia, **William J. Tolone**, Celsina Bignoli, Simon M. Kaplan. "Issues in the design of collaborative systems: lessons from ConversationBuilder." *The Design of Computer Supported Cooperative Work and Groupware Systems*. Shapiro, D., Tauber, M., and Traunmueller, R., eds., pp. 401-422, Amsterdam, The Netherlands: North Holland, 1996. A volume in the HUFIT series (Human Factors in Information Technology).

[73] **William J. Tolone**. Introspect*: a Meta-Level Specification Framework for Dynamic, Evolvable Collaboration Support.* Ph.D. Dissertation. University of Illinois at Urbana-Champaign, 1996.

3.6 Patents Awarded

[74] **William J. Tolone**, Elwood Wray Johnson, Kyle Joseph Thieman, David Wilson, Marc Thomas Calello, Wei-Ning Xiang, Andrew M. Stogner, Seok-Won Lee, Michael Russel. "Multi-infrastructure Modeling and Simulation System." U.S. Patent No. 8,473,263. Issued June 25, 2013.

[75] **William J. Tolone,** Bei-Tseng Chu. "A Methodology for Critical Infrastructure Integration Modeling and Simulation." U.S. Patent No. 7,657,406. Issued February 2, 2010.

3.7 Peer Reviewed Workshop Papers

[76] **William J. Tolone**, Bei-Tseng Chu, Gail-Joon Ahn, Robert G. Wilhelm, John E. Sims. "Challenges to Multi-Enterprise Integration: the EECOMS Experience." In the NIST sponsored workshop on "Interoperability of Business Processes and Enterprise Models." Gaithersburg, VA. February 6-8, 2002.

[77] **William J. Tolone,** Simon M. Kaplan. "Visual Process Modeling Support for Cooperative Work with Introspect." *Relationship between Software Process and CSCW Workshop*, CSCW '94, Chapel Hill, NC, October 22, 1994.

[78] **William J. Tolone**, Simon M. Kaplan, Douglas P. Bogia. "Reflection, CSCW, and ConversationBuilder." *Object-Oriented Reflection and Meta-Level Architectures Workshop*, OOPSLA '93, Washington, DC, October 1, 1993.

[79] Douglas P. Bogia, **William J. Tolone**, Simon M. Kaplan. "Modeling Dynamic Obligations in ConversationBuilder." *CSCW Tools and Implementation Workshop*, CSCW '92, Toronto, Canada, October 30, 1992.

3.8 Peer Reviewed Conference Presentations

[80] Yimin Zhu, Yong Tao, **William J. Tolone**. "The Virtual Information Fabric Infrastructure: Application Cases for Building Performance Simulations," *Food-Energy-Water Nexus Conference (FEWN-2019)*, American Institute of Chemical Engineers, New York, NY, December 5, 2019.

[81] Perkins, T., **Tolone, W.J.**, Morrison, D., Myers, N. and Gibbons, D. "Visualizing the Influence of Infrastructure and Essential Services within the Socio-Cultural Operational Environment." In the *79th Military Operations Research Society Symposium (MORSS 2011)*. June 23 – 26, 2011.

[82] **William J. Tolone** and Mark Armstrong. "Integrated Analytics: Understanding Critical Infrastructure Behaviors for Resilience Analysis." In the *2nd Annual West Point Critical Infrastructure Symposium,* April 30, 2011.

[83] **William J. Tolone**. "Interactive Visualizations for Critical Infrastructure Analyses." *IFIP* Working *Group 11.10 International Conference on Critical Infrastructure Protection 2009.* (Published in an extended form in the *International Journal of Critical Infrastructure Protection*, Shenoi, S., ed.)

[84] **William J. Tolone,** Seok-Won Lee, Wei-Ning Xiang, Joshua Blackwell, Cody Yeager, Andrew Schumpert, E. Wray Johnson. "An Integrated Methodology for Critical Infrastructure Modeling and Simulation." *IFIP Working Group 11.10 International Conference on Critical Infrastructure Protection 2008.* (Published in *Critical Infrastructure Protection II*, 2nd Edition, Springer, 2008, Goetz, E. and Shenoi, S. eds.)

[85] Joshua Blackwell, Seok-Won Lee, **William J. Tolone**, Wei-Ning Xiang. "On Blind Spots in Critical Infrastructure Protection Practice." *Annual Meeting of the Association of American Geographers Boston, Massachusetts*. April 2008.

[86] Cody Yeager, **William J. Tolone**, Seok-Won Lee, Wei-Ning Xiang. "When Should an Intervention Take Place in Critical Infrastructure Disruptions" *Annual Meeting of the Association of American Geographers Boston, Massachusetts.* April 2008.

[87] **William J. Tolone**, Seok-Won Lee, Wei-Ning Xiang, Robert K McNally, Andrew Schumpert. "Effective Scenario Composition for the Revelation of Blind Spots in Critical Infrastructure Protection Planning." *IFIP Working Group 11.10 International Conference on Critical Infrastructure Protection*. March 19-21, 2007.

[88] Andrew Schumpert, Steven Castongia, Seok-Won Lee, **William J. Tolone**, Wei-Ning Xiang. "An Assessment of Spatial Approximation Methods for Electrical Substation Service area delineation." *2006 Geospatial Technologies Symposium*, Denver, CO, March 22nd, 2006.

[89] Steven Castongia, Andrew Schumpert, Seok-Won Lee, **William J. Tolone**, Wei-Ning Xiang. "A Spatial Approximation Method for Electrical Substation Service Area Delineation and Its Applications in Homeland Security Planning." *2006 Annual Conference of the Association of American Geographers*, Chicago, **March 11,** 2006.

[90] Qianhong Tang, Wei-Ning Xiang, **William J. Tolone**, Anita Raja, David Wilson, Ken McWilliams, Robert K. McNally, "A Knowledge-Driven Method for Critical Infrastructure Information Mining." *Association of American Geographers 101st Annual Meeting*, Denver, CO, April 5-9, 2005.

3.9 Significant Technical Reports

[91] **William J. Tolone**, Joseph Whitmeyer, James Walsh, Mirsad Hadzikadic, Theodore Carmichael, Mark Armstrong, Timothy Perkins, Chris Rewerts. A Design for Computationally Enabled Analyses Supporting the Pre-Intervention Analytical Framework (PIAF). pp. 1-59. Defense Technical Information Center, June 2015. Note: ERDC/CERL TR-15-14, Engineer Research and Development Center, Construction Engineering Research Laboratory, U.S. Army Corps of Engineers.

[92] **William J. Tolone**, et al. CREATE Coastal Kenya Model ODD. An Analytical Framework for Rapid End-to-End Support for Effective Civil-Military Operations: Case Study Report. Prepared for the Engineer Research Development Center (ERDC), Construction Engineering Research Laboratory (CERL), U.S. Army Corps of Engineers, Champaign, IL. November 2012.

[93] Tim Perkins, Dawn Morrison, Natalie Myers, Thomas Bozada, Lucy Whalley, Kinyetta Nance, Deborah Gibbons, **William J. Tolone**. Infrastructure and Essential Services Ontology for Irregular Warfare. Tech Report. Defense Technical Information Center. February 2011.

[94] **William J. Tolone**, Wei-Ning Xiang, Seok-Won Lee, David Wilson. CONOPS: Constructing, Verifying, Validating, and Managing Master County Models for the IMSC IOC. A report prepared under contract for the Department of Defense, Washington, D.C., January 2006. 75pp.

[95] Wei-Ning Xiang, **William J. Tolone**, Anita Raja, David Wilson, Qianhong Tang, Ken McWilliams, Robert McNally. Mining for Critical Infrastructure Information from Municipality Data Sets: a Knowledge Driven Approach and its Applications. A report prepared under contract N65236-04-P-7779 for Critical Infrastructure Protection Center, Space and Naval Warfare Systems Command (SPAWAR) Center, Charleston, South Carolina, September 2004. 30pp.

