

Prof. Emeritus Michael A. Gennert

Robotics Engineering, Computer Science, Electrical & Computer Engineering Departments

Robotics Engineering Department
Worcester Polytechnic Institute
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Research Interests

Robotics, Computer Vision, Image Processing, Scientific Databases, Programming Languages.

Education

**Sc.D. Electrical Engineering and Computer Science
Massachusetts Institute of Technology, 1987**

Dissertation under Professors B.K.P. Horn and W.E.L. Grimson: "A Computational Framework for Understanding Problems in Stereo Vision".

S.M. Electrical Engineering

S.B. Electrical Engineering

S.B. Computer Science

Massachusetts Institute of Technology, 1980

M.S. Thesis under Professor N.R. Sandell: "Analysis of Optimal Control of a Four-Gimbal Inertial System".

Experience

Worcester Polytechnic Institute

Worcester, Massachusetts

July 2022 – Present	Professor Emeritus
February 2012 – June 2022	Professor of Robotics Engineering, Computer Science, and Electrical & Computer Engineering
August 2007 – June 2017	Director, Robotics Engineering Program
February 2007 – July 2007	Acting Director, Robotics Engineering Program
July 2003 – January 2011	Computer Science Department Head
July 1999 – February 2012	Associate Professor of Electrical & Computer Engineering
July 1993 – February 2012	Associate Professor of Computer Science
August 1987 – June 1993	Assistant Professor of Computer Science.

University of Massachusetts Medical Center

Worcester, Massachusetts

July 2001 – August 2002	Visiting Associate Professor
June 1990 – August 1992	Consultant.

University of California

Riverside, California

July 1994 – June 1995	Visiting Associate Professor of Electrical Engineering.
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PAR Technology Corporation

New Hartford, New York

July 1980 – August 1982	Senior Analyst and Project Manager.
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State University of New York, College of Technology

Utica, New York

September 1981 – December 1981	Adjunct Professor, Department of Arts and Sciences.
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Courses Taught at WPI

Bold indicates courses developed.

Undergraduate:

CS 100X Introduction to Programming in Java / CS 1006 Object-Oriented Introduction to Programming: A98, E99, A99, A00, A01.

CS 1101 Introduction to Program Design: A05.

CS 1102 Accelerated Introduction to Program Design: A05, A06.

CS 1021 Introduction to Programming: A87, B87.

CS 1032 Modern Programming Concepts II: D89, D90, D91, C92, C93.

CS 2135 Programming Language Concepts: C94, A95, C96, A96, A97, C98, C99, C00.

CS 2022/MA 2201 Discrete Mathematics: C89, A90, A91, A92, A93, A02.

CS 4341 Artificial Intelligence: B87, B89, B91, B95, A96, D03.

RBE 1001 Introduction to Robotics: D11, D12, B12, C13, B13, C14, C15, D15, C16, D17.

RBE 3100 Social Implications of Robotics: A21, C22.

Graduate:

CS 504 Analysis of Computations and Systems: S00.

CS 534 Artificial Intelligence: F88, F89, S91.

CS 525 Special Topics: Data Compression: S98.

CS 536 Programming Language Design: S01.

CS/ECE 545 Digital Image Processing: F93, F97, S00, F02, F09, F11.

RBE/CS 549 Computer Vision: F88, S90, S93, S97, S99, F01, F12, F14, F15, F16, F18, F19, F20, F21.

CS 590 Computer Science Seminar: F91.

RBE 595 Special Topics: Humanoid Robotics: S19, S20, S21.

Independent Studies Courses:

ISP Denotational Semantics: D94.

ISP Advanced Mathematics for Computer Science: A00.

In publications, undergraduate and graduate student co-authors are denoted by ^U and ^G, respectively.

Journal Articles

- J1 H. Kimpara, K.C. Mbanisi^G, J. Fu, Z. Li, D. Prokhorov, M.A. Gennert, “Human Model-based Active Driving System in Vehicular Dynamic Simulation”, *IEEE Trans. Intelligent Transportation Systems*, Vol. 21, No. 5, pp. 1903-1914, May 2020, doi: 10.1109/TITS.2019.2906294.
- J2 V. Jagtap^G, S. Agarwal, A. Wagh^G, M.A. Gennert, “Transportable Opensource UI for Generic Humanoids - T.O.U.G.H.”, *Int. J. Advanced Robotic Systems*, Special Collection on Open Source Robots, Mar. 2020.
- J3 H. Kimpara, K.C. Mbanisi^G, Z. Li, K.L. Troy, D. Prokhorov M.A. Gennert, “Force Anticipation and Its Potential Implications on Feedforward and Feedback Human Motor Control,” *Human Factors*, Vol. 63, No. 4, <https://doi.org/10.1177/0018720819900842>, Mar. 2020.
- J4 M. DeDonato, F. Polido, K. Knoedler, B.P.W. Babu^G, N. Banerjee^G, D. Berenson, C.P. Bove^U, X. Cui^G, R. Du^G, P. Franklin^U, J.P. Graff^U, P. He^G, A. Jaeger^U, L. Li^G, M.A. Gennert, S. Feng^G, F. Liu, X. Xinjilefu^G, J. Kim^G, C.G. Atkeson, X. Long^G, T. Padir, “Team WPI-CMU: Achieving Reliable Humanoid Behavior in the DARPA Robotics Challenge”, *J. Field Robotics*, Vol. 34, No. 2, pp. 381-399, 2017.
- J5 T. Padir, M.A. Gennert, C.G. Atkeson. “Human Supervised Control of a Humanoid Robot for Non-Conventional Emergency Response”, *Mechanical Engineering*, Vol. 137, No. 6, pp. A17-21, Jun. 2015.

- J6 M. DeDonato, V. Dimitrov^G, R. Du^G, R. Giovacchini^G, K. Knoedler, X. Long^G, F. Polido^G, M.A. Gennert, T. Padir, S. Feng^G, H. Moriguchi, E. Whitman, X. Xinjilefu^G, C.G. Atkeson, “Human-in-the-Loop Control of a Humanoid Robot for Disaster Response: A Report from the DARPA Robotics Challenge Trials”, *J. Field Robotics*, Vol. 32, No. 2, pp. 275–292, Mar. 2015.
- J7 T. Padir, G. Fischer, S. Chernova, M.A. Gennert, “A Unified and Integrated Approach to Teaching a Two-Course Sequence in Robotics Engineering”, *J. Robotics and Mechatronics*, Vol. 23, No. 5, 2011.
- J8 T. Padir, M.A. Gennert, G. Fischer, W.R. Michalson, E.C. Cobb, “Implementation of an Undergraduate Robotics Engineering Curriculum”, *Computers in Education Journal* special issue on Robotics Education, Vol. 1, No. 3, pp. 92–101, Jul.–Sep. 2010.
- J9 S. Gu^G, J.E. McNamara, J. Mitra, H. Gifford, K. Johnson, M.A. Gennert, M.A. King, “Body Deformation Correction for SPECT Imaging”, *IEEE Trans. Nuclear Science*, Vol. 57, No. 1, pp. 214–224, Feb. 2010.
- J10 M.A. Gennert, G. Tryggvason, “Robotics Engineering: A Discipline Whose Time Has Come”, *IEEE Robotics & Automation Magazine*, pp. 18–20, Jun. 2009.
- J11 J.E. McNamara, P.H. Pretorius, K. Johnson, J.M. Mukherjee, J. Dey, M.A. Gennert, M.A. King, “A flexible multicamera visual-tracking system for detecting and correcting motion-induced artifacts in cardiac SPECT slices”, *Medical Physics*, Vol. 36, No. 5, pp. 1913–1923, May 2009.
- J12 J.E. McNamara, P.P. Bruyant, K. Johnson, B. Feng, A. Lehovich, S. Gu^G, M.A. Gennert, M.A. King, “An Assessment of a Low-Cost Visual Tracking System (VTS) to Detect and Compensate for Patient Motion During SPECT”, *IEEE Trans. Nuclear Science*, Vol. 55, No. 3, Part 1, pp. 992–998, Jun. 2008.
- J13 R.D. Beach, H. Depold, G. Boening, P.P. Bruyant, B. Feng, H.C. Gifford, M.A. Gennert, S. Nadella^G, and M.A. King, “An Adaptive Approach to Decomposing Patient-Motion Tracking Data Acquired During Cardiac SPECT Imaging”, *IEEE Trans. Nuclear Science*, Vol. 54, No. 1, pp. 130–139, Feb. 2007.
- J14 B. Feng, P.P. Bruyant, P.H. Pretorius, R.D. Beach, H.C. Gifford, J. Dey, M. Gennert, M.A. King, “Estimation of the Rigid-Body Motion from Three-Dimensional Images Using a Generalized Center-of-Mass Points Approach”, *IEEE Trans. Nuclear Science*, Vol. 53, No. 5, Part 1, pp. 2712–2718, Oct. 2006.
- J15 B. Feng, H.C. Gifford, R.D. Beach, G. Boening, M.A. Gennert, M.A. King, “Use of the Three-Dimensional Gaussian Interpolation in the Projector / Backprojector Pair of Iterative Reconstruction for Compensation of Known Rigid-Body Motion in SPECT”, *IEEE Trans. Medical Imaging*, Vol. 25, No. 7, pp. 838–844, Jul. 2006.
- J16 P.P. Bruyant, M.A. Gennert, G.C. Speckert, R.D. Beach, J.D. Morgenstern^G, N. Kumar^G, S. Nadella^G, M.A. King, “A Robust Visual Tracking System for Motion Detection in SPECT: Hardware Solutions”, *IEEE Trans. Nuclear Science*, Volume 52, Issue 5, Part 1, pp. 1288–1294, Oct. 2005.
- J17 R.D. Beach, P.H. Pretorius, G. Boening, P.P. Bruyant, B. Feng, R.R. Fulton, M.A. Gennert, S. Nadella^G, and M.A. King, “Feasibility of Stereo-Infrared Tracking to Monitor Patient Motion During Cardiac SPECT Imaging”, *IEEE Trans. Nuclear Science*, Vol. 51, No. 5, pp. 2693–2698, Oct. 2004.
- J18 T.H. Farncombe, H.C. Gifford, M.V. Narayanan, P.H. Pretorius, P. Bruyant, M. Gennert, and M.A. King, “An Optimization of Reconstruction Parameters and Investigation Into the Impact of Photon Scatter in ⁶⁷Ga SPECT”, *IEEE Trans. Nuclear Science*, Vol. 49, No. 5, pp. 2147–2154, Oct. 2002.
- J19 M.A. Gennert, G.L. Leatherman, and N. Wittels, “Uniform Frontal Illumination of Planar Surfaces: Where to Place the Lamps”, *Optical Engineering*, pp. 1261–1271, Jun. 1993.
- J20 T. El-Korchi, M.A. Gennert, M.O. Ward, and N. Wittels, “Lighting Design for Automated Pavement Surface Distress Evaluation”, *Transportation Res. Rec.*, No. 1311, pp. 144–148, 1991.

