Kevin Stanley McFall

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Education

- **Udacity**: Self-driving Car Engineer Nanodegree graduated October 2017 **Online**
- **Georgia Institute of Technology (Lorraine campus)** **Metz, France**
  Ph.D in Mechanical Engineering, graduated May 2006. Minor area in Electrical and Computer Engineering. Teaching assistant for Creative Decisions and Design course. Dissertation title: "An Artificial Neural Network Method for Solving Boundary Value Problems with Arbitrary Irregular Boundaries."
- **Massachusetts Institute of Technology** **Cambridge, MA**
  M.Sc in Mechanical Engineering, graduated June 1997. Research assistant at Francis Bitter Magnet Laboratory. Thesis title: "Experimental and Numerical Stability Analysis of Cable in Conduit Nb_3Sn Superconductors."
- **Virginia Polytechnic Institute and State University** **Blacksburg, VA**
  B.Sc in Mechanical Engineering, graduated Summa Cum Laude December 1995. Capstone project: "Automized Machining of Air suspension Brackets at Scania Luleå Shop".
- **Luleå Technical University** **Luleå, Sweden**
  Exchange student 1994-1995 academic year.

Experience

- **Kennesaw State University (formerly Southern Polytechnic)** – Aug. 2012 to present **Marietta, GA**
  Tenured Associate Professor in Department of Mechatronics Engineering.

  Teaching highlights: instructor in numerous mechatronics, mechanical, and electrical engineering courses; developed courses Engineering Algorithms and Visualization, Fluid Mechanics Laboratory, and Machine Learning for Robot Perception; delivers first year experience for the Mechatronics Engineering program.

  Research highlights: directs the Autonomous Vehicle Laboratory, involved over 50 students in undergraduate research projects, total funded grants as PI or co-PI of $21,000 from external and $43,491 from internal sources.

  Service highlights: appointed to the Executive Committee of the Undergraduate Policies and Curriculum Committee, head judge for Georgia BEST robotics competition, associate editor for the Early Career Technical Conference, faculty mentor for Autonomous Underwater Vehicle and VEX Robotics Competition Teams, responsible for ABET accreditation for the B.S. Mechatronics Engineering program.
- **Pennsylvania State University (Lehigh Valley campus)** – Aug. 2008 to Jun. 2012 **Center Valley, PA**
  Tenure-track assistant professor of engineering. Teaching: mechanics, thermodynamics, digital systems, programming, and intercultural community building. Research: computational science using artificial intelligence techniques. Service: campus representative to the College of Engineering, chairman of the Information Systems Committee, and secretary of the Faculty Senate.
- **Georgia Institute of Technology (Lorraine campus)** – Aug. 2006 to Jul. 2008 **Metz, France**
  Visiting assistant professor. Teaching: various sophomore and junior level mechanical and electrical engineering courses in the International Program curriculum.
- **Georgia Institute of Technology (Lorraine campus)** – May to Jul. 2003-2005 **Metz, France**
  Instructor in undergraduate thermodynamics course (three consecutive summer terms).
- **Virginia Polytechnic Institute and State University** – Aug. to Dec. 2002 **Blacksburg, VA**
  Instructor in undergraduate engineering design and economics course.
- **Högskolan Dalarna** – Mar. 1998 to Aug. 2002 **Borlänge, Sweden**
  Instructor in Department of Computer Engineering and Informatics. Teaching: engineering programming and ethics, artificial intelligence, and graduate level neural networks and fuzzy logic. Research: developed winter road condition sensor prototype using artificial neural networks with image and acoustic input data. Service: program coordinator for undergraduate Computer Engineering.
- **University of Central Florida** – Aug. 1997 to Feb. 1998 **Orlando, FL**
  Research fellow in Mechanical Engineering Department. Research: high heat transfer removal applications for cryogenic and superconducting electronics including Josephson junction computers.