[96] **William J. Tolone**, Wei-Ning Xiang, David Wilson, Anita Raja, Seok-Won Lee. Infrastructure Modeling for Effect-Based Operations: A Roadmap for Future Work. A report prepared for the U.S. Department of Defense, Washington, D.C., January 2004. 17pp.

4 Invited Talks & Special Briefings

- "Application of Virtual Information Fabric Infrastructure (VIFI) to Building Performance Simulations," Presentation to the OB-19: 4th International Symposium on Occupant Behavior, San Antonio, TX, March 13-15, 2019.
- "Application of Virtual Information Fabric Infrastructure (VIFI) to Building Performance Simulations," Presentation to the NSF RCN-SHBE Workshop on Urban Sustainability Policy and Governance, Tallahassee, FL, April 16, 2019.
- "Sensemaking and Data-driven Discovery in Distributed Analytical Systems," Presentation to the Workshop on Convergent Research in the Design of a Modern and Resilient Grid, Karlsruhe, Germany, May 20-23, 2019.
- Special briefing to Dr. Reginald Brothers, Undersecretary for Science and Technology, U.S. Department of Homeland Security. April 15, 2016.
- Invited Speaker. North Carolina Military Foundation. December 1, 2014.
- Special briefing to the Chief of Naval Research, Rear Admiral Matthew Klunder, Chapel Hill, NC. October 10, 2012.
- Invited Speaker. Idaho National Laboratory. Idaho Falls, ID. August 22, 2012.
- Special Briefing & Training Exercise Observation. U.S. Special Operations Mission Training Center. Ft. Bragg, NC. April 18 2012. Follow up research development meeting. U.S. Special Operations Mission Training Center. Ft. Bragg, NC. December 18, 2012.
- Special Briefing to Brig. Gen. Ferdinand Irizarry. Deputy Commanding General of the U.S. Army John F. Kennedy Special Warfare Center and School, Ft. Bragg, NC. 22 March 22, 2012.
- Special briefing to USCYBERCOM. U.S. Department of Defense. September 20, 2011.
- Special briefing to Joint Warfare Analysis Center (JWAC). Dahlgren Naval Base. August 10, 2011.
- "Integrated Modeling and Simulation." Army Research Office, Raleigh, NC, April 21, 2011.
- "VASA – WP2 Kick-Off: Critical Infrastructure Protection." VASA Kick-Off Meeting, Berlin, Germany, February 16, 2011.
- Irregular Warfare Working Group Meeting VII, Quantico VA, November 30, 2010.
- U.S. Army Training and Doctrine Command (TRADOC) Analysis Center (TRAC), Ft. Leavenworth KS, November 10, 2010.

- Panelist: "Visual Analytics for the Energy Sector." Participants: Fred Roberts (moderator), Rutgers University; William J. Tolone, UNC Charlotte; Hal Knowles, University of Florida; Linda Ness, Telecordia; Tim Roxey, North American Electric Reliability Corporation. *Visualization and Analytics Consortium Meeting*, University of Maryland. September 1, 2010.
- Special Briefing to the Special Capabilities Office, Office of the U.S. Secretary of Defense, June 11, 2010.
- "Visual Analytics and Interactive Visualizations: a Tutorial." Conducted at the *2010 SPIE Defense, Security and Sensing Conference on Visual Analytics for Homeland Defense and Security*, April 5, 2010.
- Mayo Clinic, Rochester MN, March 30, 2010.
- National Weather Service, Renaissance Computing Institute, Chapel Hill, NC December 15, 2009.
- Special Briefing to the MITRE Corporation, December 9, 2009.
- Special Briefing to Debra Boline, Naval IED Defeat Technology Lead, NSWC Dahlgren Division, December 9, 2009.
- Special Briefing to Lt. Gen. Tom Waskow (ret.), November 3, 2009.
- Decision Support Services Summit (for the National Weather Service), Renaissance Computing Institute, Chapel Hill, NC October 29, 2009.
- "Visual Analytics and Interactive Visualizations: a Tutorial." (Presenters: William J. Tolone and William Ribarsky). Conducted at the *2008 SPIE Defense and Security Conference on Visual Analytics for Homeland Defense and Security*, March 17, 2008.
- GeoAnalysis Technical Exchange Meeting. MITRE Corporation. McLean, VA. February 28, 2007.
- "Nexus Fusion Framework™: A Multi-Dimensional Modeling and Simulation Environment." *2006 DGINet User Conference*. Redlands, CA. November 28, 2006.
- Panelist: "Power Grid Panel." Participants: Jeff Dagle (moderator), Pacific Northwest National Laboratory; William J. Tolone, UNC Charlotte; Tom Overbye, University of Illinois at Urbana-Champaign; Dave Bakken, Washington State University; Ann Moore, OSIsoft. *National Visualization and Analytics Consortium Meeting*, PNNL-Richland, WA. October 5, 2006.
- Special Briefing to National Geospatial-Intelligence Agency (NGA), September 7, 2006.
- Special Briefing to Joint Forces Command (JFCOM), April 8, 2006.
- Special Briefing to Joint Warfare Analysis Center (JWAC), March 28, 2006.
- Special Briefing to the head of US Air Force Modeling and Simulation (USAFMS), February 16, 2006.
- Special Briefing to the Office of the Secretary of the Air Force – SAF/XC, SAF/XOI, & USAFMS, January 6, 2006.
- Special Briefing to the National Geospatial-Intelligence Agency (NGA), January 5, 2006.
- Special Briefing to US Air Force (USAF) C2 Battlelab. Invited to participate in C2 Visualization Meeting, December 12, 2005.
- Special Briefing to Maj. Gen. Tommy Crawford, Commander of US Air Force (USAF) Operations – C2ISR Command & Air and Space Operations – Langley AFB, November 30, 2005.
- Special Briefing to Joint Forces Command (JFCOM), November 30, 2005.
- Special Briefing to Brig. Gen. Kevin Kennedy (ISR) and Maj. Gen. Norman Seip (Air and Space Operations). US Air Force (USAF) Operations – C2ISR Command & Air and Space Operations, October 24, 2005.
- "Critical Infrastructure Modeling and Simulation." 6th Annual UNC Charlotte Security Symposium, October 12, 2005.
- Special Briefing to Joint Warfare Analysis Center (JWAC), July 12, 2005.
- Special Briefing to Naval Surface Warfare Center (NSWC), July 12, 2005.
- "Critical Infrastructure Modeling and Simulation." 21st Century Technology Research Series. Charlotte Chamber of Commerce, April 12, 2005.
- "Critical Infrastructure Integration Modeling and Simulation." Charlotte Homeland Security Technology Briefing. February 16, 2005.
- "Infrastructure Integration Modeling and Simulation." Dr. Wynn Mabry, Director of Homeland Security, Mecklenburg County, NC. November 1, 2004.
- "Infrastructure Integration Modeling and Simulation." Space and Naval Warfare Systems Command (SPAWAR) Center, Charleston, SC. May 26, 2004.
- "Infrastructure Integration Modeling and Simulation." Dr. Wynn Mabry, Director of Homeland Security, Mecklenburg County, NC. May 13, 2004.
- "Department of Defense Homeland Security Research Program." James B. Milliken, Senior Vice President for University Affairs, University of North Carolina – the State's sixteen (16) campus university system.

May 5, 2004.
- "Infrastructure Integration Modeling and Simulation." The Honorable Richard Morgan, Co-Speaker of the NC House of Representatives. April 12, 2004.
- 50+ Briefings to Defense Intelligence Agency, U.S. Department of Defense, 2003-2011.
- CIIMPLEX Consortium. From 1996 – 2001 gave ~30 technical presentations on research advances to the CIIMPLEX and EECOMS project partners and advisory boards.
- "Technologies for Internet-based Collaboration." UNC Charlotte Spotlight on Research, April 6, 2000.
- "Groupware Technologies: Creating a Context for Collaboration." Cameron Applied Research Center Colloquium Speaker, UNC Charlotte, April 10, 1997.
- "WORLDS: Creating Context for Collaboration." Addressed researchers at the Construction Engineering Research Laboratories, U.S. Army Corps of Engineers, Champaign, IL, March 20, 1996.
- "An Introduction to CSCW and the WORLDS Collaboration Environment." Addressed the Central Illinois Chapter of the ACM on advances in Computer-Supported Cooperative Work (CSCW) applications and WORLDS, a next generation collaborative system, Bloomington, IL, October 26, 1995.

