

Curriculum Vitae

DEACON **STEPHEN T. FREZZA, PH. D., P.S.E.M.**

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Franciscan University of Steubenville
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PROFESSIONAL EXPERTISE

Application of Software Engineering tools and techniques, particularly in the areas of project management, process, requirements, design and automated testing. Engineering education research and program development particularly in the areas of engineering virtue, affective domain assessment and competency modeling.

EDUCATION

Post-Graduate work in Pastoral Studies, Aug. 2009-2015, Gannon University
Ph. D. in Electrical Engineering, Dec. 1995, University of Pittsburgh. Dissertation: "Requirements-Based Design Evaluation Methodology." Advisor: Prof. Steven P. Levitan.
M.S. in Electrical Engineering, Apr. 1991, University of Pittsburgh. MS Thesis: "SPAR: A Schematic Place and Route System." Advisor: Prof. Steven P. Levitan.
Post-Graduate work in Computer Science, Aug.-Dec. 1987, University of Pittsburgh
B.S. in Electrical Engineering cum laude Apr. 1985, University of Pittsburgh

ACADEMIC EXPERIENCE

Professor of Software Engineering, Franciscan University of Steubenville, Aug. 2021- present.
Program Director Software Engineering, Department of Engineering & Computing, Franciscan University of Steubenville, Aug. 2021- present.
Professor of Software Engineering Gannon University, Jul. 2012- Jun. 2021.
Department Chair Computer & Information Science Dept., Gannon University, Jan. 2018- Jun. 2021, Jul. 2005- Jun. 2009.
Guest Lecturer, Department of Information Technology, Uppsala University, Jan. 2017-Jun. 2017.
President of Faculty Senate Gannon University, Jun. 2013- Jun. 2014.
Associate Professor of Software Engineering Gannon University, Jul. 2005- Jun. 2012.
Chair, University Learning Outcomes Assessment Committee, Jul. 2009- Jul. 2011.
Associate Professor of Electrical & Computer Engineering, Gannon University, Aug. 2001- Jun. 2005.
Acting Department Chair Computer and Information Science Dept., Gannon University, Jan. 1997- May 1998.
Assistant Professor of Electrical & Computer Engineering, Gannon University, Aug. 1995- Aug. 2001.

ACADEMIC LEADERSHIP

Program Director, Software Engineer, Department of Engineering & Computing, Franciscan University of Steubenville, Steubenville, OH. Aug. 2021- present; Currently leading the effort to implement and roll out an accreditable Software Engineering BS program that will

meet ABET EAC program requirements. Leading efforts to integrate competency and engineering virtue into the program courses, structure and culture. Responsible for software engineering and cybersecurity offerings; Responsible for outcomes assessment and continuous improvement for all Dept of Engineering and Computing programs.

Department Chair, Computer and Information Science Department, Gannon University, Erie, PA Jan. 2018- Jun. 2021; Currently leading the effort to implement and roll out an accreditable Cybersecurity BS program that could meet both NSA content and ABET CAC program requirements. Managed effort to launch on-line MS program in Information Assurance. Successfully managed the post ABET accreditation visit for SE, IS and CS programs; Led the effort to address deficiencies and 2-year reporting process that led to the successful reaccreditation of all three programs. Led the implementation of the MS-CIS program within a three-track (IT, DS, SE) structure and revised program assessment. Manage continuous improvement processes; Hired fulltime and adjunct professors in four computing disciplines, managed department faculty & staff development, supported two faculty through the advancement in rank process, managed dept. budgets, managed teaching schedules, led community service efforts, supported college-level efforts.

Chair, University Scholarly Release Time Committee, Gannon University, Erie PA; April. 2013- present. Reporting to the Provost and Faculty Senate; Drafted proposal for changes to university policy and procedures for awarding scholarly release time. Developed and communicated pilot procedures. Ran pilot of new policies and procedures.

President, Faculty Senate: Gannon University Faculty Senate. VP June 2011- May 2012; President June 2012-May 2013. Led committee work that developed proposals for an administrator evaluation process, promotion of non-tenure track faculty and introduction of new scholarly release time procedures.

Chair, University Learning Outcomes Assessment Committee, Gannon University, Erie PA; Jul. 2009- Jul. 2011. Helped draft the first University assessment plan for Liberal Studies (LS) program; delivered training sessions for LS assessment; Led the review of the first LS assessment report (2010). Facilitated internal grants, a recognition program, training workshops and speakers on assessment.

Department Chair, Computer and Information Science Department, Gannon University, Erie, PA Jul. 2005- Jun. 2009; Ran the first ABET accreditation visit for MIS and CS programs; Led the effort to accredit the new SE undergraduate program. Led the overhaul of the MS-CIS program to include a four-track structure, foundation course sequences and program assessment. Found grant for and developed the first dept. marketing video. Developed grant for and hired 2nd Software Engineering professor. Managed renovation of building space and transitions. Hired fulltime and adjunct professors, managed department faculty & staff development, supported two faculty through the tenure process, managed dept. budgets, managed teaching schedules, led community service efforts, supported college-level efforts.

Director, Keystone Software Development Institute (KSDI), Gannon University. Erie PA. Jan. 2007- June 2008. Led the grant development, formation, funding and staffing of an institute for software development for supporting technology development and transfer. Hired next director and continued in advancing KSDI projects.

University Mission and Identity Council, Gannon University. Erie PA. Aug 2003- present.

Faculty Representative to the Mission Review Subcommittee; organized and ran faculty focus groups on the Mission Statement revisions subsequently adopted in 2012. Co-Chaired the drafting committee for the operational definition of the Mission Statement, adopted in 2008. Ran the review and drafting process for the revised *On Catholic Identity* statement, adopted in 2004.

