

CURRICULUM VITAE

Professor of Electrical and Computer Engineering

Executive Profile Creative, energetic, results-driven career educator and researcher with extensive experience in undergraduate- and graduate-level education, including course development, curriculum planning and advisement, as well as leadership and management experience inspiring and guiding people and project teams, implementing and overseeing technology R&D programs, budgeting, administration, long-term planning, and forecasting.

Education Ph.D., Electrical and Computer Engineering, Vanderbilt University, March, 1999.
Dissertation: “Metamodeling – Rapid Design and Evolution of Domain-Specific Modeling Environments.”

M.S., Electrical and Computer Engineering, University of Tennessee, May, 1992.
Thesis: “Implementation of Linear Predictive and Huffman Coding Algorithms for Real-Time Data Compression.”

B.S.E.E., Arizona State University, August, 1987. Magna Cum Laude.

Leadership/ Management Skills

- Workforce development, relationship- and team building, consensus building
- Strategic and operational planning
- Quality-, performance-, and process improvement
- Management and decision making
- Strong analytical/problem-solving skills
- Budget planning, forecasting, tracking
- Teaching, mentoring, public speaking
- Written and oral communications
- Realistic creativity

Career Highlights *As Professor of Electrical and Computer Engineering, Lipscomb University:*

- Selected as ECE Department Chair, June 2019
- Achieved the rank of IEEE Senior Member, May, 2017.
- Helped develop Lipscomb’s SACSCOC Quality Enhancement Plan (QEP) from April, 2015 to May 2017. As a key part of the 10-year SACSCOC reaffirmation process, this plan received very favorable comments from the on-site SACSCOC committee, and contributed to Lipscomb’s “zero-recommendations” accreditation reaffirmation.
- Awarded tenure, November, 2014.
- Served as Interim Dean of Engineering from June, 2011 through August, 2012.
- Served on the Middle Tennessee STEM Innovation Hub Council of Partners, representing Lipscomb University from 2011-2014.
- Developed and redesigned many courses within the engineering college, including Microprocessors, Embedded Systems, Embedded Networks, Communications, Introduction to Engineering, and Fundamentals of Engineering Design.
- Developed and implemented a syllabus-based assessment and evaluation tool used to guide and document course- and program assessments required as part of the ABET accreditation process. This tool received special recognition by the on-site team, was the subject of an ASEE national conference paper, and is still in use today.
- Created and implemented many unique and innovative classroom and lab experiences for our engineering students.

- Oversaw two engineering mission trips to the Dominican Republic where students designed, built, and installed a solar-powered emergency lighting system, a solar-powered water pumping system, and added over 500 gallons of water storage capacity.
- Involved in many aspects of the Music City Boosting Engineering, Science and Technology (BEST) program, recruiting and training Lipscomb students as BEST team mentors, and co-authored an ASEE published paper entitled “Developing Undergraduate Mentorship Skills Through BEST” with two engineering students.
- Founding Director of the BisonBot Robotics Camp program which has grown to seven camps (over 150 campers) per summer, and includes a local “mission trip” camp where we take robot camp to children in the inner city. Since 2010 the program has been awarded over \$400,000 in funding and received enthusiastic organizational support by Nissan North America, along with significant media and community recognition.
- Consistently receive instructor- and course evaluations well above the College- and University averages.
- Served on the Lipscomb Faculty Senate Council (AY2009-2011) and served as Faculty Senate President (AY2009-2010).
- Developed and presented a workshop at the 2008 annual National Science Teachers Association conference on using robotics to teach STEM principles to K-12 students.

As Intelligent Systems Group Lead/Software Architect, Scientific Applications, Thermo Fisher (formerly Kendro Laboratory Products), Brentwood, TN:

- Led the design and implementation of the “Rhombix Suite,” a set of scientific applications for planning, executing, monitoring, and analyzing automated, robotically-controlled protein crystallography experiments for the drug discovery industry.
- Awarded an international patent (EP1493096) in 2003 for development of a data-centric automation system.
- Instituted the use of standardized engineering practices across several software development and testing groups, resulting in higher quality software, lower development costs, better group-to-group communications, and shorter delivery cycles.
- Initiated and developed a series of in-house presentations on new and emerging technologies in software and systems engineering used to unify and clarify development efforts between Thermo Fisher’s American and Canadian software engineering groups.