5   Extramural Funding

- **Exceptional Record of Extramural Funding** from numerous agencies including: NSF, NIST, DOT, DHS, DOD, USN, USSOCOM/ARO, & USACE)

Total Federal Funding:	$29,538,602
Industry Funding:	$394,560
Awards and Donations	$151,796
Total Extramural Funding	$30,084,958

Table 1 (since 1996-1997)

Funding as Principal Investigator or Award Recipient:	$15,305,544
Funding as Co-Principal Investigator	$14,779,414
Total Extramural Funding	$30,084,958

Table 2 (since 1996-1997)

- **Principal investigator and project director on large-scale, interdisciplinary projects**
  - o   Critical Infrastructure Integration Modeling and Simulation (2003-2012): multiple awards with total funding: $9,833,254 as part of a $13M+ project. (Led all proposal development efforts).
  - o   VIFI: Virtual Information-Fabric Infrastructure for Data-Driven Decisions (2016-2022): funding: $3,999,531. (Lead PI for the final five years of the project.)
  - o   EECOMS - The Extended-Enterprise Coalition for Integrated Collaborative Manufacturing Systems (1998-2001): funding: $1,100,600 as part of a $29.5M project. (Led the proposal development effort with Bei-Tseng Chu.)
- **Deployed research results with the U.S. Government** from the Critical Infrastructure Integration Modeling and Simulation Project. The deployed results positively affected the product of analysis, transformed the method of analysis, and advanced the analytical capabilities of the U.S. Government.

5.1   Peer-Reviewed Grants and Contracts

5.1.1   Research

- **NC Research Capacity Building for a Secure & Reliable Power Grid 2050 (2023 – 2026).** Principal Investigator: Meera Sridhar. Co-PIs: Michael Mazzola, **William Joseph Tolone**, Badrul Chowdhury, Wei-Chao Wang, Robert Cox, Chenglong Fu. Lead institution: UNC Charlotte. Collaborating institutions: North Carolina State University (Ning Lu, Masut Baran) and North Carolina A&T State University (Marwan Bikdash, Balakrishna Gokaraju) Total Funding: $1,500,000 (**$749,998** to UNC Charlotte). State of North Carolina.
- **Planning Grant: Engineering Research Center for Integrated Systems Operations and Planning of a Carbon Neutral Electric Grid (2021-2022).** Principal Investigator: Badrul H. Chowdhury. Co-PIs: **William J. Tolone**, Sukumar Kmalasadan, Johan H. Enslin (Clemson University), Ning Lu (North Carolina State University). **Funding: $99,623**. National Science Foundation.

- **VIFI: Virtual Information-Fabric Infrastructure for Data-Driven Decisions (2016-2022)**. Principal Investigators: Ashit Talukder (2016-2017), **William J. Tolone** (2017-2022). Co-PIs: Mirsad Hadzikadic, Ehab Al-Shaer, Wenwen Dou, Yongge Wang, Wlodek Zadrozny. UNC Charlotte is the project lead with CalTech, Carnegie Mellon University, Cleveland State University, Florida State University, JPL, LBNL, Louisiana State University, North Carolina A&T State University, and University of North Texas as collaborators. Funding: **$3,999,531**. National Science Foundation**.**
- **STTR: Novel OSINT Platform for Enhanced OSINT Collection (2016-2017).** Principal Investigator: **William J. Tolone**. Partner: Zeuss, Inc. Funding: $43,750. US Army Research Office.
- **An Analytical Framework for Rapid End-to-End Support for Effective Civil-Military Operations Planning (2013).** Supplemental award. Principal Investigator: **William J. Tolone**. Co-PIs: William Ribarsky, Xiaoyu Wang, Wenwen Dou. Funding: **$186,211.** Engineering Research and Development Center - US Army Corps of Engineers.
- **RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE) (2013-2019)**. Partners: Cleveland State University (lead institution), University of North Texas, University of North Carolina at Charlotte, Carnegie Mellon University, Florida International University, Florida State University, University of Michigan, Louisiana State University, Texas A&M University. Principal Investigator: **William J. Tolone**. Co-PI: Mirsad Hadzikadic. Funding: **$62,500**. National Science Foundation.
- **Cyber-Enabled, User-Oriented, Interoperability Modeling for Engineering Sustainable Built Environments (2011-2012)**. China-U.S. collaboration with U.S. funding from the National Science Foundation. Partners from China include: Tsinghua University and Tongji University. U.S. partners include: University of North Texas, University of North Carolina at Charlotte and Florida International University. UNC Charlotte funding received as direct travel stipends. Principal Investigator: **William J. Tolone**. Co-PI: Yi Deng.
- **An Analytical Framework for Rapid End-to-End Support for Effective Civil-Military Operations Planning (2011 – 2013).** Principal Investigator: **William J. Tolone**. Co-PIs: Mirsad Hadzikadic, James Walsh, Joseph Whitmeyer. Funding: **$297,627.** Engineering Research and Development Center - US Army Corps of Engineers.
- **Commercialized Remote Sensing and Spatial Information Technology Application: Integrated Remote Sensing and Visualization (IRSV) System for Transportation Infrastructure Operations and Management (2007-2011).** Principal Investigator: Shen-en Chen. Co-PIs: Edd Hauser, William Ribarsky, **William J. Tolone**, Paul Smith, David Weggel, Seok-Won Lee. Funding: **$2,308,420** (two awards). USDOT BAA: DTPH56-06-BAA-0002, U.S. Department of Transportation/Pipeline & Hazardous Materials Safety Administration (PHMSA).
- **Southeastern Regional Visualization and Analytics Center (2006 – 2009).** Principal Investigator: Bill Ribarsky. Co-PIs: Anita Raja, **William J. Tolone**, Jianping Fan, Robert Kosara, Jing Yang. Funding: **$1,554,486** (five awards). U.S. Department of Homeland Security.
- **Critical Infrastructure Integration Modeling and Simulation (2003 – 2012).** Principal Investigator: **William J. Tolone.** Various Co-PIs: Bei-Tseng Chu, Wei-Ning Xiang, Mirsad Hadzikadic, David Wilson, Anita Raja, Teresa A. Dahlberg, Seok-Won Lee with numerous industry partners. Funding: **$9,833,254** (fourteen awards). U.S. Government.
- **Database and Analysis of First Union Financial Applications (1999-2000).** Principal Investigator: Mirsad Hadzikadic. Co-PIs: **William J. Tolone**, Ram Kumar. Funding: **$9,886.** National Science Foundation. Note: Multidisciplinary design project funded by the NSF SUCCEED Project.
- **EECOMS – The Extended-Enterprise Coalition for Integrated Collaborative Manufacturing Systems (1998 – 2001).** Principal Investigator: **William J. Tolone.** Co-PIs: Bei-Tseng Chu, Junsheng Long, Robert Wilhelm. Funding: **$1,100,600.** Department of Commerce NIST/ATP. Note: part of a $29.5M project funded by Department of Commerce NIST/ATP, IBM, Boeing, TRW, BAAN USA, Vitria Technologies, Scandura, and INDX with collaborators from the University of Florida, and the University of Maryland at Baltimore County.
- **Internet Based Tools to Support Distance Education – (1997 – 1999).** Principal Investigator: **William J. Tolone.** Co-PIs: Joe E. Quinn (1998), Chuck Price (1999). Funding: **$56,000**. National Science Foundation. Note: The project was funded by the National Science Foundation SUCCEED Project.
- **CIIMPLEX – Consortium for Integrated Intelligent Manufacturing Planning and Execution (1996 – 1999).** Principal Investigator: Bei-Tseng Chu. Co-PIs: Junsheng Long, Robert Wilhelm, **William J. Tolone**, Zhi Zhang. Funding: **$1,143,600** Department of Commerce NIST/ATP. Note: part of a $23M project funded

by Department of Commerce NIST/ATP, IBM, Ingersoll-Rand, QAD, Intercim, Berclain USA, and Envisionit.