Liberal Studies/Core Curriculum Committee, Gannon University. Erie PA. Led the Information Technologies Competency subcommittee leading to the 2009 *Working Definition for Information Literacy and Computer Technology Competencies*. As a committee member (2007-8), authored one of three working group proposals and supported the creation of the 2008 Core Curriculum revision. Served on the Program Assessment Working group (2006-7) and Co-Chaired the Liberal Studies Assessment Subcommittee (2003-5).**Department Chair**, Computer and Information Science Department, Gannon University, Erie, PA Jan. 1997- May 1998. Led the formation of the department; Integrated the CS and MIS programs from the school of Science and Dahlkemper School of Business; Hired the first CIS faculty member; Developed the first assessment plan for CS and MIS programs.**TEACHING SUMMARY***Software Engineering (SE):*

Have developed and offered over twelve different Graduate and Undergraduate SE courses new to Gannon university including iOS development, software project management, requirements engineering, software engineering, software and business process design, software testing and quality assurance. Led the SE program from its inception in 2003-2021. Leading the inaugural implementation of the SE program at FUS since 2021.

Computer Engineering (CE):

At Gannon, developed eleven different CE courses at the Graduate and Undergraduate level. Included five courses new to the ECE department: language-based digital design, neural networks, computer architecture, advanced computer architecture and the ECE Professional Seminar. Led the Computer Option within the ECE program from 1995-2005.

Computer & Information Science (CIS):

Taught various CIS core courses at the Graduate and Undergraduate level. Introduced the CIS Professional Seminar and CIS Leadership Seminar into the undergraduate CIS curricula.

General:

Have taught a small number of team-taught social science and liberal studies courses, including the “Tech Think” Freshman Seminar, Project Economics and a history course on the Chancellorsville & Gettysburg Campaigns.

COURSES TAUGHT

<u>Course Title</u>	<u>Level</u>	<u>New to Institution</u>
<i>Software Engineering:</i>		
Software Process & Quality Assurance	Undergraduate	Y
Mobile App Development 1 & 2	Undergraduate	Y
Interactive Software Development	Graduate/Undergraduate	Y
Software Maintenance & Deployment	Graduate/Undergraduate	
Global Project Management	Undergraduate	Y
Object-Oriented Design Lab	Undergraduate	

Requirements and Project Management	Graduate	Y
iOS Development	Graduate	Y
User Interface Design & Maintenance	Graduate/Undergraduate	
Software Project Management	Graduate	Y
Requirements Engineering	Graduate	Y
Requirements and Project Management	Undergraduate	Y
Software Requirements	Undergraduate	Y
Object-Oriented Modeling	Graduate	Y
Software Engineering Methodologies	Graduate	Y
Software Testing and Quality Assurance	Graduate	Y
Embedded Software Paradigms	Graduate	Y
Software Testing	Graduate/Industry Seminar	Y
Software Engineering	Undergraduate	Y
Software Design and Test	Undergraduate	Y
Program Design using C++	Undergraduate	Y
<i>Computer Engineering:</i>		
Language-Based Digital Design	Graduate	Y
Neural Networks	Graduate	Y
Microprocessors I	Undergraduate	
Microprocessor Design II	Graduate/undergraduate	
Digital Logic Design & Lab	Undergraduate	
Digital Design II & Lab	Graduate/undergraduate	
Computer Architecture	Undergraduate	Y
Advanced Computer Architecture	Graduate/undergraduate	Y
Computer Organization	Undergraduate	
ECE Professional Seminar	Undergraduate	Y
Senior Design 1 & 2	Undergraduate	
<i>Computer & Information Science:</i>		
C++ for Python Programmers	Undergraduate	Y
Linux and Scripting	Undergraduate	
Systems Project	Undergraduate	
Computer Architecture & Operating Systems	Undergraduate	Y
Introduction to Programming	Undergraduate	
Senior Design 1 & 2	Undergraduate	
CIS Professional Seminar	Undergraduate	Y
CIS Leadership Seminar	Undergraduate	Y
Scholarship Seminar	Graduate	
Quality Module: Communications Seminar	Graduate	
Quality Module: Research Seminar	Graduate	
Quality Module: Professional Seminar	Graduate	
Honors Introduction to PCs	Undergraduate	Y
Discrete Mathematics	Undergraduate	
<i>General:</i>		
Discrete Mathematics	Undergraduate	
Catholicism, Science and Technology I	Undergraduate	
“Tech Think” Freshman Seminar	Undergraduate	Y

Project Economics (team taught)	Undergraduate	Y
Chancellorsville & Gettysburg Campaigns	Undergraduate	Y

Ph.D. Dissertation Summary

Development of a methodology for automating the evaluation of partial designs using black box testing techniques. The Requirements Based Design Evaluation (RBDE) methodology facilitates the evaluation of partial designs early in the design process by using requirements information to generate and run validation tests. RBDE uses a semantic graph data model, which maintains the relationships between the design and requirements data. These relationships permit the automated generation of equivalent test sets for a simulateable requirements model and the design. This test set is systematically applied to simulations of the partial design and its requirements, generating two sets of directly comparable results.

INDUSTRIAL EXPERIENCE

Consulting Experience (1995-Present)

Embedded Software Consultant, Airborn-Lake City, inc., Lake City, PA; Dec. 2018- Nov. 2020.

Leading the software development and modifications for an embedded controller for a custom aircraft power supply. Included support for system design, software specifications, software reuse/porting, design, quality planning, and code refactoring.

Mentor for GRIP Graduate Students, GE Transportation, Erie, PA; July. 2015- Dec. 2015.

Guide full-time graduate students' work in embedded software development in remote monitoring and diagnostics, with General Electric Transportation. Included on-site and on-campus (recruiting, guidance, etc.) work.

Software Development Lead, Immersimap, LLC., Erie, PA; May 2008- May 2014. Lead the software development for a homeland security information system involving distributed video capture, storage and deployment. Included support for system design, design, quality planning, code construction, testing, production support and project management.

Embedded Software Lead, Airborn-Lake City, inc., Lake City, PA; April 2010; Dec. 2004- Aug. 2008. Dec. 2011-May 2013. Lead the software development and modifications for an embedded controller for a custom aircraft power supply. Included support for system design, software specifications, design, quality planning, code construction, testing, production support and project management.

Software Development Lead, PSI Medical, LLC., Erie, PA; Jan. 2010- Dec. 2011. Lead the software development for a medical information system to collect, track and provide alerts for blood catheter information in clinical settings. Included support for system design, design, quality planning, code construction, testing, deployment, production support and project management.

Director, Keystone Software Development Institute, Gannon University. Erie PA. Jan. 2007- June 2008. Led the formation, funding and staffing of an institute for software development for supporting technology development and transfer.