- J21 J. Leblanc^G, M.A. Gennert, N. Wittels, and D. Gosselin^G, “Analysis and Generation of Pavement Distress Images Using Fractals”, *Transportation Res. Rec.*, No. 1311, pp. 158–165, 1991.
- J22 D.T. Long, M.A. King, and M.A. Gennert, “Development of a 3D Gradient-Based Method for Volume Quantitation in SPECT”, *IEEE Trans. Nuclear Science*, Vol. 38, No. 2, pp. 748–754, Apr. 1991.

Conference Proceedings

- C1 A. Euredjian^G, M. Agheli, M.A. Gennert, “Multi-Modal Transition of a Canine-like Quadruped to a Bipedal State”, in preparation for *Int. Conf. on Climbing and Walking Robots (CLAWAR)*, Sep. 2022.
- C2 K.C. Mbanisi^G, G.B. Somasse, P. Shah, D. Gangadia^G, M.A. Gennert, W. Towner, T.S. Bergstrom, “Preparing the Next Generation Advanced Manufacturing Workforce using Collaborative Robots and Experiential Learning (Work in Progress)”, *ASEE Annual Conf.*, 2021.
- C3 K.C. Mbanisi^G, M.A. Gennert, Z. Li, “SocNavAssist: A Haptic Shared Autonomy Framework for Social Navigation Assistance of Mobile Telepresence Robots”, *IEEE 2nd Int. Conf. on Human-Machine Systems*, 2021.
- C4 M.A. Gennert, N. Lotfi Yagin, J.A. Mynderse, M. Jethwani, V. Kapila, “Workshops for Building the Mechatronics and Robotics Engineering Education Community”, *ASEE Virtual Conf.*, Jun. 2020.
- C5 N. Bajaj, V. Vikas, M.A. Gennert, N. Lotfi Yagin, J.A. Mynderse, “Work in Progress: Mechatronics and Robotics Engineering Definitions among Students, Educators, and Industry Professionals”, *ASEE Virtual Conf.*, Jun. 2020.
- C6 C. Berry, R. Reck, M.A. Gennert, “Practical Skills for Students in Mechatronics and Robotics Education”, *ASEE Virtual Conf.*, Jun. 2020. **Best Paper Award in Multidisciplinary Engineering Division.**
- C7 M.A. Gennert, N. Lotfi Yagin, J.A. Mynderse, M. Jethwani, V. Kapila, “Building the Mechatronics and Robotics Education Community”, *ASEE Annual Meeting*, Tampa, FL, Jun. 2019.
- C8 V. Jagtap^G, S. Agarwal^G, S.N. Gavarraju^G, S. Kejriwal^G, M.A. Gennert, “Extended State Machines for Robust Robot Performance in Complex Tasks”, *IEEE RAS Int. Conf. on Humanoid Robots (Humanoids 2018)*, Nov. 2018.
- C9 K.C. Mbanisi^G, H. Kimpara, T.B. Meier^U, M.A. Gennert, Z. Li, “Learning Coordinated Vehicle Maneuver Motion Primitives from Human Demonstration”, *IEEE/RSJ Int. Conf. on Intelligent Robots and System (IROS)*, Oct. 2018.
- C10 H. Kimpara, K.C. Mbanisi^G, J. Fu, Z. Li, K.L. Troy, M.A. Gennert, “Balancing Human Driver Posture in Vehicle Under Lateral Motion”, *ASB 2018 Annual Conf. American Society of Biomechanics*, Rochester, MN, Aug. 2018.
- C11 R. Natarajan^G, M.A. Gennert, “Efficient Factor Graph Fusion for Multi-Robot Mapping and Beyond”, *IEEE Int. Conf. Information Fusion (FUSION)* Jul. 2018.
- C12 K.C. Mbanisi^G, H. Kimpara, Z. Li, M.A. Gennert, T.B. Meier^U, “Learning Movement Primitives for Driving Tasks from Human Demonstration”, *8th World Congress of Biomechanics*, Dublin, Jul. 2018.
- C13 M.A. Gennert, C.B. Putnam, “Robotics Engineering as an Undergraduate Major: 10 Years’ Experience”, *ASEE Annual Meeting*, Salt Lake City, UT, Jun. 2018.
- C14 V. Jagtap^G, S.N. Gavarraju^G, S. Agarwal^G, S. Kejriwal^G, S. Devadoss^G, M.A. Gennert, “Towards Full Autonomy for Humanoid Robots”, *IEEE/RSJ Int. Conf. on Intelligent Robots and System (IROS)*, Sep. 2017.

- C15 R. Natarajan^G, M.A. Gennert, “Efficient Factor Graph Fusion for Multi-Robot Mapping”, IEEE/RSJ Int. Conf. on Intelligent Robots and System (IROS), Sep. 2017.
- C16 C. Lindsay, A. Bhat^G, M.A. King, M.A. Gennert, “A Novel Robotic Motion Phantom For Ground Truth Motion in Medical Imaging”, 6th Int. Wkshp. on Computational Human Phantoms, Aug. 2017.
- C17 S.H. Roy, B. Shiwani^G, J.C. Kline, M.H. Saint-Hilaire, C.A. Thomas, M.A. Gennert, G. De Luc, “Real-Time, Autonomous Tracking of Whole-Body Bradykinesia In Parkinson’s Disease”, ASB 2017 Annual Conf. American Society of Biomechanics, Aug. 2017.
- C18 L. Li^G, X. Long^G, M.A. Gennert, “BiRRTOpt: A Combined Sampling and Optimizing Motion Planner for Humanoid Robots”, Humanoids 2016, Nov. 2016.
- C19 V. Dimitrov^G, V. Jagtap^G, J. Skorinko, S. Chernova, M. Gennert, and T. Padir, “Human-Centered Design of a Cyber-Physical System for Advanced Response to Ebola (CARE)”, 37th Annual Int. Conf. IEEE Engineering in Medicine and Biology Society (EMBC), pp. 6856-6859, 2015.
- C20 C.G. Atkeson, N. Banerjee^G, D. Berenson, M. DeDonato, R. Du^G, S. Feng^G, J. Kim, K. Knoedler, C. Liu, X. Long^G, F. Polido, M.A. Gennert, T. Padir, X. Xinjilefu^G, B.P.W. Babu^G, C. Bove^U, J. Graff^U, P. He^G, A. Jaeger^U, L. Li^G, “NO FALLS, NO RESETS: Reliable Humanoid Behavior in the DARPA Robotics Challenge”, Humanoids 2015, Nov. 2015.
- C21 N. Banerjee^G, X. Long^G, R. Du^G, F. Polido, S. Feng^G, C.G. Atkeson, M.A. Gennert, T. Padir, “Human-Supervised Control of the ATLAS Humanoid Robot for Traversing Doors”, Humanoids 2015, Nov. 2015.
- C22 K. Knoedler, V. Dimitrov^G, D. Conn, M.A. Gennert, T. Padir, “Towards Supervisory Control of Humanoid Robots for Driving Vehicles during Disaster Response Missions”, IEEE Int. Conf. Technologies for Practical Robot Applications, pp. 1-6, May 2015.
- C23 M.A. Gennert, T. Padir, “Robotics Engineering as an Undergraduate Major: A 5 year Retrospective”, ASEE Annual Meeting, Atlanta, GA, Jun. 2013.
- C24 J.M. Barrett^G, M.A. Gennert, W.R. Michalson, M.D. Audi, J.L. Center Jr., J.F. Kirk, “Development of a Low-Cost, Self-Contained Combined Vision and Inertial Navigation System”, IEEE Int. Conf. Technologies for Practical Robot Applications, Apr. 2013.
- C25 C. Lindsay, M.A. Gennert, A. Konik, P. K. Dasari^G, M.A. King, “Automatic Generation of Digital Anthropomorphic Phantoms from Simulated MRI Acquisitions”, SPIE Medical Imaging Conf., Lake Buena Vista, FL, Feb. 2013.
- C26 B.P.W. Babu^G, E.T. Read^U, J.A. Gostanian^U, M.A. Gennert, “A tree-climbing robot for invasive insect detection”, Int. Conf. on Climbing and Walking Robots (CLAWAR), Jul. 2012.
- C27 T. Padir, M.A. Gennert, F.J. Looft, “Assessing Multidisciplinary Design in a Robotics Engineering Curriculum”, ASEE Annual Meeting, San Antonio, TX, Jun. 2012.
- C28 J.M. Barrett^G, M.A. Gennert, W.R. Michalson, J.L. Center, “Analyzing and modeling an IMU for use in a low-cost combined vision and inertial navigation system”, IEEE Int. Conf. Technologies for Practical Robot Applications, pp. 19-24, Apr. 2012.
- C29 C. Lindsay, M.A. Gennert, C.M. Connolly, A. Konik, P. Dasari^G, W.P. Segars, M.A. King, “Interactive generation of digital anthropomorphic phantoms from XCAT shape priors”, SPIE Biomedical Applications in Molecular, Structural, and Functional Imaging Conf., San Diego, CA, Feb. 2012.
- C30 M.A. Gennert, W.R. Michalson, M.A. Demetriou, “A Robotics Engineering M.S. Degree”, ASEE Annual Meeting, Louisville, KY, Jun. 2010.