5.1.2 Educational

- **Collaborative Project: Bridging Gaps in IA Education through Collaboration (2004-2006)**. Principal Investigator: Bei-Tseng Chu. Co-PIs: Seok-Won Lee, Gail-Joon Ahn, Anita Raja, Yuliang Zheng, Yongge Wang, **William J. Tolone**, Zhaoyu Liu, David Wilson. Funding: **$300,000**. National Science Foundation.

5.1.3 Equipment

- **NSF CISE Research Resources: Acquisition of a Haptic Device (2002-2005).** Principal Investigator: Jing Xiao. Co-PIs: **William J. Tolone**. Funding: **$41,354**. National Science Foundation.

5.1.4 Scholarship/Fellowship

- **Collaborative: Carolina Cyber Defender Scholarship (2017-2023).** Principal Investigator: Bei-Tseng Chu. Co-PIs: Heather Lipford, Mohamed Shehab, Weichao Wang, **William J. Tolone**, Ehab Al-Shaer. Funding: **$1,723,101**. National Science Foundation.
- **Career Development Grant – Advanced Data Analysis and Visualization (2008 – 2011)**. Principal Investigator: **William J. Tolone.** Co-PIs: William Ribarsky, Jing Yang, Anita Raja, Robert Kosara, Jianping Fang. Funding: **$237,163**. U.S. Department of Homeland Security.
- **Carolina Cyber-Defender Scholarship (2001 – 2009).** Principal Investigator: Bei-Tseng Chu. Co-PIs: Gail-Joon Ahn, Yuliang Zheng, **William J. Tolone**, Teresa Dahlberg Funding: **$4,361,870** (two awards). National Science Foundation.
- **Department of Defense Information Assurance Scholarship and Capacity Building Program (2001 – 2006).** Principal Investigator: Bei-Tseng Chu / Gail-Joon Ahn. Co-PIs: Gail-Joon Ahn / Bei-Tseng Chu, Yuliang Zheng, **William J. Tolone,** Zhaoyu Liu, Yongge Wang, Teresa Dahlberg. Funding: **$917,273** (five awards). U.S. Department of Defense.

5.2 Research Foundation Awards and Donations

- **PAIGE Proposal Development Award (2001) – William J. Tolone**. Funding: **$40,000**. In recognition of expertise and contributions to developing the PAIGE Project Proposal. IBM Corporation, 2001.
- **IBM SecureWay First Secure Donation (2000) – William J. Tolone**, Bei-Tseng Chu, Robert Wilhelm. Value: **$78,000**. IBM Corporation.
- **IBM Equipment Donation (1999) – William J. Tolone**. Value: $1,350. Lotus Databeam Corporation.
- **EECOMS Award Recognition (1999) – William J. Tolone**, Bei-Tseng Chu, Junsheng Long. Funding: **$32,446**. In recognition of expertise and contribution to winning the EECOMS award and to developing the EECOMS Statement of Work. IBM Corporation.

5.3 Cooperative Agreements

- **Cooperative Research and Development Agreement (2021 – 2026).** Principal Investigator: **William J. Tolone**. Collaborative research and development in the areas of the Internet-of-Things (IoT), National Cybersecurity Posture and Cyber Analysis, and Secure Composition and System Science. National Security Agency.

5.4 Other Extramural Funding

- **Data Science and Business Analytics Phase II: Data-driven Methods for Identifying Emerging Topics and Trends (2014).** Army Research Office. Lead institution: University of North Carolina General Administration. Principal Investigator: **William J. Tolone**. Co-PIs: William Ribarsky, Xiaoyu Wang, Wenwen Dou. Total funding: **$144,675**. Research for USSOCOM.
- **Data Science and Business Analytics Phase I: Data-driven Methods for Identifying Emerging Topics and Trends (2013 – 2014).** Army Research Office. Lead institution: University of North Carolina General Administration. Principal Investigator: **William J. Tolone**. Co-PIs: William Ribarsky, Xiaoyu Wang, Wenwen Dou. Total funding: **$152,575**. Research for USSOCOM.

- **VASA: Visual Analytics for Security Applications (2011 – 2014).** Germany-U.S. collaboration with U.S. funding from U.S. Department of Homeland Security (DHS). German partners include: University of Konstanz, Fraunhofer IGD, Fraunhofer IAIS, BBK, Siemens CT, SAP Research and the University of Stuttgart. U.S. partners include: Purdue University, University of North Carolina at Charlotte, the National Visualization and Analytics Center and the National Center for Food Protection and Defense. Principal Investigators: William Ribarsky, **William J. Tolone**. Funding: **$233,000**. U.S. Department of Homeland Security.
- **Infrastructure & Essential Services Ontology – Infrastructure Network Ontology Research (2010).** Principal Investigator: **William J. Tolone**. Funding: **$15,911**. Construction Engineering Research Laboratory, Engineer Research and Development Center, U.S. Army Corps of Engineers.
- **Critical Infrastructure Data Acquisition and Impact Modeling (2004).** Principal Investigator: **William J. Tolone.** Co-PIs: Wei-Ning Xiang, David Wilson, Anita Raja. Funding: **$9,584.** U.S. Navy, Space and Naval Warfare Systems Command (SPAWAR) Center, Charleston, SC.
- **Customers and Service Representatives: Improving Information Consistency and Accessibility (2003).** Principal Investigator: **William J. Tolone.** Funding: **$80,000.** Wachovia Corporation (E-Business Technology Institute).
- **Technologies for Internet-based Collaboration (1999 – 2004).** Principal Investigator: **William J. Tolone.** Funding: **$56,000**. IBM Corporation.
- **Graduate Student Support (1999 – 2000).** Principal Investigator: Bei-Tseng Chu. Co-PI: **William J. Tolone.** Funding: **$49,760.** Solectron Corporation.
- **An Adaptive Methodology for Enterprise Integration (1996 – 1998).** Principal Investigator: Bei-Tseng Chu. Co-PIs: Junsheng Long, **William J. Tolone**. Funding (1996-1998): **~$200,000**. Total funding (1993-1998): $522,000. IBM Corporation.

6   Teaching and Student Supervision

6.1   Curriculum/Program Leadership and Development

- **Leader in the design/development of innovative computing programs:** *one (1) baccalaureate program; one (1) Master's program; four (4) certificate programs*
  - o Baccalaureate-level program development
    - ▪ With Bei-Tseng Chu, led the revisions to the undergraduate program – BA Software and Information Systems – 2002.
    - ▪ With Bei-Tseng Chu and Gail-Joon Ahn, developed undergraduate program for BA in Software and Information Systems, 2001.
  - o Masters-level program development
    - ▪ Led a comprehensive review and revision of the Masters of Science Information Technology program, 2005-2006.
    - ▪ Developed a new curriculum track in *Software System Design and Engineering* within the Masters of Science Information Technology program, 2002.
  - o Certificate-level program development
    - ▪ Developed initial proposal to establish a new graduate certificate program in *Healthcare Information Technology*, 2009.
    - ▪ With Bei-Tseng Chu and Gail-Joon Ahn, developed the Graduate Certificate Program in Information Security and Privacy, 2000.
    - ▪ Collaborated in the development of new Certificate Programs in Computer Programming and Computer Architecture within the Department of Computer Science, UNC Charlotte. Authored the initial proposal for the Computer Programming Certificate, 1997.
- **Leader in the design/development of innovative computing curriculum:** *seven (7) undergraduate courses; seven (7) graduate courses; one (1) general education, laboratory science course*.
  - o As Lead or Co-lead
    - ▪ *ITIS 1350 eScience* (2009)
    - ▪ *ITIS 4250/5250 Computer Forensics* (2003)
    - ▪ *ITIS 2300 Introduction to Web-Based Application Development* (2003)
    - ▪ *ITIS 3300 Introduction to Software Requirements and Project Management* (2003)
    - ▪ *ITIS 3310 Software Architecture and Design* (2003)