Software Development Lead, Precision Rehab Manufacturing, North East PA. May. 2007- June 2008. Lead the software prototyping and validation for a video-based surface-mapping system involving o support. Included project planning, customer management and support for system validation, , code construction and testing.

Chief Technology Officer, Electronic Source Documentation, Inc., Erie, PA; Jan. 2003- Aug. 2005.

Support in the development of entrepreneurial software to support computer-based medical records to support pharmaceutical studies.

IT Development Lead, Beata Clinical Research Services, Inc., Erie, PA; Mar. 2002- Jan. 2003.

Lead a team of interns in the development of entrepreneurial software to support computer-based medical records to support pharmaceutical studies.

Mentor for IMGP Graduate Students, GE Transportation Systems, Erie, PA; Jan. 2000- Jul. 2003.

Guided four full-time graduate students' work in IT development, including eServices and infrastructure work with General Electric Transportation Systems. Included on-site and on-campus (recruiting, guidance, etc.) work.

eServices Lead Analyst, GE Transportation Systems, Erie, PA; Jun. 2000- Jul. 2003.

Supported eServices initiatives to enable integrated delivery of product software and software configuration tracking for 5000+ locomotives. Included development of system and software requirements for electronic locomotive performance specifications and automated software configuration health checks.

Software Process Consultant, GE Transportation Systems, Erie, PA; Sept. 1998- June 2001.

Supported efforts in software process improvement, including the training and implementation of Formal Technical Reviews, software estimation and tracking, software metrics, TickIT and ISO 9000 support. Included development of web-enabled tools to support process changes, development of in-house standards and templates, prototype modeling. Sept. 1998- June 2001.

Industrial Trainer, Erie Insurance Group (EIG), Erie, PA; May-December 2002; March-August 2005.

Provided custom short courses to support department-specific training initiatives:

- *Systems Analysis and Design*, 20-hour on/off-site course primarily focused on UML application for practicing systems analysts. (2005)
- *Requirements Management for Business Analysts*, 20-hour on-site custom course on requirements elicitation, documentation, modeling, analysis and review techniques. (2002)

Industrial Trainer, GE Transportation Systems (GETS), Erie, PA; May 1996-Jun. 2001.

Provided custom short- and long courses to support various GE Transportation Systems initiatives:

- *Formal Technical Reviews*, including long and short courses for reviewers, moderators and readers (1999-2001)
- *Design for Six-Sigma*, short course on modeling techniques to support DFSS training. Feb. 1998.
- *Software Testing*, long course focusing on the fundamentals of software testing for embedded systems (1996)

Mentor for ESGP Graduate Students, GE Transportation Systems, Erie, PA; Aug. 1997-May 2001.

Guided graduate students' work in embedded software systems (GETS).

Positions Held (1985-1994):

Documentation Consultant, Lumin Corporation, Pittsburgh, PA; Jun. - Sep. 1994.

Produced updated version of the user manual for *Small Scale Ticketing* (SST), Lumin's workflow-management tool. Project involved interaction with development and marketing teams.

Quality Assurance Engineer, Formtek, Inc., Pittsburgh, PA; Jun.-Sep., 1992, Mar. - May 1993.

Analyzed, wrote and conducted testing for TIMS document management software. Project involved strong interaction with development team.

Research Engineer, Electric Research and Management, Inc., Pittsburgh, PA; Mar. 1991 - Feb. 1992.

Aided in the research for an EPRI literature search on the biological effects of magnetic fields; also consulted on the development of a magnetic field modeling program.

Knowledge Engineer, Computer Possibilities, Inc., Pittsburgh, PA; Apr. 1988 - Dec. 1990.

Analyzed, designed, wrote, installed a custom commercial expert system to design 50/60Hz transformers for ShapeIMAG, Tempe AZ. Project involved extensive customer interaction and project management.

Software Engineer, Westinghouse D&ESC, Baltimore, MD; May - Aug. 1987.

Analyzed and converted testing software (ADA) as part of a satellite upgrade program.

Project Engineer, Lutron Electronics, Inc., Coopersburg, PA; Jun. 1985 - May 1987.

Responsible for the development of a family of electronic fluorescent dimming ballasts. Emphasis on power electronics and manufacturing implementations.

PRESENTATIONS AND PUBLICATIONSInvited Presentations

Dcn Stephen Frezza, "A Model for Intentional Virtue Formation." Invited presentation. *Software Engineering Ethics Conference, Steubenville OH, October 22, 2022.*

Dcn Stephen Frezza, Joshua Miller, Megan Reister, Valerie Plaus, Christopher Payne, Juan Juaregui and John Pilsner, "Forming a Whole Student: Toward a comprehensive approach to personal vocation in the First Year." Invited panel presentation for the *Best Practices in Christian Higher Education (BPCHE) Conference, Abilene TX, September 25-27, 2022.* Invited to submit a journal-length version to the *Journal of Christian Higher Education.*

Stephen Frezza, "Expressing computing competency statements" workshop presentation. *ASEE Virtual Conference, July 2021.*

Stephen Frezza and Jeffry Babb, "Crafting the future of computing education in CC2020" panel presentation. *ASEE Virtual Conference, July 2021.*

Elizabeth Pluskwik, **Stephen Frezza** and Jim Morgan, "Difference Makers: Entrepreneurs and Champions on the Frontiers of Engineering Education" panel presentation. *50th Frontiers in Education Conference (FIE'20), Uppsala, Sweden, 2pp, October 2020.*

Elizabeth Pluskwik, **Stephen Frezza** and Jim Morgan, "Difference Makers: The Transition, Handoff and Sustainability of Innovative Programs" panel presentation. *50th Frontiers in Education Conference (FIE'20), Uppsala, Sweden, 2pp, October 2020.*

Stephen Frezza and Abhijat Vichare “CC2020 Report Overview.” Invited talk at the International Conference on Computing Curricula, presented to invited computing department heads from Latin American institutions at the University of Engineering and Technology (UTEC), Lima, Peru, 22 October 2018.

John Impagliazzo, Alison Clear and **Stephen Frezza**, “Special Session: Innovative Computing Curricula and the CC2020 Project.” *48th ASEE/IEEE Frontiers in Education Conference*, San Jose, CA, October 2018.