As Operations Manager, Institute for Software Integrated Systems, Vanderbilt University:

- Creator and founding chair of the ISIS Senior Research Council, the group responsible for strategic R&D planning and ISIS-wide program development.
- Implemented project proposal “tiger teams” for developing and tracking R&D proposals, yielding a reduced number of missed/delayed submissions while increasing overall quality and success rate (AY98-99: \$2.1M, AY99-00: \$2.7M, AY00-01: \$3.2M).
- Directed and managed the consolidation and relocation of the ISIS research, engineering, and graduate student groups into a single new location on campus.

As Research Assistant Professor of Electrical and Computer Engineering, Vanderbilt:

- Conducted research on UML- and OCL-based metamodels for graphical modeling language specification, development, and migration.
- Conducted research in using integrated, agent-based software systems for real-time aircraft maintenance planning and scheduling.
- Developed/taught graduate-level courses in model-integrated computing and object-oriented software construction.
- Research advisor, M.S. thesis reviewer and Ph.D. committee member.
- Authored and presented over 20 papers at national and international conferences.

As Assistant Professor of Computer Science, U.S. Air Force Academy:

- Outstanding Academic Educator in Computer Science, 1995-1996.
- Outstanding Junior Faculty member in Computer Science, 1994-1995.
- Course director for real-time systems, networking, and computer security courses.
- Adjunct professor in the Department of Electrical Engineering, USAFA.

As Engineering Project Manager, Arnold Engineering Development Center:

- Managed technology development projects in dynamic data acquisition and analysis, real-time radiography, advanced image processing, and computed tomography.
- Managed various small business innovative research (SBIR) projects.
- Collaborated with visiting university researchers, oversaw the technology division's cadet summer research program and the high school apprenticeship program.
- Arnold AFB Company Grade Officer of the Year, 1992.

Other Air Force Awards:

- Air Force Meritorious Service Medal, twice decorated.
- Air Force Commendation Medal, twice decorated.
- General Daniel "Chappie" James Jr. Award of Merit.

Workshops/ Publications

Co-developed and delivered a series of local and remote summer workshops on using robotics in the classroom to teach Common Core STEM topics (2011-2013).

Nordstrom, G., Pettit, J.: "A Syllabus-Based Assessment and Evaluation tool for ABET Program Accreditation", ASEE National Conference, June, 2010.

Nordstrom, G., Reasonover, G., Hutchinson, B.: "Attracting Students to Engineering Through Robotics Camp", ASEE Southeast Section Conference, April, 2009.

Nordstrom, G., Andriano, A., Tanner, N.: "Developing Undergraduate Mentorship Skills Through BEST", ASEE Southeast Section Conference, April, 2007.

Ledeczi, A., M. Maroti, A. Bakay, G. Nordstrom, J. Garrett, C. Thomasson, J. Sprinkle, and P. Volgyesi, GME 2000 Users Manual (v2.0), : Institute for Software Integrated Systems, December, 2001.

Ledeczi, A., A. Bakay, M. Maroti, P. Volgyesi, G. Nordstrom, J. Sprinkle, and G. Karsai, "Composing domain-specific design environments", IEEE Computer, pp. 44--51, November, 2001.

Ledeczi, A., G. Nordstrom, G. Karsai, P. Volgyesi, and M. Maroti, "On Metamodel Composition", IEEE CCA 2001, Mexico City, Mexico, September, 2001.

Agrawal, A., A. Bakshi, J. Davis, B. Eames, A. Ledeczi, S. Mohanty, V. Mathur, S. Neema, G. Nordstrom, V. Prasanna, et al., "MILAN: A Model Based Integrated Simulation Framework for Design of Embedded Systems", Workshop on Languages, Compilers, and Tools for Embedded Systems (LCTES), Snowbird, UT, June, 2001.

Ledeczi, A., M. Maroti, A. Bakay, G. Karsai, J. Garrett, C. Thomasson, G. Nordstrom, J. Sprinkle, and P. Volgyesi, "The Generic Modeling Environment", Workshop on Intelligent Signal Processing, Budapest, Hungary, May, 2001.

Nordstrom, G., J. Davis, and M. Briski, "A Graduate-Level Course on CBS Design Tool Development", Engineering of Computer Based Systems, Washington, D.C., April, 2001.