- ▪ *ITIS 3320 Software Testing, Verification, Validation and Quality Assurance* (2003)
  - ▪ *ITIS 6130/8130 Software Requirements Methodologies for Information Systems* (2003)
  - ▪ *ITIS 6140/8140 Software Testing and Quality Assurance* (2003)
  - ▪ *ITIS 6177/8177 System Integration* (2001)
  - o As Collaborator
    - ▪ *ITIS 3200 Introduction to Information Security & Privacy* (2000)
    - ▪ *ITIS 6200/8200 Principles of Information Security and Privacy* (2000)
    - ▪ *ITIS 6210/8210 Access Control and Security Architecture* (2000)
    - ▪ *ITIS 6220/8220 Information and System Assurance* (2000)
- **College of Information Technology Graduate Teaching Award Winner 2001-2002**
- Led efforts to develop and install **Internet-based Distance Learning Technology** for the William States Lee College of Engineering, 1997 – 2000.
- Developed first computer forensics laboratory, 2002-2003 - funded by **Department of Defense Information Assurance Scholarship and Capacity Building Program** (see Section 5.1.4)

6.2   Postdoctoral Research Associates Supervised

- Mohammed Elshambakey: (August 2017 – March 2021)
- Sreyasee Das Bhattacharjee: (August 2017 – August 2019) - now on faculty at University of Buffalo
- Isaac Cho: (August 2017 – July 2018) - now on faculty at Utah State University
- Quan Zheng: (August 2017 – November 2017)

6.3   Doctoral Students Supervised

- Using Formal Methods towards Securing IaaS Cloud Environments. Saeed Al-Haj. Ph.D. Dissertation (Computing and Information Systems). December 2016. (Ph.D. advisor: **William J. Tolone**).
- Experienced, Expected and Preferred Job Characteristics of IT Employee: Do They Affect Performance and Behavior. Tanusree Pai. Ph.D. Dissertation (Information Technology). May 2010. (Ph.D. advisors: **William J. Tolone** and Susan Winter).

6.4   Masters Students Supervised

- Blind Spots in Critical Infrastructure Protections: Sources and Revelation. Joshua Blackwell. MA Thesis (Geography). December 2008. (MA Thesis committee member – advisor: Wei-Ning Xiang; co-advisors: **William J. Tolone** and Seok-Won Lee)
- A Demand-Driven Resource Allocation Model for Electrical Service Area Delineation and its Implementation in a GIS/ Neural Network Environment. Steven Castongia. MA Thesis (Geography), July 2006. (MA Thesis committee member – advisor: Wei-Ning Xiang; co-advisors: **William J. Tolone** and Seok-Won Lee)
- An Assessment of Validation Methods for Critical Infrastructure Protection Modeling and Simulation. Amy Weeks. MA Thesis (Geography), May 2006. (MA Thesis committee member – advisor: Wei-Ning Xiang; co-advisors: **William J. Tolone** and Seok-Won Lee)
- An Ontology Driven GIS (ODGIS) Approach to Critical Infrastructure Protection (CIP) Scenario Planning. MA Thesis (Geography), Robert McNally. May 2005. (MA Thesis committee member – advisor: Wei-Ning Xiang; co-advisors: **William J. Tolone** and Seok-Won Lee)
- Focusing Trusted Systems Research and Implementation. Gibson Grose. MS Thesis (Information Technology), 2004. (Advisor: **William J. Tolone**)
- "Log Monitoring Notification Framework." Swapna Bopanna. MS Project (Computer Science), 2003. (Advisor: **William J. Tolone**)
- "An Integrated Collaborative System and Associated Asynchronous Communication Service." Xiaoping Zhao. MS Project (Computer Science), 2003. (Advisor: **William J. Tolone**)
- Form Modeling and Processing using XML Technologies. Kusuma H. Atmakuri. MS Thesis (Computer Science), 2002. (Advisor: Essam El-Kwae. **William J. Tolone** advised after Dr. El-Kwae's death.)
- "Ubiquitous Context Awareness: A Mobile Awareness Client for Lotus Sametime." Salil Soman. MS Project (Computer Science), 2002. (Advisor: **William J. Tolone**)
- Collaboration Support for Exception Management in Integrated Manufacturing Environments. Parag Shah. MS Thesis (Computer Science), 2000. (Advisor: **William J. Tolone**)

- Investigating Computer Crime: a Method for the Application of Computer Forensics. Timothy Wright. MS Thesis (Computer Science), 2000. (Advisor: **William J. Tolone**)
- AgentCorp: a Framework for a Scalable Cooperative Organizational Model for Software Agents. Jonathan Gabel. MS Thesis (Computer Science), 1999. (Advisor: **William J. Tolone**)
- A Distributed Object-Oriented Framework for OBI-Based Inter Enterprise Commerce. Uday Kamath. MS Thesis (Computer Science), 1999. (Advisor: **William J. Tolone**)
- An Extensible Object-Oriented Framework in Java for Database Driver Plug and Play. Ramesh Praveen. MS Thesis (Computer Science), 1998. (Advisor: **William J. Tolone**)
- "Design and Development of a Student Information System." Vijay Chowdary Chava. MS Essay (Computer Science), 1998. (Advisor: **William J. Tolone**)
- "A Comparative Evaluation of Three vs. Four Tier Client/Server Application Architectures." Radu Marian. MS Essay (Computer Science), 1997. (Advisor: **William J. Tolone**)

6.5   Bachelors Students Supervised

- "Website Re-design for OASES." Neha Shahani. Senior Design Project, 2004. (Advisor: **William J. Tolone**)
- "Collaborative Systems and Web Application Development." Riddhi Gupta. Senior Design Project, 2003. (Advisor: **William J. Tolone**)
- "Trade Order Manager: J2EE Version." Johnny L. Hopkins. Senior Design Project, 2003. (Advisor: **William J. Tolone**)
- "Department of Languages and Cultural Studies Translation Tutorial Application." Doris Phillips. Senior Design Project, 2003. (Advisor: **William J. Tolone**)
- "International Resource Bank." Zi Cai and Chirag Patel. Senior Design Project, 2003. (Advisor: **William J. Tolone**)
- "Collaborative Systems and Web Application Development." Hiroko Shimozono. Senior Design Project, 2002. (Advisor: **William J. Tolone**)
- "Air Force ROTC Website: Detachment 592." Joint Project: Scott Mallonee and Greg Kieslich. Senior Design Project, 2002. (Advisor: **William J. Tolone**)
- "OIT Website Redesign & Automation of Lab Updates and Installs." Joint Project: Kyle Moss and Dane McAuley. Senior Design Project, 2002. (Advisor: **William J. Tolone**)
- "First Union's Enterprise Technical Architecture Website Prototype." Joint Project: Praneeta Rao and Phi Nyguen. Senior Design Project (First Union National Bank), 2000. (Advisor: **William J. Tolone**)
- "Windows 2000 Project: Evaluation and Deployment for First Union National Bank." Michael J. Johnston. Senior Design Project (First Union National Bank), 2000. (Advisor: **William J. Tolone**)
- "Communication and Collaboration Using Lotus Sametime and Real Networks Software." Nick Shrum. Senior Design Project (First Union National Bank), 2000. (Advisor: **William J. Tolone**)
- "First Union Senior Project: Document Upload and Download Prototype." *Joint Project:* Nicholas D. Bellamy, Omer M. Jama, and Deonna J. Pitchford. Senior Design Project (First Union National Bank), 2000. (Advisor: **William J. Tolone**)
- "ETA Data Model." Jonathan Strauss. Senior Design Project (First Union National Bank), 2000. (Advisor: **William J. Tolone**)
- "AFROTC Web-page at UNC-Charlotte." Part A. Harshal Jambusaria. Senior Design Project, 2000. (Advisor: **William J. Tolone**)
- "AFROTC Web-page at UNC-Charlotte." Part B. Mittal Patel. Senior Design Project, 2000. (Advisor: **William J. Tolone**)
- "First Union Senior Project: Requirements Definition." *Joint Project:* Nicholas Bellamy, Marcia Davis, Jackie Gross, Omer Jama, Hoonkoo Kim, Deonna Pitchford, Angel Siler, Jonathan Strauss, Quanita Wells, and Retha Williams. Senior Design Project (First Union National Bank), 1999. (Advisors: **William J. Tolone** and Mirsad Hadzikadic).
- "The Lighting & Building Energy Technology Laboratory." Part A. Ashish Desai. Senior Design Project, 1999. (Advisor: **William J. Tolone**)
- "The Lighting & Building Energy Technology Laboratory." Part B. Kefle Fesseha. Senior Design Project, 1999. (Advisor: **William J. Tolone**)
- "An Application in CORBA: a Senior Project." Part A. Todd Chapman. Senior Design Project, 1999. (Advisor: **William J. Tolone**)