- C31 G. Tryggvason, M.A. Gennert, F.J. Looft, T. Padir, L.E. Schachterle, “Robotics Engineering: Assessing an Interdisciplinary Program”, ASEE Annual Meeting, Louisville, KY, Jun. 2010.
- C32 R.D. Beach, M.A. Gennert, W.R. Michalson, J. van de Ven, T. Padir, G. Tryggvason, G.S. Fischer, “Robotics Innovations Competition and Conference (RICC): Building Community Between Academia and Industry Through a University-Level Student Competition”, ASEE Annual Meeting, Louisville, KY, Jun. 2010.
- C33 J. Skorinko, J. Lay, G. McDonald, B. Miller, C. Shaver, C. Randall, J. Doyle, M. Gennert, J. van de Ven, “The Social Outcomes of Participating in the FIRST Robotics Competition Community”, ASEE Northeast Section Conf., May 2010.
- C34 S. Gu^G, J.E. McNamara, J. Mitra, H.C. Gifford, A.V. Sklyar^G, K. Johnson, M.A. Gennert, M.A. King, “Improved Motion Correction in SPECT Imaging Using a Non-rigid Motion Model”, IEEE Nuclear Science Symp. and Medical Imaging Conf., Orlando, pp. 3242–3246, Oct. 2009.
- C35 A.V. Sklyar^G, S. Gu^G, M.A. Gennert, M.A. King, “Generating anthropomorphic phantoms semi-automatically from magnetic resonance images”, IEEE Nuclear Science Symp. and Medical Imaging Conf., Orlando, pp. 2743–2746, Oct. 2009.
- C36 M.J. Ciaraldi, E.C. Cobb, D. Cyganski, M.A. Demetriou, G. Fischer, M.A. Gennert, F.J. Looft, W.R. Michalson, B.A. Miller, Y. Rong, K. Stafford, G. Tryggvason, J.D. Van de Ven, “Robotics Engineering: A New Discipline for a New Century”, ASEE Annual Meeting, Austin, TX, Jun. 2009.
- C37 S. Gu^G, C. Lindsay^G, M.A. Gennert, M.A. King, “A Quick 3D-to-2D Points Matching based on the Perspective Projection”, Int. Symp. Visual Computing, Las Vegas, Dec. 2008.
- C38 S. Gu^G, J.E. McNamara, K. Johnson, H. Gifford, A.V. Sklyar^G, M.A. Gennert, M.A. King, “Pattern independent deformation estimation illustrated by MRI”, IEEE Nuclear Science Symp. and Medical Imaging Conf., Dresden, Germany, pp. 5285–5291, Oct. 2008.
- C39 J.E. McNamara, K. Johnson, J. Mitra, H.P. Pretorius, S. Gu^G, M.A. Gennert, M.A. King, “Correction of motion-induced artifacts in clinical cardiac SPECT studies using a stereo-motion-tracking system” IEEE Nuclear Science Symp. and Medical Imaging Conf., Dresden, Germany, pp. 4319–4323, 2008.
- C40 M.J. Ciaraldi, E.C. Cobb, D. Cyganski, M.A. Gennert, M.A. Demetriou, F.J. Looft, W.R. Michalson, B.A. Miller, Y. Rong, L.E. Schachterle, K. Stafford, G. Tryggvason, J.D. Van de Ven, “The New Robotics Engineering BS Program at WPI”, ASEE Annual Meeting, Pittsburgh, PA, Jun. 2008.
- C41 S. Gu^G, J.E. McNamara, H. Gifford, M.A. Gennert, M.A. King, “Body Deformation Correction for SPECT Tomography”, IEEE Nuclear Science Symp. and Medical Imaging Conf., Washington, DC, pp. 2708–2714, Oct. 2007.
- C42 J.E. McNamara, B. Feng, K. Johnson, S. Gu^G, M.A. Gennert, M.A. King, “Motion Capture of Chest and Abdominal Markers Using a Flexible Multi-Camera Motion-Tracking System for Correcting Motion-Induced Artifacts in Cardiac SPECT”, IEEE Nuclear Science Symp. and Medical Imaging Conf., Washington, DC, pp. 4289–4293, Oct. 2007.
- C43 J.E. McNamara, M.A. King, B. Feng, K. Johnson, M.A. Gennert, “Spatial and temporal accuracy of a flexible multi-camera motion-tracking system for motion correction of cardiac SPECT”, Proc. Society Nuclear Medicine 54th Annual Meeting, Washington, DC, Jun. 2007.
- C44 S. Gu^G, J.E. McNamara, K. Johnson, M.A. Gennert, M.A. King, “Calibration Accuracy Evaluation with Stereo Reconstruction”, Int. Conf. Image and Graphics, Chengdu, China, pp. 7–12, 2007.
- C45 S. Gu^G, J. McNamara, M.O. Ward, M.A. Gennert, M. A. King, “Calibration Accuracy Evaluation for Stereo Reconstruction”, IEEE Nuclear Science Symp. and Medical Imaging Conf., San Diego, pp. 3242–3246, Oct. 2006.

- C46 J.E. McNamara, P.P. Bruyant, K. Johnson, B. Feng, A. Lehovich, S. Gu^G, M.A. Gennert, M.A. King, “An Assessment of a Visual Tracking System (VTS) to Detect and Compensate for Patient Motion During SPECT”, IEEE Nuclear Science Symp. and Medical Imaging Conf., San Diego, pp. 3235–3238, Oct. 2006.
- C47 R.D. Beach, H.C. Gifford, P.P. Bruyant, B. Feng, M.A. Gennert, S. Nadella^G, M.A. King, “Stereo-Infrared Tracking to Monitor and Characterize Rigid-Body Motion and Respiration During Cardiac SPECT Imaging: Progress Towards Robust Clinical Utilization”, IEEE Nuclear Science Symp. and Medical Imaging Conf., San Juan, PR, Oct. 2005.
- C48 P.P. Bruyant, M.A. Gennert, S. Nadella^G, M.A. King, “The Visual Tracking System (VTS) for Patient Motion Detection in SPECT: Quality Control of the Stereo Calibration”, IEEE Nuclear Science Symp. and Medical Imaging Conf., San Juan, PR, Oct. 2005.
- C49 L. Ma^G, S. Gu^G, S. Nadella^G, P.P. Bruyant, M.A. King, M.A. Gennert, “A practical rebinning-based method for patient motion in SPECT imaging”, Int. Conf. Computer Graphics, Imaging Visualization (CGIV 2005), pp. 209–214, Beijing, China, Jul. 2005.
- C50 R.D. Beach, H. Depold, G. Boening, P. Bruyant, B. Feng, H. Gifford, M. Gennert, S. Nadella^G, M. King, “An Adaptive Neural Network Approach to Decomposition of Patient Stereo-Infrared Tracking Motion Data During Cardiac SPECT Imaging Using Asymmetric Median Filters”, IEEE Nuc. Sci. Symp. Med. Im. Conf., Rome, pp. 4146–4150, 2004.
- C51 J.D. Morgenstern^G, M.A. Gennert, N. Kumar^G, S. Nadella^G, G.C. Speckert, P.P. Bruyant, M.A. King, “A Real-time Multi-threaded System to Detect Motion in SPECT Imaging Using Multiple Optical Cameras”, IEEE Nuc. Sci. Symp. Med. Im. Conf., Rome, pp. 2923–2925, 2004.
- C52 P.P. Bruyant, M.A. Gennert, G.C. Speckert, R.D. Beach, J.D. Morgenstern^G, N. Kumar^G, S. Nadella^G, M.A. King, “A Robust Visual Tracking System for Motion Detection in SPECT: Improved Design and Validation Against the Polaris Infra-Red Tracking System”, IEEE Nuc. Sci. Symp. Med. Im. Conf., Rome, pp. 3094–3097, 2004.
- C53 P.P. Bruyant, M.A. Gennert, G.C. Speckert, R.D. Beach, G. Boening, J. Morgenstern^G, N. Arora^G, S. Nadella^G, M.A. King, “New Design for a Visual Tracking System to Detect Patient Motion in SPECT”, Soc. Nuclear Medicine 48th Annual Meeting, Philadelphia, PA, 2004.
- C54 M.A. Gennert, J.K. Ho^U, A.C. Quina^U, J.H. Wang^U, P.P. Bruyant, and M.A. King, “Feasibility of Tracking Patient Respiration During Cardiac SPECT Imaging Using Stereo Optical Cameras”, IEEE Nuc. Sci. Symp. Med. Im. Conf., Portland, OR, Oct. 2003.
- C55 M.A. Gennert, P.P. Bruyant, M.V. Narayanan, and M.A. King, “Assessing a System to Detect Patient Motion in SPECT Imaging Using Stereo Optical Cameras”, Conf. Record IEEE Nuc. Sci. Symp. Med. Im. Conf., Norfolk, VA, Nov. 2002.
- C56 T.H. Farncombe, H.C. Gifford, M.V. Narayanan, P.H. Pretorius, P. Bruyant, M. Gennert, and M.A. King, “An Investigation into the Impact of Photon Scatter in the Detection of ⁶⁷Ga Tumours Using Channelized Hotelling and Human Observers”, Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf., pp. 2214–2218, San Diego, CA, Nov. 2001.
- C57 D.A. Lisin^G and M.A. Gennert, “Optimal Function Approximation Using Fuzzy Rules”, Proc. Int. Conf. North American Fuzzy Information Processing Society, pp. 184–188, NY, NY, Jun. 1999.
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- C59 N. Wittels, T. El-Korchi, Y. Li^G, and M.A. Gennert, “Detecting and Characterizing Small Voids in Mostly-Diffuse Materials”, Proc. SPIE Symp. Imaging and Illumination for Metrology and Inspection, Vol. 2348, Boston, MA, Nov. 1994.

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- P3 J. Skorinko, J. Doyle, G. Tryggvason, M.A. Gennert, M. “Do goals matter in engineering education? An exploration of how goals influence outcomes for FIRST robotics participants”, Poster presented at the NSF Engineering Education Awardees Conf., Washington, DC, Mar. 2012.
- P4 S. Gu^G, J.E. McNamara, J. Mitra, H.C. Gifford, A.V. Sklyar^G, K. Johnson, M.A. Gennert, M.A. King, “Improved Motion Correction in SPECT Imaging Using a Non-rigid Motion Model”, IEEE Nuclear Science Symp. and Medical Imaging Conf., Orlando, Oct. 2009.
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- T1 D. Finkel, M.L. Claypool, M.A. Gennert, F. Bianchi, D. O’Donnell, and P. Quinn, “Teaching Game Development: At the Intersection of Computer Science and Humanities & Arts”, Technical Report WPI-CS-TR-04-23, Computer Science Department, Worcester Polytechnic Institute, Nov. 2004.
- T2 D.A. Lisin^G and M.A. Gennert, “Optimal Function Approximation Using Fuzzy Rules”, WPI-CS-TR-98-11, Computer Science Dept., WPI, Worcester, MA, Jan. 1999.
- T3 N.I. Hachem, N. Serrao^G, M.A. Gennert, and K. Qiu^G, “Derivation Nets: A Petri Net Model for the Management of Data Derivations in Scientific Experiments”, WPI-CS-TR-94-3, Computer Science Dept., WPI, Worcester, MA, Aug. 1994.
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Other Publications

- O1 M.A. Gennert “Artificial Intelligence: Moving Beyond CS”, Education Technology Insights, Aug. 2019.
M.A. Gennert, “Welcome message from the chair”, IEEE Int. Conf. on Technologies for Practical Robot Applications, Woburn, MA, pp. 1, 2015.
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- O2 S.G.W. Dunn^G and M.A. Gennert, “Using logic in a model-based approach to computer vision”, Selected SPIE Papers on CD-ROM, Vol. 6: Automatic Target Recognition, F.A. Sadjadi (ed.), SPIE Press, Dec. 1999.
- O3 T.W. Bushman^G, M.A. Gennert, and R.J. Pryputniewicz, “Phase Unwrapping by Least Squares Error Minimization of Phase Curvature”, in “Selected Papers on Interference, Interferometry, and Interferometric Metrology”, P. Hariharan and D. Malacara (Eds.), pp. 422–438, SPIE, 1995.

Workshop Organization

- WO1 M.A. Gennert, Carlotta Berry, V. Kapila, G. Lewin, N. Lotfi, J. Mynderse, “Unified Curriculum and Course Design for Mechatronics and Robotics Engineering”, Virtual Workshop, Jan. 2022.
- WO2 M.A. Gennert, V. Kapila, J. Mynderse, N. Lotfi, “The Future of Mechatronics and Robotics Education”, Lawrence Technological University, Sep. 2019.
- WO3 M.A. Gennert, V. Kapila, J. Mynderse, N. Lotfi, “The Future of Mechatronics and Robotics Education”, ASEE, Jun. 2019.
- WO4 M.A. Gennert, V. Kapila, J. Mynderse, N. Lotfi, “The Future of Mechatronics and Robotics Education”, Robotics Summit & Expo, Jun. 2019.
- WO5 V. Kapila, M.A. Gennert, J. Mynderse, N. Lotfi, “The Future of Mechatronics and Robotics Education”, Dynamics, Systems and Controls Conference, Sep. 2018.
- WO6 M.A. Gennert (co-chair), D. Whitley (co-chair), “New Chairs Workshop”, Computing Research Association Snowbird Conference, Jul. 2012.