Christopher Taylor and **Stephen Frezza**, “Software Engineering Department Heads Workshop” *48th ASEE/IEEE Frontiers in Education Conference*. San Jose, CA, October 2018.

Stephen Frezza, Barry Lunt and Arnold Pears, “Crafting the Future of Computing Education in CC2020: A Workshop.” *2018 American Society for Engineering Education (ASEE) Conference & Exposition*, Salt Lake City, UT, June 2018.

Stephen T. Frezza, “Computational Thinking?” Invited presentation at the *KDP Education Week*, School of Education, Gannon University, Erie, PA, November 16, 2017.

Joshua C. Nwokeji, **Stephen T. Frezza**, Terry S. Holmes and V. Uskov, "Panel: Software requirements engineering education in a changing world." *47th ASEE/IEEE Frontiers in Education Conference (FIE)*, Indianapolis, IN, October 2017.

Stephen Frezza, “What Makes Engineering Engineering?” Invited presentation at the *ECE Högre seminarium*, School of Education and Communication, KTH Royal Institute of Technology, Stockholm, Sweden, May 12, 2017.

Stephen Frezza, “Assessing Global IT Professional Values.” Poster presentation at the *Teknisk-naturvetenskapliga fakultetens universitetspedagogiska konferens (TUK2017)*, Uppsala University, Uppsala, Sweden, March 16, 2017.

Donna Riley, Kitty Didion, Lisa Benson, **Stephen Frezza** and Tom Siller, “Are Engineers Authoritarian? A Dialogue on Engineering Education and a Terrorist Mindset.” ASEE Headquarters invited panel session (T459C). Alan Cheville and John Heywood moderators. *2016 American Society for Engineering Education (ASEE) Conference & Exposition*, New Orleans, LA, June 2016.

Stephen Frezza, John Krupczak and Mani Mina, “Special Session on Design Metaphors: Rethinking the Vocabulary of Design Education.” *Proceedings of the Frontiers in Education Conference (FIE'15)*, El Paso, TX, October 21-24, 2015.

Stephen Frezza, “Professionalism and Quality: What can accreditation offer Engineering?” Invited keynote presented at the *AlBaha University and Uppsala University Symposium on Quality in Computing Education (ABU3QCE)*, Al Baha, Kingdom of Saudi Arabia, February 24, 2015.

Stephen Frezza and Mani Mina, “Special Session on Design & Failure: How Philosophy and Belief Impact Design Education.” *Frontiers in Education Conference (FIE'14)*, Madrid, Spain, October 2014, October 22-25, 2014.

Dennis Jerz and **Stephen Frezza**, “A Digital Humanist, A Computer Scientist and You Walk into a ‘Computers and Writing’ Conference Room.” Panel presentation at the *Computers and*

Writing 2013 Mechanization and Writing Conference, Frostburg State University, Frostburg, MD, June 6-9, 2013.

Stephen T. Frezza, “A Facilitator’s bag of Tricks: Dealing with difficult stakeholders.” Workshop presented to the *August 2010 Project Manager’s Forum*, Erie Insurance, Erie, PA, August 31, 2010.

Stephen T. Frezza and Mei-Huei Tang, “Testing as a Mental Discipline: Practical Methods for Affecting Developer Behavior.” Workshop presented at the *2007 Conference on Software Engineering Education and Training (CSEE&T ’07)*, Dublin, Ireland, July 5, 2007.

Stephen Frezza, Andrew Getz, Mary Anne Rivera, “Re-visualizing the Mission of the Catholic University for the 21st Century.” *A City on a Hill: A Symposium on the Purpose and Identity of Catholic Higher Education*, Steubenville, OH, April 19-22, 2007.

Stephen T. Frezza and Mei-Huei Tang, “Testing as a Mental Discipline: Practical Methods for Affecting Student Behavior.” Workshop given at the *2006 Conference on Software Engineering Education and Training (CSEE&T ’06)*, North Shore, Oahu, HI, April 20, 2006.

Stephen T. Frezza and Michael J. Caulfield, “*Deus Machinator* and the Implications for Catholic Engineering Education.” *The Role of Engineering in the Catholic University (RECU) Conference*, Dayton, OH, September 2005.

Stephen T. Frezza, Michael J. Caulfield and Rev. Nicholas J. Rouch, “Engineering the Catholic Mission: Applying Requirements Best Practices to ‘On Catholic Identity’.” *The Role of Engineering in the Catholic University (RECU) Conference*, Dayton, OH, September 2005.

Stephen T. Frezza and Theresa M. Vitolo, “Systems Analysis and Design.” Course series given in July 2005 for Erie Insurance Group (EIG) Systems Analysts in their Erie, PA facility.

Stephen T. Frezza, “Integrating Requirements Engineering Best Practices, Making Requirements Work.” Presentation given at the *IEEE-Members Professional Awareness Conference* Erie, PA, May 2003.

Stephen T. Frezza, “Requirements Management for Business Consultants.” Course series given in September, November and December 2002 at Erie Insurance Group (EIG) in their Erie, PA facility.

Stephen T. Frezza, “Linking Requirements and Design Data for Automated Functional Evaluation.” presentation given in March 1997 at NASA/WVU Independent Verification and Validation (IVV) facility in Fairmont, WV.

Other Invited Presentations:

The Germans at Gettysburg

The Turner Regiments in the Civil War

Germans in the American Civil War

Book Publications

Stephen Frezza and David Nordquest, “Chapter 4: Engineering Insight: The Philosophy of Bernard Lonergan Applied to Engineering Knowledge Generation,” pp. 39-56 in Russell Korte, Mani Mina, Iraj Omidvar, Stephen Frezza, and David A. Nordquest, “Philosophy and

Engineering Education: Practical Ways of Knowing.” Synthesis Lectures on Engineering, Science, and Technology #20. Morgan & Claypool Publishers, March 2022. DOI 10.2200/S01161ED1V01Y202201EST020

Stephen Frezza and Mani Mina, “Chapter 3: From Dewey to Lonergan,” pp. 35-38 in Russell Korte, Mani Mina, Iraj Omidvar, Stephen Frezza, and David A. Nordquest, “Philosophy and Engineering Education: Practical Ways of Knowing.” Synthesis Lectures on Engineering, Science, and Technology #20. Morgan & Claypool Publishers, March 2022. DOI 10.2200/S01161ED1V01Y202201EST020