- "An Application in CORBA: a Senior Project." Part B. Shannan Taylor. Senior Design Project, 1999. (Advisor: **William J. Tolone)**
- "UNCC MBone Technology, Tools, and Applications." Chris Williams. Senior Design Project, 1998. (Advisor: **William J. Tolone)**
- "UNC-Charlotte Philosophy Department's Web Page Project." Kevin Alston. Senior Design Project, 1998. (Advisor: **William J. Tolone)**
- "University of North Carolina at Charlotte Philosophy Department Web Site Development Project." Cheryl Cooper. Senior Design Project, 1998. (Advisor: **William J. Tolone)**
- "Company Database for Research and Reporting." Obaro Ojaide. Senior Design Project, 1998. (Advisor: **William J. Tolone**)

7 Service

7.1 External

- **Organized and chaired an NSF-funded workshop on** *Wellbeing-Centric Human-Building Ecosystems* – the final workshop in a series executed by the NSF RCN-SEES: *Predictive Modeling Network for Sustainable Human-Building Ecosystems* project. The goal of the workshop was to explore a natural extension and evolution of sustainable human-building ecosystems to wellbeing-centric human-building ecosystems. The two-day workshop included twenty-eight (28) researchers from seventeen (17) institutions. The product of the workshop was a 66 pp. report that articulated new research directions, pathways research dissemination, and opportunities to sustain the emerging research agenda. July 22-23, 2019. *(Served as lead author of the report.)*
- **Reviewer for numerous respected journals:** *International Journal of Simulation Modelling Practice and Theory; International Journal of Risk Assessment and Management; Journal of Intelligent Information Systems; International Journal on Critical Infrastructure Protection; IEEE Transactions on Visualization and Computer Graphics; IEEE Computer Graphics and Applications; Journal of Computer-Aided Design; ACM Transactions on Software Engineering and Methodology; IEEE Computer*
- **Research discipline leadership**
  - o Reviewer for the *IFIP* Working *Group 11.10 International Conference on Critical Infrastructure Protection, 2007, 2009, 2010, 2012, 2013, & 2014,* which is the leading U.S.-based conference in the area of critical infrastructure protection.
  - o Multiple session chair for the *International Workshop on Critical Information Infrastructure Security*, *2009*, and program committee *2016 & 2017*, which is the leading European-based conference in the area of critical infrastructure protection.
- **Established and chaired the** *SPIE Visual Analytics for Homeland Defense and Security Conference (2008 – 2010),* co-chair William Ribarsky, held in conjunction with the *SPIE Defense, Security, and Sensing Symposium*, which has in excess of 6,000 attendees.
- **Organized and co-chaired** (with Mirsad Hadzikadic) **the Workshop on Understanding Human Behaviors for Sustainable Building Ecosystems** associated with the RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems and sponsorship from the National Science Foundation, the Charlotte Research Institute and the College of Computing and Informatics, May 27-28, 2014.
- **Organized and chaired the NC Defense C4ISR Workshop (29 MAR 2012)** – event included over 100 participants – 15% from industry (>12 companies); 22% from GOVT (9 agencies); 63% from academia (8 universities + UNC GA).
- **Charter member and campus representative to the University of North Carolina Defense Applications Group** (2011 – 2017) a multi-disciplinary group of UNC faculty who provide subject matter expertise to address science & technology (S&T) gaps of the United States Army Special Army Operations Command (USASOC).
- **Program Committees**
  - o Co-Chair, NSF Workshop on Understanding Human Behaviors for Sustainable Building Ecosystems, May 27-28, 2014.
  - o Organizing Committee. NSF-sponsored US-China Workshop on Analytics for Building-Scale Sustainable Ecosystems. Co-Chairs: Dr. Yong Tao, University of North Texas; Dr. Yi Jiang, Tsinghua University, June 2012.

- o Conference Chair for SPIE Visual Analytics for Homeland Defense and Security Conference. This conference was held April 5, 2010 in conjunction with the 2010 SPIE Defense, Security, and Sensing Symposium
- o Conference Chair for SPIE Visual Analytics for Homeland Defense and Security Conference. This conference was held April 14, 2009 in conjunction with the 2009 SPIE Defense, Security, and Sensing Symposium
- o Conference Chair for SPIE Visual Analytics for Homeland Defense and Security Conference. This conference was held March 17, 2008 in conjunction with the 2008 SPIE Defense and Security Symposium
- **o** Program committee member for Visualization in the World Symposium, April 24-25, 2008.
- **Editorial Boards/Panels**
    - o Panelist for the *Virtual Workshop: Gaps and Research Needs in Visualization, Analysis and Decision Support for the Power Grid* (2011). Pacific Northwest National Laboratory (PNNL). The Panel prepared an R&D agenda document to guide PNNL investment, and the broader research community investment, in visualization and decision support technology for the future power grid.
    - o Panelist for National Science Foundation (NSF) Small Business Innovation Research (SBIR) *Web Applications Program* (2001).
- Collaborated with Gail-Joon Ahn (co-lead) and Bei-Tseng Chu (co-lead) on the successful application to receive the **National Security Agency (NSA) and Department of Homeland Security (DHS) designation** in May 2001 as a **National Center of Excellence in Information Assurance Education**. The College of Computing and Informatics at UNC Charlotte subsequently received from the NSA and DHS designation in June 2008 as a **National Center of Excellence in Information Assurance Research.**
- **Advantage Carolina (1998-1999)**. Upon invitation, actively contributed to the Charlotte Chamber of Commerce's efforts to develop a strategic plan for the Charlotte region, which included the defining of UNC Charlotte's role in the plan. The formation of the College of Information Technology (now the College of Computing and Informatics) was one outcome of these efforts.