WO7 M.A. Gennert (chair), B. Ryder, D. Whitley, “New Chairs Workshop”, Computing Research Association Snowbird Conference, Jul. 2010.

Invited Presentations

- I1 “Autonomy Natives: They Will Be Here Soon, So Let’s Get It Right This Time”, *Keynote Lecture*, IEEE Int. Conf. Computing, Networking, Telecommunications & Engineering Sciences Applications (CoNTESA ’20), Epoka University, Tirana, Albania, Dec. 2020.
- I2 “Robotics & AI”, SUNY Polytechnic Institute, Oct. 2019.
- I3 “Robotics Challenges: DARPA to NASA”, U. Hartford, Oct. 2019.
- I4 “Human Machine Teaming from the Perspective of the Human Strategies for Engaging Students and Communities with Emerging Technology”, Invited Panelist, Congressional Budget Caucus briefing on “Preparing the Workforce for Automation: Examples in the Real World”, Apr. 2019.
- I5 “Roadmap for the Future of Mechatronics & Robotics Engineering (FoMRE) Education”, Mechatronics Education Innovation Webinar, Nov. 2018.
- I6 “Robotics Engineering as an Undergraduate Major”, Mechatronics Education Innovation Webinar, Feb. 2018.
- I7 “Introduction to MS4SSA Robotics Modules”, Math and Science for Sub-Saharan Africa (MS4SSA), WPI, May 2017.
- I8 “Robots and your job”, MIT Faculty Forum Online, May 2017.
- I9 “Robotics Engineering *or* How to win the ABET Innovation Award”, ABET Annual Meeting, Apr. 2017.
- I10 “The Robotics Revolution: Driving Forces & Applications on Campus”, Society for College and University Planning Meeting, WPI Mar. 2017.
- I11 “Winning i3 (Innovative Ideas with Impact) Presentations”, WPI, Feb. 2017.
- I12 “WPI & Defense Robotics”, Robotics in the UK and US (RUKUS) Symposium, Mar. 2016.
- I13 “Team WPI-CMU & The DARPA Robotics Challenge”, WPI Sigma Xi Lecture, Dec. 2015.
- I14 “Team WPI-CMU & The DARPA Robotics Challenge”, WPI Robotics Engineering Colloquium, Sep. 2015.
- I15 “The DARPA Robotics Challenge: Team WPI-CMU & Lessons Learned”, Raytheon Corp. Webinar, Sep. 2015.
- I16 “The DARPA Robotics Challenge: Team WPI-CMU & Lessons Learned”, AUVSI, Jun. 2015.
- I17 “The DARPA Robotics Challenge: Team WPI-CMU & Lessons Learned”, Mass Technology Leadership Council, Jun. 2015.
- I18 “Systems, Software, & Simulation: Meeting the DARPA Robotics Challenge”, INCOSE, Apr. 2015.
- I19 “Robotics @ WPI: From Human-In-The-Loop to DARPA Robotics Challenge”, MITRE Corp. Seminar, Jan. 2015.
- I20 “Robotics Engineering: A New Frontier in Education & Research”, NSF PI Meeting, Nov. 2014.
- I21 “The New Robotics Ecosystem for Defense & Security”, Armed Forces Communications and Electronics Association (AFCEA), May 2014.

- I22 “Robotics!”, Oxford Hills (ME) Middle School, May 2014.
- I23 “Systems, Software, & Simulation: Meeting the DARPA Robotics Challenge”, Georgia Tech Robotics & Intelligent Machines Seminar, Apr. 2014.
- I24 “WPI Robotics Engineering: Leading the Robotics Revolution”, Essex County Club, Mar. 2014.
- I25 “Robotics Engineering @ WPI”, SUNY Institute of Technology, Mar. 2013.
- I26 “Robotics Engineering @ WPI”, iRobot Corp., Jul. 2013.
- I27 “Robotics Engineering @ WPI”, Rensselaer Polytechnic Institute, Jul. 2013.
- I28 “Robotics Engineering Education”, In-Q-Tel, Nov. 2011.
- I29 “Engineering a Robotics Program, State University of New York at Albany, Nov. 2011.
- I30 “Robotics Engineering Education”, National Defense Industries Association Robotics Division, Sep. 2011.
- I31 “Engineering a Robotics Program from Scratch”, Lawrence Technological University, Mar. 2011.
- I32 “The Future You Create”, WPI RoboEthics Symposium, Apr. 2010.
- I33 “Robotics Engineering: The next hot major”, Robotics Trends’ Robotics Summit, Mar. 2010.
- I34 “Robotics at WPI”, Wachusett Regional High School Science Seminar Series, Feb. 2010.
- I35 “Robotics”, Worcester Pecha Kucha, Sep. 2009.
- I36 “Engineering a Robotics Program from Scratch”, WPI Sigma Xi Induction Keynote Speech, Apr. 2008.
- I37 “Engineering a Robotics Program from Scratch”, IEEE Robotics & Automation Society, Olin College, Feb. 2008.
- I38 “Tracking Patient Respiration and Other Motion in SPECT Imaging Using Stereo Optical Cameras”, (with Prof. M.A. King), Invited Colloquium, Joint Program in Nuclear Medicine, Harvard Medical School, May 2003.
- I39 “The Role of AI and Multimedia in GIS”, Invited Panelist, Wkshp. Advances in Geographic Information Systems, Gaithersburg, MD, Dec. 1994.
- I40 “The Gaea Project: An Overview”, Invited Colloquium, University of New Hampshire, Dec. 1993.
- I41 “Scientific Database Management Systems”, Invited Colloquium, Space Telescope Science Institute, Baltimore, MD, Aug. 1993.
- I42 “Fractals, edge detection, and relaxation labeling for pavement inspection”, Invited Colloquium, University of Massachusetts Medical Center, Worcester, MA, May 1993.
- I43 “From Theory to Application: Surface and lighting models, fractals, edge detection, and relaxation labeling for pavement inspection”, Invited Colloquium, Northeastern University, Boston, MA, Jun. 1992.
- I44 “3D Methods for Volume Quantitation in SPECT”, IEEE Robotics Section, Bedford, MA, Mar. 19, 1991.
- I45 “Regularization Parameter Selection Techniques”, University of Massachusetts Medical Center, Worcester, MA, Mar. 1, 1989.

Funded Proposals

- FP1 M.A. Gennert, C. Pincioli, “Space Robotics Challenge, Phase II”, NASA, Jan. 2021, \$15,000 over 6 months.

- FP2 M.A. Gennert, V. Kapila, C.A. Berry, J. Mynderse, N. Lotfi Yagin, “Workshop on Unified Curriculum and Course Design for Mechatronics and Robotics Engineering”, NSF, Aug. 2020, \$49,999 over 12 months.
- FP3 T.S. Bergstrom, W. Towner, M.A. Gennert “CoBots for Kids: An Interactive Hands-on Experience for Middle and High School Students Intended to Develop Excitement and Competence”, Advanced Robotics for Manufacturing (ARM) Institute. Total project budget \$301,547 over 12 months with cost share of \$202,476 (including \$28,509 from Mass. Manufacturing Innovation Institute) and \$99,071 in ARM funds, Oct. 2019.
- FP4 T. S. Bergstrom, M.A. Gennert, “Cobots for Kids”, Commonwealth of Massachusetts, Mass. Manufacturing Innovation Initiative (M2I2), \$82,300 over 10 months, (\$28,509 included as cost share in “Cobots for Kids”, ARM Institute) Sep. 2019.
- FP5 N. Lotfi, M.A. Gennert, J. Mynderse, V. Kapila, “Workshops for the Future of Mechatronics and Robotics Education”, NSF, Aug. 2018, \$49,957 over 12 months.
- FP6 M.A. Gennert, Z. Li, “Actuation, Sensing, and Control of Posture in Dynamic Environments for Improved Vehicle Safety, Phase III”, Toyota Motor Corp., Mar. 2018, \$150,000 over 12 months.
- FP7 M.A. Gennert, M.B. Popovic, K. Troy, “Actuation, Sensing, and Control of Posture in Dynamic Environments for Improved Vehicle Safety, Phase II”, Toyota Motor Corp., Mar. 2017, \$150,000 over 12 months.
- FP8 M.A. Gennert, “Space Robotics Challenge”, NASA, Jan. 2017, \$25,000 over 6 months.
- FP9 M.A. Gennert, M.B. Popovic, K. Troy, “Actuation, Sensing, and Control of Posture in Dynamic Environments for Improved Vehicle Safety”, Toyota Motor Corp., Mar. 2016, \$150,000 over 12 months.
- FP10 M.A. King, M.A. Gennert, C. Lindsay, “A Novel Articulated Robotic Motion Phantom (ARMO) For Ground Truth Motion in Medical Imaging”, UMMS-WPI Collaborative seed funding, Jun. 2015, \$12,433 over 12 months.
- FP11 T. Padir, M.A. Gennert, J. Skorinko, S. Chernova, “RAPID: Realization of a Medical Cyber-Physical System to Enhance Safety of Ebola Workers”, NSF, Dec. 2014, \$200,000 over 12 months.
- FP12 M.A. Gennert, T. Padir, and C. G. Atkeson, “Systems, Software and Simulation: Meeting the DARPA Robotics Challenge”, DARPA, Dec. 2014, \$500,000 over 8 months.
M.A. Gennert, T. Padir, and C. G. Atkeson, “Systems, Software and Simulation: Meeting the DARPA Robotics Challenge”, DARPA, Jan. 2014, \$995,827 over 12 months.
M.A. Gennert, T. Padir, and C. G. Atkeson, “Systems, Software and Simulation: Meeting the DARPA Robotics Challenge”, DARPA, Jul. 2013, \$747,958 over 6 months.
- FP13 M.A. Gennert and W.R. Michalson, “Advanced Bayesian Methods for Autonomous Surface Navigation”, SBIR subcontract to Autonomous Explorations, Inc., NASA, May 2011, \$200,000 over 2 years.
- FP14 M.A. Gennert, A Hoffman, J. Sullivan, “Patient Motion Detection and Compensation in SPECT”, subcontract to University of Massachusetts Medical Center, NIH, Jun. 2009, \$337,695 over 4 years.
- FP15 J. Schaufeld, M.A. Gennert, C. Kasouf, ‘A Proposal to Develop a Curriculum-based Module Integrating Innovation and Commercialization Disciplines Into a New Robotics Technology Product Design Platform”, National Collegiate Inventors and Innovators Alliance, Sep. 2008, \$7,000.
- FP16 G. Tryggvason, J.K. Doyle, M.A. Gennert, J. Skorinko, C.A. Randall, “Social Networking in the FIRST Robotics Competition Community”, National Science Foundation, EEC–Engineering Research Centers, Oct. 2007 \$189,500 over 3 years.