- **Japan Atomic Energy Research Institute** – Aug. 1996 to Jan. 1997 **Naka, Japan**
  Guest research fellow at the Superconducting Magnet Laboratory. Research: simulation and experimental measurements of heat transfer in magnet systems for the International Thermonuclear Experimental Reactor project.
- **Duke Energy** - 24 months total work between Jan. 1992 and Aug. 1995 **Charlotte, NC**
  Participant in the cooperative education program. Worked both in a maintenance engineering group at a coal fired power plant and in the centralized boiler services division.

Languages

- Native language English, fluent Swedish, proficient French, rudimentary Japanese.

Awards

- Recipient of the 2011 Teaching Excellence award at Penn State Lehigh Valley.

Professional involvement

- Served as reviewer for journals: *IEEE Transactions on Neural Networks and Learning Systems, Neural Processing Letters, Neurocomputing, Boundary Value Problems*, *Journal of the Franklin Institute*, *International Journal for Numerical Methods in Fluids*, *International Journal of Systems Science*, *International Journal of Numerical Methods for Heat and Fluid Flow, Applied Optics*
- Served as reviewer for Oxford University Press textbook *Empowered to Engineer: Core Concepts and Grand Challenges*
- Served as reviewer for NASA sponsored Advanced STEM Training and Research Fellowship: 2015
- Paid reviewer for MasteringEngineering by Pearson Education: 2014
- Associate Editor for the Early Career Technical Conference: 2013-present
- Member of the Institute of electrical and Electronics Engineers: 2016-present
- Member of the American Society for Engineering Education: 2011-2013
- Member of the American Society of Mechanical Engineering: 2007 – 2008, 2015-2016

Publications in books

- K. McFall, "Using Visual Lane Detection to Control Steering in a Self-driving Vehicle", Smart City 360°, *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, Vol. 166, pg. 861-873, June 29, 2016, doi: 10.1007/978-3-319-33681-7_77.
- K. McFall, *An Artificial Neural Network Method for Solving Boundary Value Problems*, VDM Verlag Dr. Müller, Saarbrücken 2008, ISBN 978-3-8364-5955-6.

Publications in peer-reviewed scholarly journals

- A. Combs, K. Fugatt, K. McFall, "Autonomous Speed Control for KIA Optima", *The Kennesaw Journal of Undergraduate Research*, Vol. 5, Iss. 1 , 2017.
- N. Yadav, K. McFall, M. Kumar, J.H. Kim, "A length factor artificial neural network method for the numerical solution of the advection dispersion equation characterizing the mass balance of fluid flow in a chemical reactor", *Neural Computing and Applications*, November 29, 2016, doi: 10.1007/s00521-016-2722-9.
- S. Kim, K. McFall, J. Kwon, J. Yang, "Use of Linear Viscoelastic Theory to Predict Resilient Behavior of Unbound Granular Material", *KSCE Journal of Civil Engineering*, pp. 1-7, November 13, 2015, doi: 10.1007/s12205-015-0129-2.
- D. Pai, K. McFall, G. Subramanian, "Software effort estimation using a neural network ensemble", *Journal for Computer Information Systems*, Vol. 53, No. 4, Summer 2013.
- K. McFall, "Automated design parameter selection for neural networks solving coupled partial differential equations with discontinuities", *Journal of the Franklin Institute*, Vol. 350, No. 2, pp. 300-317, March 2013, doi: 10.1016/j.jfranklin.2012.11.003.
- K. McFall, K. Morgan, "Stimulating Class Discussion Using an Online Newspaper Created with Twitter and Paper.li", *Communication Teacher*, Vol. 27, No. 2, February 2013, doi: 10.1080/17404622.2013.770158.
- K. McFall, P. McEnroe, "Comparison of the Length Factor Artificial Neural Network and Finite Element Methods for Solving Boundary Value Problems," *ASME Early Career Technical Journal*, Vol. 11, pp. 197–202, November 2012.
- H. Scholz, K. McFall, "Comparison of an Introductory Engineering Course with and without LEGO Mindstorms Robots," *Technology Interface International Journal*, Vol. 11, No. 2, Spring/Summer 2011.