7.2   Internal

- **Served as Associate Dean of the College of Computing and Informatics**, 2013 – present. **Under my leadership the College achieved the following**:
    - o Developed and managed the CCI Continuity of Operations Plan, including planning efforts for reopening the college during the Covid-19 global pandemic.
    - o Reorganized CCI Scholarship Operations by working with the University Scholarship Office, the CCI Business Officer, and key CCI faculty and staff.
    - o Oversaw CCI Graduate Programs and led efforts to diversify CCI graduate program enrollment and increase online program delivery.
    - o Reorganized the CCI Research Office resulting in increased efficiency and productivity of College research operations as reflected in increases in proposal submissions, awards, and research expenditures.
    - o Revised CCI budget management processes and practices giving college units greater autonomy and accountability over operating budgets.
    - o Improved space utilization in Woodward Hall by completing research laboratory renovations and launching new renovations to improve office space utilization.
    - o Reorganized college personnel and operations for improved efficiency and effectiveness.
    - o Shepherded the College through the development of the 2015-2020 CCI Strategic Plan.
    - o Oversaw development of the SOPHI Data Observatory, one of the four pillars of the University's Data Science Initiative.
    - o Revitalized the Technology Solutions Office expanding its project-based efforts and solidifying systems support to the College's teaching and research mission.
    - o Launched multiple 3+2 and 4+1 programs with Chinese universities.
    - o In a collaborative effort with faculty, staff, and college leadership, managed unprecedented enrollment growth in the College's academic programs.
- **Served as Interim Chair of the Department of Computer Science,** 2019 – 2020. **Under my leadership the College achieved the following**:

- o <u>Rebuilt and reorganized department leadership team</u> after the departure of the previous chair, associate chair, and assistant chair.
- o <u>Established and filled a new graduate coordinator position</u> to manage more efficiently and strategically the University's largest graduate program.
- o <u>Recruited two tenure/tenure-track faculty members</u> – one tenure-track assistant professor and one tenured associate professor.
- o <u>Recruited a visiting assistant professor</u> to increase undergraduate teaching capacities in strategic areas.
- o <u>Onboarded four new faculty members</u> – two tenure/tenure-track faculty members and two senior lecturers.
- o <u>Launched the Computer Science Student Experience Initiative</u> to cultivate a culture of inclusivity that is dedicated to student success and equity in education.
- o <u>Developed the first strategic plan for the MS Computer Science program</u> to prioritize enrollment management, program accessibility, assessment, streamlined administration and student participation in research.
- o <u>Worked with faculty to develop a new online Graduate Certificate Program in Applied Artificial Intelligence</u> by establishing new online courses and facilitating faculty governance processes.
- o <u>Advocated and supported key undergraduate curricular initiatives</u>, including efforts to evaluate and redesign multiple upper-division, core courses.
- o <u>Balanced spring/fall enrollment in MS Computer Science enrollment</u> to support university enrollment initiatives and better manage department resources.
- o <u>Oversaw record undergraduate and graduate student enrollment</u> in computer science programs.
- o <u>Prioritized and led department efforts to reduce student textbook expenses</u> by increasing awareness of the high cost of textbooks, the availability of open-source options, and the inequity of the effects of high textbook expenses. From fall 2019 to spring 2020, the department reduced the average textbook expense per course by roughly 20%.
- o <u>Oversaw a banner year for department research productivity</u>. The department led the university in extramural funding for 2019-2020.
- **Served as Interim Dean of the College of Computing and Informatics**, 2016 – 2017. **Under my leadership the College achieved the following**:
  - o <u>Strengthened leadership and communication</u> among college senior staff.
  - o <u>Increased transparency and trust</u> between college faculty and college leadership.
  - o <u>Deepened a culture of shared governance</u> with faculty within the College.
  - o <u>Strengthened the CCI Dean's Advisory Board</u> inspiring board members to action on behalf of the College and equipping board members to be ambassadors for the College.
  - o <u>Guided the College with record enrollment and campus-leading research productivity</u> in terms of extramural funding.
  - o <u>Developed and executed a plan to increase Ph.D. student stipends</u> to increase, in turn, the competitiveness of assistantship awards and improve student support.
  - o <u>Overhauled the College's communications strategy</u>, redesigned the College's web presence (in progress), and developed/implemented a social media presence for the College (in progress).
  - o <u>Conducted a study and developed a vision for the College's organization and structure</u> to accommodate enrollment growth and research productivity for the next five (5) years.
  - o <u>Led the College's development efforts</u> in collaboration with University Advancement. The University expects to be in a position to announce several substantial gifts to the College in the coming months.
  - o <u>Launched the CCI Alumni Association</u> to engage the 4000+ College graduates.
  - o <u>Launched the CCI Advising Center</u> to integrate professional advisors into the College's support for student services.
  - o <u>Launched the Masters of Science in Cyber Security Program.</u>
  - o <u>Launched college-wide Bachelor of Science & Bachelor of Arts Programs in Computer Science.</u>
- **Served as Interim Chair of the Department of Software and Information Systems**, 2008-2009. During a time of great transition within the CCI and historic budgetary constraints, **under my leadership the Department achieved the following**:
  - o Continued undergraduate <u>enrollment increases</u> despite national trends towards lower enrollments.
  - o Continued to maintain <u>program diversity</u> despite national trends towards less diversity.

- o Developed a new undergraduate curriculum and enacted revised undergraduate program that included three new tracks: Web Development Track, Software Engineering Track, and Financial Services Informatics Track.
- o Developed a new general education curriculum in the area of eScience.
- o Revised and recertified existing Graduate Certificate in the Management of Information Technology.
- o Developed a new Graduate Certificate in Healthcare Information Technology.
- o Collaborated on the initial planning for a Professional Science Master's Program in Healthcare Informatics.
- o Demonstrated excellent faculty and student scholarship both in quality and quantity.
- o Demonstrated strong extramural funding both in the number of awards and the total amount of these awards (highest total extramural funding among all university departments).
- o Served in a lead role for the *9ᵗʰ Annual Fall Symposium on Information Security and Privacy*.
- o Served in a lead role for the *1ˢᵗ Annual Conference on Software as a Service*.
- o Student team placed first in the Southeast Region of the National Collegiate Cyber Defense Competition.
- o Received from NSA & DHS designation as a National Center of Excellence in Information Assurance Research.
- o Received recertification of the Department's information assurance courseware from the Committee on National Security Systems.
- **Leader in academic program administration:**
  - o **Computing and Information Systems Ph.D. Program Director**, College of Computing and Informatics, University of North Carolina at Charlotte, October 2013 – August 2014; **(Interim) Program Director**, January 2013 – September 2013.
  - o **SIS Track Coordinator**, Computing and Information Systems Ph.D. Program, College of Computing and Informatics, University of North Carolina at Charlotte, August 2011 – August 2013.
  - o **Masters of Information Technology Program Coordinator**, Department of Software and Information Systems, University of North Carolina at Charlotte, July 2004 – June 2008.
- **Exceptional department, college, and university leadership and service** – served in nearly thirty (30) leadership positions – department chair, committee chair, program coordinator, and elected college and university faculty governance positions.
  - o **Faculty development:**
    - ▪ Elected to the Department Review Committee five (5) times. Elected committee chair of the committee each time.
    - ▪ Elected to the College Review Committee two (2) times. Elected committee chair of the committee each time.
    - ▪ Served on three (3) Chair Reappointment Evaluation Committees and one (1) Dean Evaluation Review Committee.
    - ▪ Led efforts to develop CCI RPT Guidelines to educate faculty and staff, streamline the RPT process, and assist faculty in the preparation of their dossiers.
    - ▪ Introduced a Faculty Development Plan to help faculty articulate strategic goals and tactics to promotion, tenure, and career development.
    - ▪ Tenure Review Committee (2013) – performed comprehensive review of all university retention, promotion and tenure policy and guidance documents.
    - ▪ Advance Leadership Team (2011-current) – faculty advisory committee that supports the University's efforts in promoting diversity and faculty development.
  - o **Faculty recruitment** – served on the search committee for key university administrators and helped to build a faculty for the Department of Software and Information Systems
    - ▪ University administrator searches: one (1) provost, one (1) dean, two (2) department chairs, one (1) university research center, and one (1) endowed chair.
    - ▪ Very active in the recruitment and hiring of twelve (12) tenure-track faculty members – one (1) Professor; one (1) Associate Professor; ten (10) Assistant Professor – and two (2) full-time lecturers.
  - o **Faculty governance:**
    - ▪ Faculty Council (2001-2002, 2002-2003 alt., 2003-2004 alt., 2007-2008, 2009-2010,

        2010-2011, 2016-2017).
- ▪ **Elected and served as the Inaugural Chair of the Faculty Information and Technology Services Advisory Committee (FITSAC) (2003-2007)** – elected to two consecutive two-year terms during which time the committee worked to improve communication between ITS and the faculty.
- ▪ **Elected and served as College Faculty President (2007-2008)** – during my term I instituted informational sessions as part of college faculty meetings to educate faculty on important issues such as university policies and procedures, fellowship opportunities, and the Graduate Assistant Support Plan (GASP).