- FP17 M.A. Gennert, D. Cyganski, G. Tryggvason, “CPATH CB: Building Community via Robotics Innovations Competition and Conference”, National Science Foundation, CISE Pathways to Revitalized Undergraduate Computing Education, Jul. 2007. \$359,761 over 3 years.
- FP18 M.A. Gennert, “Patient Motion Detection and Compensation in SPECT”, subcontract to University of Massachusetts Medical Center under an NIH grant, Jun. 2003, \$787,104 over 5 years.
- FP19 M.A. Gennert, “Biomedical Imaging Research”, University of Massachusetts Medical Center, Sep. 1997, \$19,980.
- FP20 C.A. Brown & M.A. Gennert, “Generating Topographic Data Sets from Stereo Pairs of Micrographs”, Norton Co. and Torrington Corp., Jul. 1993, \$19,000.
- FP21 C.E. Wills, D. Finkel, M.A. Gennert, and M.O. Ward, “Community Learning in an Introductory Computer Science Course”, WPI Center for Curricular Innovation and Educational Development, May 1993, \$20,880.
- FP22 N.I. Hachem, M.A. Gennert, and M.O. Ward, “Equipment Supplement to IRI-9116988”, National Science Foundation, Feb. 1992, \$11,906.
- FP23 N.I. Hachem, M.A. Gennert, and M.O. Ward, “Research Experience for Undergraduates Supplement to IRI-9116988”, National Science Foundation, Feb. 1992, \$4,000.
- FP24 N.I. Hachem, M.A. Gennert, and M.O. Ward, “Spatio-Temporal Database Management for Global Change Research”, National Science Foundation, Sep. 1991, \$315,000 over 2 years.
- FP25 M.A. Gennert, “Three Dimensional Edge Detection for SPECT Images”, University of Massachusetts Medical Center, Jun. 1990, \$16,690.
- FP26 M.A. Gennert & M.O. Ward, “Using Diverse Knowledge for Map Interpretation”, WPI Research Development Council, Apr. 1990, \$5,400.
- FP27 M.A. Gennert & R.E. Kinicki, “Hewlett-Packard University Grants Program”, Hewlett-Packard Corporation, May 1989, \$49,175.
- FP28 M.A. Gennert, “Expert System Diagnostic Assistant Prototype”, Bytex Corporation, Jan. 1989, \$22,892.
- FP29 M.A. Gennert, “Continuation of Stereo Vision Research”, WPI Research Development Council, Mar. 1988, \$9,111.
- FP30 M.A. Gennert, “Image Brightness Surface Matching”, WPI Research Development Council, Nov. 1987, \$3,887.

Post-Doctoral Researcher Supervision

- PD1 Clifford Lindsay, “Motion Correction in Medical Imaging”, 2011-2016.

Ph.D. Dissertation Supervision

- PHD1 Kenechukwu Mbanisi, “Towards Human-Centered Haptic Shared Autonomy for Assisted Driving Systems”, 2022.
- PHD2 Vinayak Jagtap, “Walking Controllers Based on a Reactive Balancing Controller for Humanoid Robots”, 2019.
- PHD3 Jonathan Shutt, “Fexprs as the basis of Lisp function application or \$vau : the ultimate abstraction”, 2011.

PHD4 Songxiang Gu, “Body Deformation Correction for SPECT Imaging”, 2009.

PHD5 Yuhong Zhang (chaired Dissertation Committee while Prof. M.O. Ward was on sabbatical leave) “A Visual Environment for Scientific Data Analysis”, 1994.

Ph.D. Dissertation Committees

PC1 Torbjorn Bergstrom, “Quantitative Multi Scale Analysis of Topographical Anisotropy on Biological and Engineering Surfaces”, Prof. C.A. Brown, advisor, 2019.

PC2 Benzun Babu, “Detection and Resolution of Motion Conflict in Visual Inertial Odometry (VIO)”, Profs. R.J. Duckworth, D. Cyganski advisors, 2018.

PC3 Lei Wang, “System Designs for Diabetic Foot Ulcer Image Assessment”, Prof. P. Pedersen advisor, WPI, 2016.

PC4 Jason Kutarnia, “A Markov Random Field Based Approach to 3D Mosaicing with Application to Ultrasound Simulation”, Prof. P. Pedersen advisor, WPI, 2014.

PC5 Nabin Malekar, “Autonomous Entropy-Based Intelligent Experimental Design”, Prof. K. Knuth advisor, SUNY Albany, 2011.

PC6 Serdar Ince, “Occlusion-Aware Intermediate View Reconstruction”, Prof. J. Konrad advisor, Boston University, 2008.

PC7 Fan Wu, “Ubiquitous Scalable Graphics: An End-to-End Framework using Wavelets”, Prof. E.O. Agu advisor, WPI, 2008.

PC8 Mohamad J. Seaidoun, “A Fast Exact Euclidean Distance Transform with Application to Computer Vision and Digital Image Processing”, Prof. J.M. Gauch advisor, Northeastern University, 1992.

PC9 Yi Liu, “Analytic Hough Transform for Conic Curve Detection”, Prof. D. Cyganski advisor, Oct. 1991.

PC10 Buming Bian, “Accurate Simulation of Scene Luminances”, Prof. N. Wittels advisor, Jun. 1990.

PC11 Wei Li, “Object Recognition by Neural Networks”, Prof. N.M. Nasrabadi advisor, Apr. 1990.

M.S. Thesis Supervision

MS1 Andrew Euredjian, “Multi-Modal Transition of a Canine-like Quadruped to a Bipedal State”, Prof. M. Agheli, co-advisor, 2022.

MS2 Akshay Katpatal, “Dual-Arm Manipulation of the ATLAS Humanoid Robot”, 2020.

MS3 Ashay Aswale, “Imitation Learning on Humanoid Robots”, 2020

MS4 Ameya Wagh, “A 3D object recognition and 6DoF pose estimation framework for ATLAS Robot using RGB-D images”, 2019.

MS5 Sanket Gujar, “Pointwise and Instance Segmentation for 3D Point Cloud”, Prof. J. Whitehill co-advisor, 2019.

MS6 Sumanth Nirmal Gavarraju, “Multi-Sensor Online Fusion and Object Detection on Hybrid Data using Deep Learning for Autonomous Driving”, 2018.

MS7 Ramkumar Natarajan, “Efficient Factor Graph Fusion for Multi-robot Mapping”, 2017.

- MS8 Bhawna Shiwani, “Autonomous Real-Time Tracking of Bradykinesia in Parkinson’s Disease During Unconstrained Activities”, 2017.
- MS9 Aditya Bhat, “Locomotion Trajectory Generation For Legged Robots”, 2017.
- MS10 Donald Bourque, “CUDA-Accelerated ORB-SLAM for UAVs”, 2017.
- MS11 Lening Li, “BiRRTOpt: A Combined Software Framework for Motion Planning Applied on ATLAS Robot”, 2016.
- MS12 Justin Barrett “Robot Navigation”, Prof. W. Michalson co-advisor, 2014.
- MS13 Benzun Pious Wisely Babu, “Visual Simultaneous Localization and Mapping for a Tree Climbing Robot”, 2013.
- MS14 Satyanarayana Reddy Janga, “A Fast and Robust Image-Based Method for tracking Robot-assisted Needle Placement in Real-time MR Images”, 2013.
- MS15 Ellery Harrington, “Development of an Optoelectronic Holographic Platform for Otolaryngology Applications”, Prof. C. Furlong-Vazquez co-advisor, 2009.
- MS16 Andrey Sklyar, “Determining Realistic Organ Motion for Testing SPECT Motion Correction Algorithms”, WPI & UMass Medical School, 2009.
- MS17 Linna Ma, “Splitting Frames by Hypothesis Testing for Patient Motion Compensation in SPECT”, WPI & UMass Medical School, 2006.
- MS18 Suman Nadella, “Multi Camera Stereo and Tracking Patient Motion for Compensation in SPECT Scanning Systems”, WPI & UMass Medical School, 2005
- MS19 Dimitri Lisin, “Deformable Models”, supported by UMass Medical School, 1998.
- MS20 Anuj Bansal, “Distributed Computing Of Derived Data In Scientific Databases”, Prof. N.I. Hachem co-advisor, 1995.
- MS21 Danielle Koschmeder, “Exploiting Parallelism and Fuzzy Logic for Fishery Management”, Dr. R. Larowe co-advisor, 1995.
- MS22 Thomas Bushman, “Holographic Phase reconstruction”, Prof. R.J. Pryputniewicz co-advisor, 1993.
- MS23 Hemen Shah, “Implementing a VLSI Median Filter”, Prof. W.H. Eggimann co-advisor, 1992.
- MS24 Jeffrey Choate, “A Vision System for the Analysis of Pavement Distress”, 1992.
- MS25 David Gosselin, “Three Dimensional Boundary Detection Using Continuous Relaxation Labeling”, May 1991.
- MS26 Philipp Sutter, “Minimum Distance PET Reconstruction using the Min-Max Principle”, Sep. 1991.
- MS27 Richard Wood, “A Neural Network that uses a Hebbian/Back Propagation Hybrid Learning Rule”, Dec. 1991.
- MS28 Biao Ren, “A Coherent Theory of Stereo”, May 1989.
- MS29 Jonathan Malin, “Stereo Vision Using Gabor Receptive Fields”, Aug. 1989.
- MS30 Eddy Lin, “Predictive Vector Quantization for Image Coding”, Prof. N.M. Nasrabadi co-advisor, Dec. 1988.

M.S. Thesis Reader / Committee Member

- MC1 Juan-Diego Florez-Castillo, “Novel Bidirectional Elastic Nonlinear Element (BENE) for Robotic Antagonistic Actuation”, Prof. M.B. Popovic, advisor, 2020.
- MC2 Felix Sanchez, “Trans-Gravitational Robot (TGR) with Linear and Angular Momentum Control”, Prof. M.B. Popovic, advisor, 2019.
- MC3 Shannon Moffat, “Biologically Inspired Legs and Novel Flow Control Valve Towards a New Approach for Accessible Wearable Robotics”, Prof. M.B. Popovic, advisor, 2019.
- MC4 Shubham Jain, “Chronic Wound Image Segmentation and Analysis of Camera Position-based Errors”, Prof. E.O. Agu, advisor, 2019.
- MC5 Janani Mohan, “Dynamic Task Allocation in Robot Swarms with Limited Buffer and Energy Constraints”, Prof. C. Pinciroli advisor, 2018.
- MC6 Shlok Agarwal, “Exploring Applications and Improving Efficiency of Legged Systems”, Prof. M.B. Popovic, advisor, 2018.
- MC7 Yicong Xu, “Goal Based Human Swarm Interaction for Collaborative Transport”, Prof. C. Pinciroli, advisor, 2018.
- MC8 Vishnu Sudheer Menon, “Decentralized Approach to SLAM using Computationally Limited Robots”, Prof. C. Pinciroli advisor, 2017.
- MC9 Ria Pereira, “Interactive Behavior for Humanoid Robot Mediated Applied Behavioral Analysis Autism Therapy”, Prof. G.S. Fischer advisor, 2017.
- MC10 Chinmay Harmalkar, “Dynamic Viscoelastic Model of the Hydro Muscle and the Control of a Multi-fiber Hydro Muscle Actuated Bionic Ankle”, Prof. M. Popovic advisor, 2017.
- MC11 Koushik Balasubramanian, “Perception Framework for Activities of Daily Living Manipulation Tasks”, Prof. T. Padir advisor, 2016.
- MC12 Ruixiang Du, “An Intelligent Portable Aerial Surveillance System Modeling and Image Stitching”, Prof. T. Padir advisor, 2013.
- MC13 Clifford Lindsay, “Real-Time Rendering of Wavelength-Dependent Phenomena Using Spherical Harmonics”, Prof. E.O. Agu advisor, 2007.
- MC14 Rimma V. Nehme, “Continuous Query Processing on Spatio-Temporal Data Streams”, Prof. E.A. Rundensteiner advisor, 2005.
- MC15 Shilpa N. Kinkar, “Development and Application of Semi-automated ITK Tools For the Segmentation of Brain MR Images”, Prof. John Sullivan advisor, 2005.
- MC16 Nina Serrao, “An Implementation of the Derivation Semantics Layer of the Gaea Prototype”, Prof. N.I. Hachem advisor, 1994.
- MC17 David Paist, “Efficient Implementation of Object-Oriented Constructs for a RISC Architecture”, Prof. K.A. Lemone advisor, 1994.
- MC18 Stuart Wells, “Interaction Between Different Domain Constraint Knowledge in the Control of Image Segmentation”, Prof. M.O. Ward advisor, May 1993.
- MC19 John Rasku, “Approximate Shape Comparison Using Correlation Images”, Prof. M.O. Ward advisor, May 1993.
- MC20 Frederick W. Wheeler, “The Registration of Range Images and Synthetic Aperture Range Images of Terrain Scenes”, Prof. R.F. Vaz advisor, May 1992.