- Sprinkle, J., G. Karsai, A. Ledeczi, and G. Nordstrom, "The New Metamodeling Generation", IEEE Engineering of Computer Based Systems, Proceedings, Washington, D.C., USA, pp. 275, April, 2001.
- Ledeczi, A., J. Davis, S. Neema, B. Eames, G. Nordstrom, V. Prasanna, C. Raghavendra, A. Bakshi, S. Mohanty, V. Mathur, et al., "Overview of the Model-based Integrated Simulation Framework", ISIS-01-201: Institute for Software Integrated Systems, January, 2001.
- Nordstrom, G., and A. Ledeczi, "Formalizing the Specification of Graphical Modeling Languages", ISIS-00-200: Institute for Software Integrated Systems, 2000.
- Karsai, G., G. Nordstrom, A. Ledeczi, and J. Sztipanovits, "Towards Two-Level Formal Modeling of Computer-Based Systems", Journal of Universal Computer Science, vol. 6, pp. 1131--1144, November, 2000.
- Pathak, S., G. Nordstrom, and S. Kurokawa, "Modeling of supply chain: a multi-agent approach", IEEE SMC 2000, Nashville, Tennessee, October, 2000.
- Venkatachalam, S., G. Nordstrom, R. A. Peters, M. Wilkes, and A. Alford, "Modeling of Agent's Behavior in Human-robot Interaction Using Model Integrated Computing", IEEE-SMC 2000, Nashville, TN, October, 2000.
- Deva, D., J. Sprinkle, M. Maroti, and G. Nordstrom, "Towards A Standard For Model Specification And Storage", IEEE SMC 2000, Nashville, TN, September, 2000.
- Karsai, G., G. Nordstrom, A. Ledeczi, and J. Sztipanovits, "Specifying Graphical Modeling Systems Using Constraint-based Metamodels", IEEE Symposium on Computer Aided Control System Design, Anchorage, Alaska, September, 2000.
- Nordstrom, G., G. Karsai, M. Moore, T. Bapty, and J. Sztipanovits, "Model Integrated Computing-Based Software Design and Evolution", Conference on Life Cycle Software Engineering Technology for Modern Avionics, Missiles, and Smart Weapon Systems, Huntsville, Alabama, August, 2000.
- Nordstrom, G., "Formalizing the Specification of Graphical Modeling Languages", Proceedings of the IEEE Aerospace 2000 Conference, Big Sky, MT, March, 2000.
- Nordstrom, G., J. Sztipanovits, G. Karsai, and A. Ledeczi, "Metamodeling - Rapid Design and Evolution of Domain-Specific Modeling Environments", Proceedings of the IEEE ECBS'99 Conference, Nashville, Tennessee, pp. 68--74, April, 1999.
- Nordstrom, G., "Metamodeling - Rapid Design and Evolution of Domain-Specific Modeling Environments", PhD Dissertation: Vanderbilt University, March, 1999.
- Ledeczi, A., M. Maroti, G. Karsai, and G. Nordstrom, "Metaprogrammable Toolkit for Model-Integrated Computing", Engineering of Computer Based Systems (ECBS), Nashville, TN, pp. 311--317, March, 1999.
- Nordstrom, G., J. Sztipanovits, and G. Karsai, "Metalevel Extension of the MultiGraph Architecture", Proceedings of the IEEE ECBS'98 Conference, Jerusalem, Israel, pp. 61--68, April, 1998.
- Nordstrom, G.: "Teaching Network Security -- Is the Best Defense a Good Offense?", Tenth Annual Southeastern Small College Computing Conference, 1996.
- Nordstrom, G: "I/O Interfacing for the Transputer," IEEE 23rd Southeastern Symposium on System Theory, 1991.
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**Other
Interests/
Activities**

- Active, involved member and teacher with the Bellevue Church of Christ.
 - Invited speaker on “Creation and Intelligent Design.”
 - Long-time member of American Society of Engineering Educators, the IEEE, and the IEEE Education Society.
 - Technical consultant to Lipscomb’s IEEE student chapter.
 - Founder of Sidebar Software and NorthStream Research, consulting companies specializing in software engineering and embedded systems development.
 - I enjoy woodworking, playing guitar and piano, reading, and family time.
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