CC2020 Task Force. "[Computing Curricula 2020: Paradigms for Global Computing Education](https://dl.acm.org/citation.cfm?id=3456302),” A Computing Curricula Series Report jointly published by the Association for Computing Machinery (ACM) and the IEEE Computer Society (IEEE-CS), December 2020. DOI: 10.1145/3456302 <https://dl.acm.org/citation.cfm?id=3456302>. (Steering Committee/co-author)

Stephen Frezza, Mei-Huei Tang, and Barry Brinkman, “Chapter XVI: How to Create a Credible Software Engineering Bachelor’s Program: Navigating the Waters of Program Development.” *Software Engineering: Effective Teaching and Learning Approaches and Practices*, Heidi J. C. Ellis, Steven A. Demurjian and J. Fernando Naveda, Eds., Idea Group Inc (IGI), 2008, pp. 298-325, ISBN 978-1605661025.

Journal and Conference Publications

Stephen Frezza, Marita O’Brien, Tessa Crider and Dominique Tedrow, “Qualitative Study of Professional Virtue Development in Engineering.” *Proceedings of the 52nd Frontiers in Education Conference (FIE’22)*, Uppsala, Sweden, 5pp, October 2022.

Stephen Frezza and Mani Mina, “On Competence and Virtue in Engineering and Computing Education.” *Proceedings of the 52nd Frontiers in Education Conference (FIE’22)*, Uppsala, Sweden, 9pp, October 2022.

Stephen Frezza and Valerie Plaus, “Retreats as a Means for Engineering Virtue Formation.” *Proceedings of the 14th Christian Engineering Conference (2022 CEC)*, Northwestern University, St. Paul, MN, pp 270-278. June 2022.

Tajmilur Rahman, Joshua Nwokeji, Richard Matovu, **Stephen Frezza**, Harika Sugnanam, and Aparna Pisolkar, “Analyzing Competences in Software Testing: Combining Thematic Analysis with Natural Language Processing (NLP).” *Proceedings of the 51st Frontiers in Education Conference (FIE’21)*, Lincoln, Nebraska, 9pp, October 2021.

Stephen Frezza and Justin Greenly, “Identifying Core Engineering Virtues: Relating Competency and Virtue to Professional Codes of Ethics.” *Proceedings of the ASEE Virtual Conference*, 12pp, July 2021.

Tajmilur Rahman and **Stephen Frezza**, “A Study on the Impact of Using Industry Standard Tools and Practices on Software Engineering Courses Projects.” *Proceedings of the ASEE Virtual Conference*, 7pp, July 2021.

Alison Clear, Tony Clear, Abhijat Vichare, Thea Charles, **Stephen Frezza**, Mirela Gutica, Barry M Lunt, Francesco Maiorana, Arnold Pears, François Pitt, Charles Reidesel and Justyna Szykiewicz, “Designing Computer Science Competency Statements: A Process and Curriculum Model for the 21st Century.” [ITiCSE-WGR '20: Proceedings of the Working](#)

[Group Reports on Innovation and Technology in Computer Science Education](#). G. Rößling & B. Scharlau (Eds.), December 2020. Pages 211–246. <https://doi.org/10.1145/3437800.3439208>.

Stephen Frezza and Stephanie Adams, “Bridging Professionalism: Dispositions as Means for Relating Competency across Disciplines.” *Proceedings of the 50th Frontiers in Education Conference* (FIE’20), Uppsala, Sweden, 9pp, October 2020.

Stephen Frezza, Tony Clear and Alison Clear, “Unpacking Dispositions in the CC2020 Computing Curriculum Overview Report.” *Proceedings of the 50th Frontiers in Education Conference* (FIE’20), Uppsala, Sweden, 9pp, October 2020.

Stephen Frezza and Stephanie Adams, “Bridging Professionalism: Dispositions as Means for Relating Competency across Disciplines.” *Proceedings of the 50th Frontiers in Education Conference* (FIE’20), Uppsala, Sweden, 5pp, October 2020.

Mark Blair and **Stephen Frezza**, “Assessing interest and confidence as components of student motivation in informal STEM learning.” *Proceedings of the 50th Frontiers in Education Conference* (FIE’20), Uppsala, Sweden, 5pp, October 2020.

Clarissa Breen and **Stephen Frezza**, “Charismatic Leadership and the Formation of Hate Groups.” *International Annals of Criminology*, Cambridge University Press (online), October 19, 2020, <https://doi.org/10.1017/cri.2020.17>.

Alison Clear, Tony Clear, Abhijat Vichare, Thea Charles, **Stephen Frezza**, Mirela Gutica, Barry M Lunt, Francesco Maiorana, Arnold Pears, François Pitt, Charles Reidesel and Justyna Szykiewicz, “Developing Competency Statements for Computer Science Curricula—The Way Ahead.” *Proceedings of the 25th Annual ACM Conference on Innovation and Technology in Computer Science Education*, Trondheim, Norway, July 2020, pp. 515–516. <https://doi.org/10.1145/3341525.3394995>.

Leslie Waguespack, Heikki Topi, **Stephen Frezza**, Jeffry Babb, Linda Marshall, Shingo Takeda, Gerrit van der Veer and Arnold Pears, “Adopting Competency Mindful of Professionalism in Baccalaureate Computing Curricula.” *Proceedings of the 2019 EDSIG Conference*, v5 n4955, Cleveland, OH, November 2019. ISSN: 2473-3857.

Stephen Frezza, Mei-Huei Tang and Steven Rowland, “Understanding the Cost of Change: Measuring Sustainability of Computing Education.” *Proceedings of the 49th Frontiers in Education Conference* (FIE’19), Cincinnati, OH, October 2019.

Stephen Frezza, Mats Daniels and Aaron Wilkins, “Assessing Students’ IT Professional Values in a Global Project Setting” in *ACM Transactions on Computing Education*, *Special Issue on Global Software Engineering Education* (19,2), January 2019, pp. 9:1-9:34, <http://doi.acm.org/10.1145/3231710>.