- MC21 George Dainis, “Rule Based Visual Inspection”, Prof. M.O. Ward advisor, Oct. 1991.
- MC22 Jeffrey LeBlanc, “N-Land: A Visualization Tool for N-Dimensional Data”, Prof. M.O. Ward advisor, May 1991.
- MC23 David Nedde, “Visual DNA Sequence Comparison using Correlation Images”, Prof. M.O. Ward advisor, May 1991.
- MC24 Suresh Rajasekaran, “Control Mechanism for Image Segmentation using Domain Constraint Knowledge”, Prof. M.O. Ward advisor, Oct. 1990.
- MC25 Jeffrey Wilson, “The Generation of Acronyms”, Prof. L.A. Becker advisor, Dec. 1989.
- MC26 David V. Pergola, “A Planner for Problems with Finite but Incomplete Knowledge”, Prof. L.A. Becker advisor, May 1989.
- MC27 Tuay-Ling K. Lang, “Feasibility of Image Segmentation Using Domain Constraint Knowledge”, Prof. M.O. Ward advisor, May 1989.
- MC28 Howard Rafal, “Cartographic Character Recognition”, Prof. M.O. Ward advisor, May 1989.
- MC29 Mark Roy, “Acquiring and Representing Manufacturing Process Knowledge”, Prof. L.A. Becker advisor, May 1988.

Directed Research

- DR1 Albert Enyedy, “Stereo Visual Servoing”, Semesters: F20, S21, F21, S22.
- DR2 Fanxing Meng, “Low-Cost Humanoid Robot”, Semesters: S20, F20, S21, F21, S22.
- DR3 Sahawat Amonlikitsin, “Stable Robot Gait Generation”, Semesters: S20, F20, S21, F21.
- DR4 John Blankenhorn, Animesh Nema, Karankumar Patel, Ameya Wagh, “Atlas Robot Research”, Semesters: F18, S19.
- DR5 Gaurav Vikhe, “Imaging Phantom Robot”, Semester: F18.
- DR6 Koushik Balasubramanian, Vinayak Jagtap, Ajay Prabhu, “Footstep Planning”, Semesters: F15, S16.
- DR7 Benzun Babu, Lening Li, “DARPA Robotics Challenge, Semesters: F14 (BB), S15 (LL).
- DR8 Benzun Babu, “Tree-Climbing Robot Vision”, Semesters: F11, S12.
- DR9 Neeru Arora, “Medical Imaging Motion Research”, 2004
- DR10 Mikhail Mikhailov, “Petri Nets”, 1997.
- DR11 John Shutt (with Prof. Roy S. Rubinstein), “Self Modifying Finite Automata”, 1995.
- DR12 Hemen Shah, “Implementing a VLSI Median Filter”, Prof. W.H. Eggimann co-advisor, 1992.
- DR13 Biao Ren, “Coherent Theory of Stereo”.
- DR14 Jingwen Liu and Maryann Spillane, “Expert System Diagnostic Assistant Prototype”.
- DR15 Gary Gu, “The Boundary Element Method for Problems in Early Vision”.
- DR16 Jonathan Malin, “Gabor Filters for Stereo Vision”.

DR17 Elliot Mednick and John Whitson, “A Scalable Architecture for a VLSI Implementation of Median Filtering”, Prof. W.H. Eggimann co-advisor.

DR18 David Gosselin and Jeffrey LeBlanc, “Fractal Synthesis and Analysis of Pavement Distress”.

DR19 Barton Kincaid, “A New VLSI Median Filter Architecture”, Prof. W.H. Eggimann co-advisor.

DR20 Maruuf Ali, “Fractal Analysis of Pavement Distress”.

Major Qualifying Projects (WPI Senior Capstone Projects)

MQP1 Jamie Krigsman, Christopher Cook, Caden Crist, “6-Axis 3-D Printer”, (Prof. M. Agheli co-advisor), A21, B21, C22.

MQP2 Andrew Euredjian, Ankur Gupta, Revant Mahajan, Dante Muzilla, “Quadupedal / Bipedal Multi-Modal Locomotion Robot”, (Profs. M. Agheli, J. Fu, R. Paffenroth co-advisors), Terms: A20, B20, C21, D21.

MQP3 Ryan F. Carnemolla, Anirban Mukherjee, Amrit Parmanand, Emily L. Staknis, “Atlas Visual Localization & Avoidance”, Terms: A20, B20, C21, D21.

MQP4 Sophie Antoniou, Ken Desrosiers, “Vineyard Robot”, Terms: A20, B20, C21, sponsored by Wachusett Vineyards.

MQP5 Kristen Andonie, Timothy Bell, Cooper Bennet, Christian Cooper, Lauren Hatfield, (Profs. N. Bertozzi, B. A. Miller, co-advisors) “BattleBot”, Terms: A20, B20, C21, D21.

MQP6 Isabella Feeney, Jason Jemison, Thejus Jose, Yicheng Yang, (Profs. Z. Li, J. Fu, co-advisors) “RoboPuppet”, Terms: A20, B20, C21, D21.

MQP7 Andrew Hand, “NASA Robotics Challenge II”, Terms: B20, C20, E20.

MQP8 James Burley, Nam H. Tran Ngoc, Brandon M. Waugh, Brandon M., “Red Legs”, Terms: A19, B19, C20, D20, E20.

MQP9 Thomas J. Gibbia, Spencer G. Howes, Theodorus R. Lundblade, Tomas F. Ringer-Silva, Benjamin G. Stevens, Christian Tweed, (Profs. P. Radhakrishnan, G. Schaufeld, co-advisors) “Tunneling Robot”, Terms: A19, B19, C20, D20.

MQP10 Jonathan Chang, Connor Dietz, Treksh Marwaha, Griffin Roth, (Profs. Holly Ault, G. Smith, co-advisors) “Robot Mascot”, Terms: A19, B19, C20, D20, E20.

MQP11 Rachel Hahn, Ian Johnson, Benjamin Mattiuzzi, “Robotic Programming Languages”, Terms A18, B18.

MQP12 Jason Ashton, Sean Hunt, Myles Spencer, (Prof. J. Fu, co-advisor), “Developing Autonomous RC Car”, Terms A18, B18, C19.

MQP13 Breanne Happell, Karen Orton, Kevin Ouellette, Charles Sinkler, (Profs. C.B. Putnam, K.A. Stafford, co-advisors) “Blisk Inspection System”, Terms A16, B16, C17, D17, Sponsored by GE Aviation.

MQP14 Odell Dotson, Katie Gandomi, Alora Hillman, Nicholas Panzarino, (Profs. J. Fu, K.A. Stafford, co-advisors), “CARP: Custom Autonomous Robotic Painter”, Terms A16, B16, C17, D17.

MQP15 Devon Bray, Mead Landis, Rachael Putnam, (Profs. B.A. Miller, K.A. Stafford, co-advisors), “CHAMP: Tree Climbing Robot”, Terms A16, B16, C17, D17.

MQP16 Paula Rudy, “Facial Recognition using Sparse Data Representation on an Open Source Neural Network Model”, Terms: C16, D16, E16, A16, B16, C17, D17.

- MQP17 Nathan George, Alec Thompson, (Prof. J. Beck, co-advisor), “Deep Q-Learning for Walking in Humanoid Robots”, Terms A15, B15, C16, D16.
- MQP18 Batyrhan Nurebkov, “Deep Learning for Walking”, Terms A15, B15, C16, D16.
- MQP19 Amanda Adkins, William Barnard, Matthew Beardsley, Charles Frick, Samantha Swarz, (Profs. H.C. Lauer, F.J. Looft, co-advisors), “SuitUp! Wearable Haptic Controller”, Terms A15, B15, C16, D16.
- MQP20 Thomas Clark, Jonathan Leitschuh, (B.A. Miller, advisor), “Computer Vision User Interface”, Terms: A15, B15, C16, D16.
- MQP21 William Jones, “Project Squirrel 2.1”, Term E15.
- MQP22 Daniel Fitzgerald, (Prof. M. Popovic, advisor), “Quadruped Robot”, Terms C15, D15.
- MQP23 Elizabeth Brown, David Pounds, Michael Strickland, Alexander Stylos, (Prof. K. Stafford, co-advisor), “Project Squirrel: A Tree Climbing Robot”, Terms A14, B14, C15.
- MQP24 Zachary Estep, James Megin, Evan Richard, (Prof. T. Padir co-advisor), “Cloud Robotics”, Terms A14, B14, C15.
- MQP25 Emanuel DeMaio, David Ilacqua, Louie-John Mistretta, Matthew Simpson, (Prof. K. Stafford, co-advisor), “Tree Climbing Robot”, Terms A13, B13, C14.
- MQP26 Henrique Polido, (Prof. A Heinricher, co-advisor), “DARPA Robotics Challenge”, Terms B13, C14, D14.
- MQP27 Ian Campbell, Eric Cobane, Ryan Giovacchini, Thomas Womersley (Prof. Z. Hou, co-advisor), “Tree Climbing Robot”, Terms A12, B12, C13, D13.
- MQP28 Daphne Gorman (Profs. R. Ludwig, S. Makarov, co-advisors), “Analysis, Computation and Validation of the Coupling of Any Two Elements in Transmit and Receive Phased Array”, Terms: A11, B11, Sponsored by Mitre Corp.
- MQP29 Justin Gostanian, Erick Read, “Tree-Climbing Robot”, Terms: A11, B11, C12.
- MQP30 Clark Bakstran, Scott Brooks, Angelo Platanius, Greg Sletterink, Nick Solarz, Thomas Womersley, “Multiple Autonomous Surface Vehicle Project: Robotic Kayak”, Terms: A11, B11, C12. Performed in conjunction with Santa Clara University.
- MQP31 Joseph Sceviour, Charles Petano, Ellery Harrington, Daniel Czarnecki (Profs. C. Furlong-Vazquez, F.J. Looft co-advisors), “Multi-functional autonomous solar-hydrogen robot”, Terms A06, B06, C07, D07.
- MQP32 James Tyrrell, Bryan Shah, “Real-time pill counting”, Terms: A06, B06, C07, Sponsored by APPS, Inc.
- MQP33 Kevin Rohleder, Timothy Moloy, Arno Hautala, “Digital image processing at NASA Johnson Space Center”, Term: C04, Sponsored by NASA.
- MQP34 Mason Winner, Vince Bullinger, “Forensic image analysis”, Terms: A03, B03, C04.
- MQP35 James Wang, Andre Quina, Joseph Ho (Dr. M.A. King co-advisor), “Detecting patient respiratory motion in SPECT imaging using stereo optical web cameras”, Terms: A02, B02, C03, Sponsored by UMass Medical School.
- MQP36 Dennis Jansky (Prof. W.W. Durgin co-advisor) “Design and implement a more generic API for Robonaut”, Term: C03, Sponsored by NASA.
- MQP37 Joseph Devlin, “Programming sound visually — a visual programming language for audio sequencing and manipulation”, Completed: C03.