- ● **Key contributor to the Data Science Initiative.** Leading the development of a data observatory. Overseeing efforts to build a proper DSI computing infrastructure. Led DSI research for USSOCOM/ARO. Developed defense and security oriented executive training workshop.
- ● **Helped to establish the CCI's participation in nationally recognized scholarship and fellowship programs.**
  - o <u>Career Development Grant – Advanced Data Analysis and Visualization</u> (2008 – 2011). **William J. Tolone (PI)**, et al. Funding: **$237,163**. U.S. Department of Homeland Security.
  - o <u>Carolina Cyber-Defender Scholarship</u> (2001 – 2009). **William J. Tolone (co-PI).** Multiple awards. Total funding: **$4,361,870**. National Science Foundation.
  - o <u>Department of Defense Information Assurance Scholarship and Capacity Building Program</u> (2001 – 2006). **William J. Tolone (co-PI).** Multiple Awards. Total funding: **$917,273**. U.S. Department of Defense.
- ● **Key participant in the strategic planning initiatives.**
  - o Organized and co-leading the development of the College of Computing and Informatics 2015-2020 Strategic Plan
  - o Served on a select strategic planning committee to draft the SIS 2010-2014 Strategic Plan
  - o Developed the first draft of the inaugural strategic plan for the Department of Software and Information Systems (SIS), 2004
- ● **Major contributor to the design and development of the Department of Software and Information Systems (1998 – 2013)**.
  - o One of two faculty members (the other Dr. Bei-Tseng Chu) invited by the then Provost (Dr. Denise Trauth) to undertake the task of establishing a second department (the Department of Software and Information Systems) within the then College of Information Technology.
- ● **Ph.D. Dissertation Committees**:
  - o <u>Decision Support for Critical Infrastructure Recovery</u>. Okan Pala. Ph.D. Computing and Information Systems. December 2014. (Ph.D. dissertation committee member – advisor: David Wilson; committee member: **William J. Tolone**)
  - o <u>How is the Value of Real Estate Affected by the Department of Defense Base Realignment and Closure Process</u>? Thomas E. Hiebert. Ph.D. Business Administration. July 2009. (Ph.D. dissertation committee member – advisor: Richard Buttimer; committee member: **William J. Tolone**)
  - o <u>Discovering and Understanding Multi-dimensional Correlations among Regulatory Requirements with application to Risk Assessment</u>. Robin Gandhi. Ph.D. Dissertation (Information Technology). March 2008. (Ph.D. dissertation committee member – advisor: Seok-Won Lee; committee member: **William J. Tolone**)
  - o <u>Software Frameworks and Data Processing for Integrated Measurement Processes</u>. Xiaoping Zhao. Ph.D. Dissertation (ME), February 2006. (Ph.D. dissertation committee member – advisor: Robert Wilhelm; committee member: **William J. Tolone**)
  - o <u>Predicting the Intention of Managers to Use IT Certification in the Hiring Process</u>. David Scott Hunsinger. Ph.D. Dissertation (IT), July 2005. (Ph.D. dissertation committee member – advisor: Michael Smith; committee member: **William J. Tolone**)
  - o <u>The Impact of Customer-Related IT Investments: A Study of Customer Satisfaction, Shareholder Returns, and Diffusion.</u> Shana Dardan. Ph.D. Dissertation (IT), April 2004. (Ph.D. dissertation committee member – advisors: Antonio Stylianou and Ram Kumar; committee member: **William J. Tolone**)
  - o <u>Design Automation of Geometric Profile Tolerance Specification and Placement of Fluid Power Cartridge Valves</u>. Trichy M. Kethara Pasupathy's. Ph.D. Dissertation (ME) April 2003. (Ph.D.

dissertation committee member – advisor Robert Wilhelm; committee member: **William J. Tolone**)

7.3   Community Service

- **Leadership Cabarrus (2023-2024).** Participated in this Cabarrus County Chamber program. The program educates and develops leadership for regional civic engagement. This program included a year-long community service project.
- **Urban Sustainability Analytics (2011-2013).** Funded by the College of Computing and Informatics. Investigators: William Ribarsky, **William J. Tolone**, Xiaoyu Wang. Supported participation in Envision Charlotte (www.envisioncharlotte.com). Research results included the Urban Sustainability Modeling System (USMS), a comprehensive, sustainability-modeling environment that incorporates several heterogeneous models within one framework.
- **Boy Scout Leader (2006-2103).** Troop Committee Member in various positions, Troop 232.
- **Youth Athletics Coach (2003-2012).** Odell Recreation Baseball, Mallard Creek Optimist Club Pony League Baseball, YMCA Recreation Basketball, AAU Basketball, and Nations Baseball.
- **Cub Scout Leader (2002-2006).** Co-Den Leader, Pack 232.
- **Cabarrus County Public School Volunteer (2002-2005).** 2nd, 3rd & 4th Grade Math Superstars Program, Weddington Hills Elementary.
- **Volunteer, St. Thomas Aquinas Catholic Church (1999-present).** Extraordinary Minister of Communion, Adult Catechist, and Youth Catechist.
- **Advantage Carolina (1998-1999)**. Upon invitation, contributed to the Charlotte Chamber of Commerce's efforts to develop a strategic plan for the Charlotte region. Participated in several *Software* cluster meetings and Chamber meetings to help define UNC Charlotte's role in the strategic plan.

8   University Fundraising

- **Strong record of fundraising** (began efforts to pursue such funding in fall 2016).

2017	**$2,201,500**
2019	**$125,000**
2020	**$90,000**
2021	**$90,000**
2022	**$90,000**
2023	**$100,000**
2024	**$50,000**
Total	**$2,746,500**

Table 3 (since 2016)

- **Anonymous (2020-present).** Led proposal development and collaborated with University Advancement to establish multiple gifts to support activities focused on human mobility. Funding: **$420,000**.
- **Brighthouse Scholarship (2019-2023).** Co-authored the gift proposal, with Fatma Mili, and collaborated with University Advancement for the gift to establish this scholarship. Funding: **$125,000**.
- **North State Mentoring Program (2017-2023).** Led proposal development and collaborated with University Advancement for the gift to establish this program. Funding: **$425,000**.
- **Charlotte Region SIM Chapter College Access Program Endowed Scholarship (2017).** Authored the gift proposal for the Society for Information Management (SIM) College Access Program (CAP) Endowed Scholarship and collaborated with University Advancement for the gift to establish this scholarship. Funding: **$26,500**.
- **Duke Energy STARS Program (2017-2023).** Authored the gift proposal for the Duke Energy STARS Program. Part of a larger gift negotiated by University leadership. Funding for the Duke Energy STARS Program: **$750,000**.
- **Bank of America Endowed Chair in Security Analytics (2017).** Co-authored, with Mary Lou Maher, the position description for a proposed endowed chair in security analytics. Part of a larger gift negotiated by University leadership. Funding for the endowed chair portion of the gift: **$1,000,000**.

9   Professional Affiliations/Memberships

- Member of the *Visual Analytics for Command, Control, and Interoperability Environments (VACCINE) Center*. U.S. Department of Homeland Security, Center of Excellence. Purdue University. (2009 – 2014)
- Member of *IFIP Working Group 11.10 on Critical Infrastructure Protection* (2007 – 2015).
- Member of the *Institute of Electrical and Electronics Engineers, Inc*., *(IEEE)* (1996 – present)
- Member of the *Association for Computing Machinery*, *(ACM)* (1994 – present)