Stephen Frezza, Mats Daniels, Arnold Pears, Åsa Cajander, Viggo Kann, Amanpreet Kapoor, Roger McDermott, Anne-Katherine Peters, Mihaela Sabin and Charles Wallace, “Modelling competencies for computing education beyond 2020: a research based approach to defining competencies in the computing disciplines.” In G. Rößling & B. Scharlau (Eds.), *Proceedings Companion of the 23rd Annual ACM Conference on Innovation and Technology in Computer Science Education*, Larnaca, Cyprus, December 2018, pp. 148–174. <https://doi.org/10.1145/3293881.3295782>

Stephen Frezza, Mats Daniels, Arnold Pears, Åsa Cajander, Viggo Kann, Amanpreet Kapoor, Roger McDermott, Anne-Katherine Peters, Mihalea Sabin and Charles Wallace, “Modeling Global Competencies for Computing Education.” *Proceedings of the 23rd Annual ACM Conference on Innovation and Technology in Computer Science Education*, Larnaca, Cyprus, July 2018, pp. 348–349. <https://doi.org/10.1145/3197091.3205844>

Stephen Frezza, Alison Clear, Abijat Vichare, “Voices on the Core of Computing.” *48th Frontiers in Education Conference (FIE'18)*, San Jose, CA, October 2018, 9pp. <https://doi.org/10.1109/FIE.2018.8658484>

Joshua C. Nwokeji and **Stephen T. Frezza**, “Cross-Course Project-Based Learning in Requirements Engineering: An Eight-year Retrospective.” *Proceedings of the 47th Frontiers in Education Conference (FIE'17)*, Erie, PA, October 2017, 8pp.

David A. Nordquest and **Stephen T. Frezza**, “Lonergan and the Philosophy of Engineering.” *The Lonergan Review*, Vol. VIII, 2017 *From Insight to the World*, pp. 55-74. DOI: 10.5840/lonerganreview201785

Katherine Goodman and **Stephen Frezza**, “Finding Möjligheter: Creativity and Ill-Structured Problems.” *Proceedings of the 2017 American Society for Engineering Education (ASEE) Conference & Exposition*, Columbus, OH, June 2017.

Stephen Frezza, “Issues in Student Valuing of Software Engineering Best Practices.” *Proceedings of the 46th Frontiers in Education Conference (FIE'16)*, Erie, PA, October 2016.

Stephen Frezza, “Considering the engineering mindset-a response to “Does Engineering Education Breed Terrorists?” with responses by John Heywood and Alan Cheville, in John Heywood, (Ed) *Philosophical and Educational Perspectives in Engineering and Technological Literacy*, Vol. 3, June 2016, pp. 1-7.

Stephen Frezza and David Nordquest, “Engineering Insight: The Philosophy of Bernard Lonergan Applied to Engineering.” John Heywood, (Ed) *Philosophical and Educational Perspectives in Engineering and Technological Literacy*, Vol. 2, June 2015, pp. 17-28.

Stephen Frezza, “A Knowledge-Basis for Engineering Design.” *Proceedings of the 44th Frontiers in Education Conference (FIE'14)*, Madrid, Spain, October 2014, pp. 158-165.

Stephen Frezza, David Nordquest and Richard Moodey, “Knowledge-generation epistemology and the foundations of engineering.” *Proceedings of the 43rd Frontiers in Education Conference (FIE'13)*, Oklahoma City, OK, October 2013, pp. 818-824.

Stephen Frezza, Richard Moodey, David Nordquest and Krishnakishore Pilla, “Applying a knowledge-generation epistemological approach to computer science and software engineering pedagogy.” *Proceedings of the 2013 American Society for Engineering Education (ASEE) Conference & Exposition*, Atlanta, GA, June 2013.

Yunkai Liu, Mary Vagula and **Stephen Frezza**, “Work in Progress: Integrating Game Design and Development into Undergraduate Biology Education.” *Proceedings of the 42nd Frontiers in Education Conference (FIE'12)*, Seattle, WA, October 2012.

Weifeng Xu, Lin Deng, Qing Zheng and **Stephen Frezza**, “Using stereo vision to construct 3-D surface models.” *IEEE Potentials*, vol. 31, no. 2, pp. 31-37, March/April 2012, doi: 10.1109/MPOT.212.2182833

Weifeng Xu and **Stephen Frezza**, “A Case Study: Integrating A Game Application-Driven Approach and Social Collaborations into Software Engineering.” *Proceedings of 13th International Conference on Enterprise Information Systems (ICEIS’2011)*, Beijing, China, June, 2011.

Weifeng Xu, Ben Luebbert, **Stephen Frezza**, Qing Zheng and Todd Dinner, “Visual Manipulation for Grid-Based 3D Surface Models.” *Proceedings of the 36th Annual Conference of the IEEE Industrial Electronics Society*, Phoenix, AZ, November 2010.

Weifeng Xu, William R. Betz, **Stephen Frezza** and Wookwon Lee, “Letting Patients’ Daily Living Information Speak: A Novel Approach to Study Geriatric Patients with Dementia and Hypertension.” *Proceedings of the World Congress on Engineering and Computer Science*, San Francisco, CA, October 2010. Paper awarded the Certificate of Merit for the *International Conference in Modeling Health Advances 2010*.

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Stephen T. Frezza, “Computer Science: Is It Really the Scientific Foundation for Software Engineering?” *IEEE Computer*, vol. 43, no. 8, pp. 98-101, August 2010, doi:10.1109/MC.2010.224

Weifeng Xu, Ben Luebbert, **Stephen Frezza**, Sreela Sasi and Todd Dinner, “Building Customized Cushion Seats Using Stereo Visions for Disabled.” *Proceedings of the 7th International Conference on Information Technology: New Generations*, Las Vegas, NV, April 2010.

Eric D. Regan, **Stephen Frezza** and Jeremy Cannell, “Product-Based Learning in Software Engineering Education.” *Proceedings of the 39th ASEE/IEEE Frontiers in Education Conference (FIE’09)*, San Antonio TX, October 2009.

Stephen Frezza, “Deus Machinator: God the Engineer.” *Proceedings of Christian Engineering Educators Conference (CEEC’09)*, Baylor University, Waco, TX, pp 30-36. June 2009.

Richard J. LeBlanc, Ann E. K. Sobel, Donald J. Bagert and **Stephen T. Frezza**, “Panel—Assessing the impact of SE2004 Curriculum Guidelines.” *Proceedings of the 37th ASEE/IEEE Frontiers in Education Conference (FIE’07)*, Milwaukee, WI, October 2007.