- MQP38 Gleb Ralka, Ben Kurtz, Jonathan Oexner. “Parsing using recursive adaptive grammars”, Completed: D02.
- MQP39 Christopher Tashjian, John Brosnan, “Scheme evaluator in Java”, Terms: A99, B99, C00, D00.
- MQP40 Justin Brzozoski (Prof. M.L. Claypool co-advisor), “MPEG jitter”, Terms: A98, B98, C99, D99.
- MQP41 Justin Dyer, Linda Browne, “CUE — Pool Critic II”, Terms: B98, C99, D99.
- MQP42 George Campbell, David Hawes, Carleton Jillson, Joseph Kalinowski, Keith Pray, “CUE: The Pool Critic”, Terms: A97, B97, C98, D98.
- MQP43 Jesse Zbikowski, “Matroid Categories”, Terms: C97, D97, A97, D98.
- MQP44 John Pazniokas, Alison Miles, “A Web-Based Scheme Interpreter”, Terms: B97, C98.
- MQP45 Stephen Kazmierczak, John West, “Speak to Me”, Terms: A97, B97, C98.
- MQP46 George Campbell, Michael Caprio, Steven Lawler, “VALIS: A Fuzzy Strategy Game in Java”, Terms: B96, C97, D97.
- MQP47 David Bishop, Edward Hallissey, “Scheme Interpreter in Java”, Terms: B96, C97, D97.
- MQP48 Matthew Tricoli, “Design of an Intelligent Structure”, Terms: A96, B96, C97, D97.
- MQP49 Israel Di Peri, Alexandru Nemetz, “Radar Signal Identification Using Neural Networks”, Term: B96, Sponsored by Naval Research Laboratory.
- MQP50 Rollin Crittendon, “Category Theory and its Applications in C.S.”, Terms: B95, C96, D96.
- MQP51 Joseph Branciforte, Scott Gray, “A Software Controller for a Maze Solving Robot”, Terms: A93, B93, C94, D94.
- MQP52 Corey Jenks, “Computer Image Analysis of Protein Filaments within Muscle Fiber”, Terms: B93, C94, D94, Sponsored by UMass Medical School.
- MQP53 Douglas Wright, Benjamin Lee (Profs. W.W. Durgin, L. Schaffer co-advisors) “Computerized Graphic Mission Planning for Unmanned Interplanetary Travel”, Terms: A93, B93, C94, D94.
- MQP54 Daniel Mackin, Masal Almashan (Prof. W.H. Eggimann co-advisor), “Micromouse 3: The Theseus Project”, Terms: A93, B93, C94, D94.
- MQP55 Michael Bruce (Prof. P.L. Levin co-advisor), “Implementing the GEODAD Interface using the Entity-Relational Approach”, Terms: C93, D93, E93.
- MQP56 Suppasak Collins, Kevin Geoffrey (Profs. N.I. Hachem, M.O. Ward co-advisors), “Polymorphic Operators for the Scientific Analysis of Raster based Map Data”, Terms: A92, B92, C93, D93.
- MQP57 Erik Currin (Profs. N.I. Hachem, M.O. Ward co-advisors), “Visualizing Spatio-Temporal Data in a Global Change Research Project”, Terms: A92, B92, C93, D93.
- MQP58 Tony Campbell, Kimberly Cherko (Profs. W.H. Eggimann, D.B. Walcerz co-advisors), “The Mechanical Systems Design of WPI Micromouse 3”, Terms: A92, B92, C93, D93.
- MQP59 Stephen Pettiglio, Kenneth Chan (Pres. J.C. Strauss co-advisor), “Computer Aided Cognitive Rehabilitation”, Terms: A92, B92, C93.
- MQP60 Richard Bombard, Douglas Finkle, Mark Turbitt (Prof. D.W. Nicoletti co-advisor), “Performance Evaluations of 3-D Image Restoration Algorithms”, Terms: C92, D92, A92.

- MQP61 Nevo Hed, Allen Martin (Prof. R.F. Vaz co-advisor), “Motion Analysis”, Terms: C92, D92, E92.
- MQP62 Brian McMorro (Prof. M.O. Ward co-advisor), “Geographic Information Systems”, Terms: C91, D91, E91.
- MQP63 William Clogston, Aaron Laznovsky, Michael Wallent (Prof. S.M. Selkow co-advisor), “Neural Network Addition and Chaos”, Terms: A90, B90, C91, D91.
- MQP64 Peter Chestna, Robert Douglas, Parrish Heppenstall, Marshall Robin, “Self-Diagnosing Systems”, Terms: A90, B90, C91, D91, A91.
- MQP65 Kenneth Hinckley (Prof. M.O. Ward co-advisor), “The Visual Comparison of Three Sequences”, Terms: A90, B90, C91.
- MQP66 Gregory Frizzle (Prof. M.O. Ward co-advisor), “A Taxonomy of Data Visualization”, Terms: A90, B90, C91.
- MQP67 Ann Marie O’Connor, Scott Plichta (Prof. M.O. Ward co-advisor), “MID: MOTIF Interface Designer”, Terms: D90, A90, B90, C91.
- MQP68 Gary Pratt, Susan Tabur (Prof. S.M. Selkow co-advisor), “Natural Language Database Access”, Terms: A89, B89, C90, D90.
- MQP69 Robert Petit, Richard Wood, “Speech Recognition by Neural Networks”, Terms: A89, B89, C90, D90.
- MQP70 Charles Miller, “Simulating Chaotic Systems”, Terms: A89, B89, C90, D90.
- MQP71 David Gosselin, Jeffrey LeBlanc, Kathleen O’Sullivan, “Self Diagnosing Systems”, Terms: A88, B88, C89.
- MQP72 Ronald Avis, “Neural Network Simulation”, Terms: B87, C88, D88.

Interactive Qualifying Projects (WPI Junior Science & Society Projects)

- IQP1 Alexander Ruggiero, Sebastiano Salvo, Chase St. Laurent, (Prof. G. Salazar, co-advisor), “Robotics in Construction”, Terms A15, B15, C16. Sponsored by MassPort.
- IQP2 Kevin Valente Comas, Trung-Nghia Huynh, “Roadmap for Research in Robotics for Ebola”, Terms A15, B15, C16.
- IQP3 Asma Chaudri, Natalia Henao, Zahra Maqsood, “Future Assistive Robots”, B13, C14, D14.
- IQP4 Christopher Conley, Gilmar Da Vitoria, Jessica Gwozdz, Olivia Hugal (Prof. C. Putnam, co-advisor), “Virtual Textbook”, A12, B12, C13, D13.
- IQP5 Sidney Batchelder, Robert Le, William Terry, Jeffrey Thomas, “An Analysis of Future Sustainable Aquatic Farming”, Terms: A11, B11, C12.
- IQP6 Timon Butler, Jonathan Estabrook, Joe Funk, James Kingsley, Ryan O’Meara, “RBE Wiki for Independent Learning”, Terms: B10, C11, D11.
- IQP7 Samuel Kaplan, Andrew Yee (Dr. R.D. Beach co-advisor), “Building a Community: Refining the Robotics Innovation Competition and Conference”, Terms: A08, B08, C09, D09.
- IQP8 Robert Breznak, William Hnath, Alexander Muir (Dr. R.D. Beach co-advisor), “Robotics Innovation Competition and Conference”, Terms: A07, B07, C08.
- IQP9 Petre Rontea, “Literary value in video game technology”, Terms: A06, B06, C07.

- IQP10 Ryan Kenyon, Benjamin Holt, Alexander Goodrich, “Simplifying the relationship between programmers and computers”, Terms: A00, B00, C01.
- IQP11 Christopher Tashjian, “Reevaluating programming language concepts”, Terms: A99, B99, C00, D00.
- IQP12 Asima Silva, Kirk Johnson, “Unlimited learning”, Terms: B98, C99, D99, Sponsored by Central Tree Middle School.
- IQP13 Lisa Rafferty, Kenda Conklin, Joy Ann Benedix, “The implementation of technology in education”, Terms: A98, B98, C99, Sponsored by Central Tree Middle School.
- IQP14 Peter Launie, Kevin Nordberg, David Gray, “Computers in Education”, Terms: A97, B97, C98, D98, Sponsored by Blackstone Regional Technical Vocational High School.
- IQP15 Robert Bukofser, Kurt Deschler, Brady Schulman, Tim Scully, “Networking Blackstone Valley Regional Vocational Technical High School” Terms: B97, C98, D98, Sponsored by Blackstone Regional Technical Vocational High School.
- IQP16 David Geremia, Leigh Perry, “The Effectiveness of the Veterinary Health Diagnostic Program”, Terms: D97, E97, A97.
- IQP17 Joe Kalinowski, David Hawes, “Computers in Education”, Terms: A96, B96, C97, Sponsored by Blackstone Regional Technical Vocational High School.
- IQP18 Patrick Delahanty (Prof. N.I. Hachem co-advisor), “Databases and Personal Privacy”, Terms: a93, B95, C94, D94.
- IQP19 Michael Henry, “Graphics Elementary Style”, Terms: B90, C91, D91.
- IQP20 Martin Arnold, John Erickson, Pamela Murphy, “Integration of Computers for Elementary Education”, Terms: A88, B88, C89.
- IQP21 Robert Song, “LOGO as a Learning Tool”, Terms: A88, B88.

Preliminary Qualifying Projects

- PQP1 Kevin Rohleder, Timothy Moloy, Arno Hautala, “Digital image processing at NASA Johnson Space Center”, Term: B03.
- PQP2 Ann Marie O’Connor, Scott Plichta, “Integrating the OBVIUS Image Understanding System and X”, Term: C90.
- PQP3 Israel Di Peri, Alexandru Nemetz, “Radar Signal Identification Using Neural Networks”, Term: A96, Sponsored by Naval Research Laboratory.

Independent Studies/Projects

- ISP1 Nicholas Cyganski, “DARPA Robotics Challenge”, Term B13.
- ISP2 Sidney Batchelder, Adam Vadala-Roth, “Computer Vision”, Term D13.
- ISP3 Chris King, “Implementation of a Small-Device ML Compiler with Data Width Inference”, Term: D06.
- ISP4 Asima Ali, Michael Ciman, Pierre De Galbert, Leonard Frank, Alexander Goodrich, John Gulbrandsen, Seth Hardy, Benjamin Kurtz, Karl Lackner, Jonathan Oexner, Gleb Ralka, Sigmund-Bryan Villamin, “Advanced Mathematics for Computer Science”, Term A00.

- ISP5 Sean Dunn, Nicholas Leazard, “Cartoon Video ISP”, Term: D99.
- ISP6 Ryan Kenyon, “Compiling Scheme”, Term: D99.
- ISP7 Robert McDonald, (Prof. M.L. Claypool co-advisor), “MPEG jitter”, Terms: A98, B98.
- ISP8 George Campbell, David Hawes, Carleton Jillson, Joseph Kalinowski, Keith Pray, Jonathan Tanner, “Computer Vision”, Term: A97.
- ISP9 Justin Di Peri, “Chaoscopy”, Term: D97.
- ISP10 Adam Egdall, John Guris, Michelle Hammar, Ming He, Heli Kokk, Stefan Kotsonis, John Shutt, Stephan Taylor, David Vasconcelos, William Warner, “Denotational Semantics”, Term: D94.
- ISP11 John Dunkelberg, “Neural Networks”, Term: D92.
- ISP12 Michael Cox, Mark Simpson, “MIM: Mid in Mid”, Term: B91.

Sufficiency (WPI Sophomore-Level Project)

- SUFF1 Kevin Beaulieu, “The Future of AI”, Term: A88.

National Committees & Service

- NC1 ABET Mechatronics Criteria Committee, 2021–Present.
- NC2 ABET Program Evaluator, 2018–Present.
- NC3 Advanced Robotics for Manufacturing (ARM) Institute, WPI Representative, 2017–present.
- NC4 Advanced Robotics for Manufacturing (ARM) Institute, Education & Workforce Advisory Council, member 2018–present, vice-chair 2019–present.
- NC5 National Defense Industrial Association, Robotics Division, Education & Training Committee, Chair 2009–2014.
- NC6 National Defense Industrial Association, Robotics Division, 2006–2016.
- NC7 Empowering Leadership Alliance, Member 2008–2011.
- NC8 Computer Research Association, IT Dean’s Committee / CRA Dean’s Committee, 2006–2011.
- NC9 Transportation Research Board Committee A2B06, Subcommittee on Automated Computer Image Technology for Pavement Evaluation, Member 1991–1993.

Local Committees & Service

- LC1 Quinsigamond Community College, Computer Science Advisory Board, 2010–Present.
- LC2 Massachusetts Technology Leadership Council, Robotics Cluster, Academic Working Group, Chair 2009–Present.
- LC3 Massachusetts Technology Leadership Council, Robotics Cluster, Education Committee, Chair 2009–Present.
- LC4 Massachusetts Technology Leadership Council, Robotics Cluster, 2006–Present.

WPI Committees & Service

WC1 Civil, Environmental, & Architectural Engineering Faculty Search Committee, 2021–Present.

WC2 Committee on Appointments and Promotions, Elected Member 2018–2020, Chair 2020–2021.

WC3 Faculty Governance Advisory Council (formerly Committee Chairs Committee), 2020–Present.

WC4 Robotics Engineering Department Head Search Committee, Elected Representative, 2020–2021.

WC5 ADVANCE NTT Task Force, Member 2019–2020.

WC6 Accreditation Planning Committee, Member 2018–2020.

WC7 Value Creation Institute Committee, 2018–2020.

WC8 Humanities & Arts Department Head Search Committee, Member 2018–2019.

WC9 Committee on Governance, Elected Member & Secretary 2003–2004, Elected Member 2012–2015, Chair 2012–2013.

WC10 Music Faculty Recruiting Committee, Member 2012–2013.

WC11 Engineering Leadership Council, Member 2011–2017.

WC12 Academic Computing Policy Working Group, Member 2010–2012.

WC13 Honorary Degree Committee, Member 2008–2014.

WC14 Web Governance Committee, Member 2008–2014.

WC15 Innovation Team, Member 2008–2010.

WC16 University Lecture Committee, Member 2007–2010.

WC17 Department Head Subcommittee on the Post-Award Process, Member 2007.

WC18 Committee on Academic Policy Subcommittee on SAT-Optional Admissions Policy, Member 2006–2007.

WC19 Robotics Engineering Program Planning Committee, Chair 2006–2007.

WC20 Registrar Search Committee, Member 2006.

WC21 Interactive Media & Game Development Program Steering Committee, Member 2005–2011.

WC22 Co-Op/Internship/Project Task Force, Member 2005.

WC23 Systems Engineering Steering Committee, Member 2004–2014.

WC24 Bioinformatics Program Planning Committee, Member 2004–2010.

WC25 Department Heads Committee, Member 2003–2011.

WC26 Data Protection & System Recovery for Academic Supported Systems Steering Committee, 2003–2005.

WC27 Faculty Review Committee, Elected Alternate 2002–2003.

WC28 Student Outcomes Assessment Committee, Elected Member 2000–2001.

WC29 Trustees' Award for Outstanding Teaching Selection Committee, Appointed Member 1999–2001.

WC30 Ad Hoc Courseware Evaluation Committee, Member 1999–2000.

WC31 Ad Hoc UTC / Distance Learning Committee, Member 1996–1997.

WC32 Committee on Academic Operations, Secretary 1995–1996, Chair 1996–1997, Member 1997–1998.

WC33 Mathematics Department Head Search Committee, Appointed Member 1995–1996.

WC34 Committee on Student Advising, Elected Secretary 1991–1992, Chair 1992–1993, Member 1993–1994.

WC35 New England Association of Schools and Colleges Accreditation Committee, Assessment Subcommittee, Member 1990–1991.

WC36 Institute Strategic Planning Committee, Elected Member 1989–1990.

Departmental & Program Committees & Service

DC1 Robotics Engineering Graduate Program Committee, Member 2021–Present.

DC2 Robotics Engineering Curriculum Committee, Member 2007–2017, 2021–Present.

DC3 Robotics Engineering Tenure Committee, Elected Member, 2020–Present.

DC4 Robotics Engineering Ad Hoc Department Committee, Member 2019–2020.

DC5 Computer Science 50th Anniversary Committee, Member 2018–2019.

DC6 Robotics Engineering Graduate Core Committee, Member 2016–2017.

DC7 Robotics Engineering Building Committee, Member 2013–2015.

DC8 Robotics Engineering Accreditation Committee, Chair 2008–2010, 2013–2015, 2018–Present.

DC9 Robotics Engineering Faculty Search Committee, Chair 2007–2017.

DC10 Computer Science Faculty Recruiting Committee, Chair 2003–2005, 2006–2007, 2008–2010.

DC11 Upsilon Pi Epsilon, Computer Science Honor Society, Advisor 2002–2011.

DC12 Computer Science / Electrical & Computer Engineering Steering Committee, Co-Chair 2002–2004.

DC13 Computer Science Library Liaison 2002–2003.

DC14 Computer Science Accreditation Coordinating / Assessment Committee, Member 1999–2001, 2002–2003, 2008–2009.

DC15 Computer Science Head Search Committee, Elected Member 1997–1998.

DC16 Computer Science Teaching Peer Review Committee, Elected Member 1995–2000.

DC17 Computer Science Tenure Committee, Elected Member 1993–1994, 1997–1999, 2000–2002, Chair 1998–1999, 2001–2002, ex-Officio 2002–2010.

DC18 Ad Hoc Undergraduate Introductory CS Curriculum Committee, Member 1991–1993.

DC19 Computer Science Public Relations Committee, Chair 1990–1993, Member 1995–1996, 1997–1998.

DC20 Computer Science Graduate Committee, Member 1990–1992, 1995–1996.

DC21 Computer Science Promotions Committee, Elected Member 1990–1992, 1993–1994, 1995–1996.

DC22 Computer Science Undergraduate Committee, Member 1987–1989, 1992–1994, 1998–2001.

DC23 Computer Science Graduate Examination Committee, Member 1987–1989, 1995–1999, Chair 1988–1989, 1995–1999.

DC24 Student Chapter Association for Computing Machinery, Advisor 1987–1994.

Reviewer

REV1 Journals:

Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM)
Computer Vision, Graphics, and Image Processing–Image Understanding (CVGIP-IU)
IEEE Trans. on Education (IEEE-TED)
IEEE Trans. on Knowledge & Data Engineering (IEEE-TDKE)
IEEE Trans. Nuclear Science (IEEE-TNS)
IEEE Trans. Pattern Analysis and Machine Intelligence (IEEE-PAMI)
Int. J. Advanced Robotic Systems (IJARS)
J. Optical Society of America (JOSA)
Machine Vision and Applications (MVA)

REV2 Conferences and Symposia:

ACM Conf. on Information and Knowledge Management (CIKM)
ACM Computer Science Conf. (CSC)
IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)
IEEE Int. Conf. on Robotics and Automation (ICRA), *Associate Editor 2013*
IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)
IEEE Int. Conf. on Technologies for Practical Robot Applications (TePRA), *Technical Program Co-Chair 2009, 2011, 2012, General Chair 2013, 2014, 2015*
International Conference on Scientific and Statistical Database Management (SSDM)
New England Manipulation Society Symp. (NEMS)
New England Programming Languages & Systems Symp. (NEPLS)
New England Robotics Colloquium (NERC) *Local Chair 2015*
Robotics Innovations Competition & Conference (RICC), *General Chair 2009, 2011*
Robotics Summit & Expo, *Advisory Board, 2018*

REV3 Funding agencies:

Advanced Robotics for Manufacturing Institute
Los Alamos National Laboratory
Maryland Industrial Partnerships
National Institutes of Health
National Science Foundation

REV4 Publishers:

MITPress
W.H. Freeman

REV5 Educational Institutions:

Commonwealth of Massachusetts Department of Education
Lawrence Technological University
Oak Ridge Associated Universities
Quinnigamond Community College
University of Detroit Mercy

Professional Organizations

ABET, Inc.
American Society for Engineering Education
Association for Computing Machinery, *Senior member*

CSAB, Inc.
Institute of Electrical and Electronics Engineers, *Senior member*
Institute of Electrical and Electronics Engineers Computer Society
Institute of Electrical and Electronics Engineers Robotics & Automation Society
Massachusetts Technology Leadership Council Robotics Cluster
Eta Kappa Nu (Electrical Engineering Honor Society)
Upsilon Pi Epsilon (Computer Science Honor Society)
Sigma Xi (Scientific Honor Society)

Awards & Honors

ABET Innovation Award, 2016. *Accepted on behalf of the WPI Robotics Engineering Program.*
Coleman Fellow, 2015–2018.
WPI Rho Beta Epsilon (Robotics Engineering Honor Society) Award for Excellence in Robotics Education, 2014.
Kern Entrepreneurial Engineering Network (KEEN) Fellow, 2011-2012.
WPI Tau Beta Pi (Engineering Honor Society) Award for Outstanding Academic Advising, 1998.

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