Stephen Frezza, “‘Real World Problems’ as Assessment of Software Engineering.” *Proceedings of the 37th ASEE/IEEE Frontiers in Education Conference (FIE’07)*, Milwaukee, WI, October 2007.

Stephen Frezza, Mei-Huei Tang and Barry J. Brinkman, “Creating an Accreditable Software Engineering Bachelor’s Program.” in *IEEE Software*, Vol. 23 No. 6. November 2006, pp 27-35.

Stephen Frezza and Wayne Anderson, “Interactive Exercises to Support Effective Learning of UML Structural Modeling.” *Proceedings of the 36th ASEE/IEEE Frontiers in Education Conference (FIE’06)*, San Diego, CA, October 2006, pp M2F7-M2F12.

Fong Mak and **Stephen Frezza**, “Collection, Maintenance and Validation of a Set of Effective Objective Evidence.” *Proceedings of the International Conference on Engineering Education 2006 (ICEE)*, San Juan, PR, July 2006.

Jeremy Cannell and **Stephen Frezza**, “Introducing Software Engineering Principles in CS0 using RoboLab™.” *Proceedings of the 35th ASEE/IEEE Frontiers in Education Conference (FIE’05)*, Indianapolis, IN, October 19-22, 2005, pp T1A1-T1A2.

Fong Mak and **Stephen Frezza**, “Using student learning outcomes assessment to assure EC2000 program effectiveness.” second acceptance and published in *Proceedings of the ASEE/AaeE Global Colloquium on Engineering Education 2005*, Star City, Sydney, Australia, 26-29 September 2005.

Wook-Sung Yoo, **Stephen Frezza** and Park, Chi-Yeon, “PSP Web-Based Log Tool in a Teaching Environment.” *Proceedings of the IASTED International Conference on Computers and Advanced Technology for Education (CATE 2005)*, Oranjestad, Aruba, August 2005.

Fong Mak, **Stephen Frezza** and Wook-Sung Yoo, “A Web-Based Outcome Assessment Tool: EvalTOOLS™.” *Proceedings of the IASTED International Conference on Web-based Education 2005*, Grindelwald, Switzerland, February 2005.

Fong Mak and **Stephen Frezza**, “Process to Identify Minimum Passing Criteria and Objective Evidence In Support of ABET EC2000 Criteria Fulfillment.” *Proceedings of the 2004 American Society for Engineering Education (ASEE) Conference & Exposition*, Salt Lake City, UT, June 2004. Nominated for best paper.

Stephen Frezza, Sreela Sassi and Jaehoon Seol, “Report from the Trenches: Applying the SEEK to BSSE Program Development.” *Proceedings of the 33rd ASEE/IEEE Frontiers in Education Conference (FIE’03)*, Boulder, CO, November 2003.

Fong Mak, Wook-Sung Yoo and **Stephen Frezza**, “Enhancing ABET EC2000 Preparation using a web-based survey/reporting tool.” *Proceedings of the 33rd ASEE/IEEE Frontiers in Engineering Conference (FIE’03)*, Boulder, CO, November 2003.

Fong Mak, Wook-Sung Yoo and **Stephen Frezza**, “Web-based Course-exit Survey for ABET EC2000.” *Proceedings of the 2003 American Society for Engineering Education (ASEE) Conference & Exposition*, Nashville, TN, June 2003.

Stephen Frezza, “Integrating Software Testing and Design for Undergraduates.” *Proceedings of the 32nd ASEE/IEEE Frontiers in Education Conference (FIE’02)*, Boston, MA, November 2002.

Stephen Frezza, “Integrating an Industrial Practicum into a Graduate Embedded Software Engineering Program.” *Proceedings of the 29th ASEE/IEEE Frontiers in Education Conference (FIE’99)*, San Juan, PR, November 1999.

Stephen Frezza and Roy Voshall, “Industry/Academic Collaboration in Senior Design.” *ASEE 1999 Spring Conference, North Central Section*, March 1999.

Roy Voshall and **Stephen Frezza**, “Capstone for Cross-Disciplinary Ethics and Design.” *ASEE 1999 Spring Conference, North Central Section*, March 1999.

Stephen Frezza, “An Undergraduate Software Engineering Program ... In Electrical Engineering.” *Proceedings of the 28th ASEE/IEEE Frontiers in Education Conference (FIE’98)*, Tempe, AZ, November 1998.

Samuel Hazen and **Stephen Frezza**, “An Integrated Program and Practicum in Embedded Software Engineering.” *Proceedings of the 28th ASEE/IEEE Frontiers in Education Conference (FIE'97)*, Pittsburgh, PA, November 1997.

Stephen T. Frezza, Steven P. Levitan and Panos K. Chrysanthis, “Linking Requirements and Design Data for Automated Functional Evaluation.” *Computers in Industry*, 30 (1996) pp. 13-25.

Stephen T. Frezza, Steven P. Levitan and Panos K. Chrysanthis, “Requirements Based Functional Evaluation.” *Proceedings of the 32nd Design Automation Conference (DAC)*, San Francisco, CA, June 1995, pp. 76-81.

Stephen T. Frezza, “Automating Requirements-Based Testing for Hardware Design.” *IEEE Int. Symposium on Requirements Engineering Doctoral Consortium (RE'95)*, York, England, March 1995.

Stephen T. Frezza, Steven P. Levitan and Panos K. Chrysanthis, “Requirements Based Performance Evaluation.” *Proceedings of the 1995 National Science Foundation Design and Manufacturing Grantees Conference*, San Diego CA, January 1995, pp. 539-540.

Stephen T. Frezza and Steven P. Levitan, “SPAR: A Schematic Place and Route System.” *IEEE Transactions on Computer-Aided Design of ICAS*, Vol. 12, No. 7, July 1993, pp. 956-973.

Other Publications:

Steve Frezza, “The Reckoning: Sisters Afield Book 3” [Rosemary Publications, LLC](#), November 2021, 350 pp., ISBN 978-1735290959 in [Paperback](#), [Kindle](#) and [iBook](#).

Steve Frezza, “Partings: Sisters Afield Book 2” [Rosemary Publications, LLC](#), August 2020, 314 pp., ISBN 978-1735290935 in [Paperback](#), [Kindle](#) and [iBook](#).

Steve Frezza, “Lost & Found: Sisters Afield Book 1” [Rosemary Publications, LLC](#), July 2020, 310 pp., ISBN 978-1735290904 in [Paperback](#), [Kindle](#) and [iBook](#).

Stephen T. Frezza, “SWEBOK Knowledge Area Jump-Start Document for Software Testing” for the *Software Engineering Body of Knowledge project* - <http://www.swebok.org>, joint ACM/IEEE Software Engineering Coordinating Committee, February 1999.

Online Publication Links

https://www.researchgate.net/profile/Stephen_Frezza

<https://orcid.org/0000-0002-5246-3061>

GRANT DEVELOPMENT

PA Dept. of Community and Economic Development, “*Innovation Collaborative of NWP*” Discovered in PA, Developed in PA Grant Proposal for the NWP Technology Council. \$100,000 awarded. June 2013-May 2014.

PA Dept. of Community and Economic Development, Technology Development Office, “*Keystone Innovation Grant*” Keystone Innovation Grant proposal for industry-academic partnerships. \$75,000 awarded. April 2010-March 2011.

PSI Medical, LLC, “*Product Demonstration Development Grant*” for work in prototype development for medical information systems in collaboration with Meadville Medical Center. PSI Medical, LLC, Erie, PA. \$30,000 awarded Jan-Dec 2010.

CE Convergence, LLC, “*Interactive Prototype Grant*” for work in interactive requirements prototype for professional development information management system. CE Convergence, LLC, Erie, PA. \$3,000 awarded Jan-May 2010.

Immersimap, LLC, “*Software development for panoramic video*” for work in prototype development and initial system deployment for 3D-building mapping system and software. Immersimap, LLC, Erie, PA. \$115,000 awarded April 2007-June 2009.

PA Dept. of Community and Economic Development, Technology Development Office, “*Keystone Software Development Institute*” Keystone Innovation Startup Kit proposal for faculty recruitment. \$119,772 awarded. April 2008-June 2009.

Precision Rehab Manufacturing, Inc., “*PRM Stereo Image Digitizer and Mill Software Beta Release*” for the development of image-based measurement system and editing software. Precision Rehab Manufacturing, North East, PA. \$58,000 awarded April 2007-Sept 2009.

Steris Corporation, Erie PA: “*Career Development Grant.*” for work in requirements development for international regulatory information. Steris Corporation, Erie, PA. \$1449 awarded February-May 2004.

MultiGig., LTD. England: “*Automatic Schematics Generation (ASG) tools for high-speed circuit design.*” involves application of ASG to HSPICE files and includes integration of enhanced SPAR algorithms into Xcircuit schematics capture tool (<http://xcircuit.ece.jhu.edu>). \$14,000 awarded April 2003-2004.

Rational Software, Cupertino, CA: as part of the IBM University Program: 52 user licenses for their Rational Enterprise Suite; This software was in use for SIC310 Software Design & Test, SIC315 Software Engineering and GENG586/GCIS512 Object-Oriented Modeling, GENG580/GCIS504 Requirements Engineering courses. Total value of grant: Apx. \$700,000.

Beata Clinical Research Services, Erie PA: Developed a prototype of a system to apply eBusiness technology to the collection of data used in pharmaceutical trials. Total value of contract: Apx. \$5,000.

Project Enhance (IU5), Edinboro PA: Six sets of Lego/Dacta robots, including site-licensed software. Used for IU5Project Enhance programs. These kits and accompanying materials spurred school interest to use the robots in undergraduate classes (SF101 & SC190). Total value of grant: \$2,400.

General Electric Transportation Systems (GETS), Erie PA: Five funded Graduate Student Scholarships, including stipends, mentoring hours and faculty consulting. In collaboration with Dr. Wook-Sung Yoo (CIS). Total value of contract: \$91,000.

PROFESSIONAL MEMBERSHIPS

Institute of Electrical and Electronics Engineers (IEEE) 1984, Senior Member 2010.

IEEE Education Society (IEEE-EdSoc) 2018-Present

- Nominating Committee Member 2020.

IEEE Computer Society (IEEE-CS) 1986-Present

- Volunteer for Educational Activities Board (EAB), Nov. 2006 to 2016 and for the Professional and Educational Activities Board (PEAB) 2016-present.
- ACM-IEEE Joint Task Force for Computing Curricula 2020 (CC2020) Steering Committee representative (2017-2022)
- Frontiers in Education Conference (FIE) Steering Committee Chair 2016-2018, Steering Committee member, 2011-present.
- FIE Technical Program Committee Co-Chair 2012; 2019; 2020.
- FIE Conference Co-Chair for FIE'16, Erie PA.
- STC for Education 2015-Present.

Association of Computing Machinery (ACM) 1998-Present. Senior Member 2020.

- Special Interest Group on Computer Science Education (SIGCSE) 1995-Present.

American Society for Engineering Education (ASEE), 2012-Present

- Technology and Engineering Literacy and Philosophy of Engineering (TELPhE) Division
 - Program CoChair 2018-2021.
 - Webmaster (telphe.org) 2017-2018.
 - Division Secretary 2014-2017.
- Appointed to the ASEE Board of Directors' Task Force for Educational Proficiency, 2018-2020.

AWARDS

IEEE-Education Society *2018 Ronald J. Schmitz Award* recognizing outstanding and continued service to engineering education through contributions to the Frontiers in Education Conference. Awarded in October 2018.

CIVIC MEMBERSHIPS

- Clergy staff, Blessed Sacrament Church, Wintersville OH (2021-present)
- Clergy staff, St. George Catholic Church, Erie PA (2015-2021)
- Erie Innovation Collaborative Board Member (2014-2017)
- Technology Council of Northwestern Pennsylvania, Board Member (2012-2014)
- Erie Maritime Museum, Education Board (2003-2014)

PROFESSIONAL CERTIFICATION

IEEE-Computer Society *A Professional Software Engineering Master Certification (PSEM)* #07771 June 2015-June 2024.

IEEE-Computer Society *Certified Software Development Professional (CSDP)* # 0088 May 2001-June 2015.