- K. McFall, “Solving Coupled Systems of Differential Equations Using the Length Factor Artificial Neural Network Method,” *ASME Early Career Technical Journal*, Vol. 9, October 2010.
- K. McFall, J.R. Mahan, “Artificial Neural Network Method for Solution of Boundary Value Problems with Exact Satisfaction of Arbitrary Boundary Conditions,” *IEEE Transactions on Neural Network*s, Vol. 20, No. 8, August 2009, doi: 10.1109/TNN.2009.2020735.
- K. McFall, L. Chow, “Future Heat Transfer Concerns in Josephson Junction Computers,” *IEEE Transactions on Components and Packaging Technologie*s, Vol. 22, No. 3, September 1999, doi: 10.1109/6144.796539.
- N. Koizumi, K Azuma, K. Macfall, K. Matsui, Y. Takahashi, H. Tsuji, “Quasi-two-dimensional numerical model for stability simulation of a cable-in-conduit conductor,” *Cryogenic*s, Vol. 39, Issue 6, 1999, doi: 10.1016/S0011-2275(99)00062-4.

Publications in peer-reviewed conference proceedings

- B. Diong, W. Carlsen, B. Avit, K. McFall, S. Tippens, "A Novel Photovoltaic Module with Cell Strands that Track the Sun", *Proceedings of the ASME 2017 Power and Energy Conference*, June 2017, doi: 10.1115/ES2017-3397
- A. Stewart, K. McFall, “Applications of LiDAR in Autonomous Vehicles”, *Proceedings of the 16th Early Career Technical Conference*, Vol. 15, November 2016.
- M. Islam, K. McFall, “Comparison of Stop Sign Distance Detection Using 2D and 3D Cameras”, *Proceedings of the 16th Early Career Technical Conference*, Vol. 15, November 2016
- C. Ham, S. Sims, J. Washington, K. McFall, “A Mobile Telepresence Robot (MTR)”, *123rd American Society of Engineering Education Conference*, New Orleans, LA, June 2016.
- T. Fisher, K. McFall, “A Beginner’s Guide to Controller Area Network Bus Access in Modern Vehicles”, *Proceedings of the 15th Early Career Technical Conference*, Vol. 14, November 2015
- D. Geiman, K. McFall, “Autonomous Go-Kart Frame”, *Proceedings of the 15th Early Career Technical Conference*, Vol. 14, November 2015
- K. McFall, D. Tran, “Visual Lane Detection Algorithm Using the Perspective Transform,” *Proceedings of the 14th Early Career Technical Conference*, Vol. 13, November 2014
- N. Ollukaren, K. McFall, “Low-cost Platform for Autonomous Ground Vehicle Research,” *Proceedings of the 14th Early Career Technical Conference*, Vol. 13, November 2014
- B. Stedwell, A. Odey, K. McFall, “Design Rationale for *SUBZERO*,” *Proceedings of the 14th Early Career Technical Conference*, Vol. 13, November 2014
- A. Khalid, K. McFall, "Aerial Robotic Autonomous Patrol and Surveillance System", *Proceedings of the 14th AIAA Aviation Technology, Integration, and Operations Conference*, Atlanta, GA, June 2014, doi: 10.2514/6.2014-3003
- K. McFall, J.R. Mahan, “Investigation of Weight Reuse in Multi-Layer Perceptron Networks for Accelerating the Solution of Differential Equations,” *4th International Conference on Intelligent Systems Design and Applications*, Budapest Hungary, August 2004.
- K. McFall, T. Niittula, “Results of Audio-visual Winter Road Condition Sensor Prototype,” *11th Standing International Road Weather Congress*, Sapporo Japan, January 2002.
- K. McFall, “Artificial Neural Network Technologies Applied to Road Condition Classification Using Acoustic Signals,” *10th Standing International Road Weather Congress*, Davos Switzerland, March 2000.
- A. Azuma, N. Koizumi, K. Macfall, T. Ando, Y. Takahashi, H. Tsuji, “Dependence of CICC’s Stability on Coolant Flow Rate,” *15th International Conference on Magnet Technology*, Beijing China, 1997.
- N. Koizumi, K. Azuma, M. Nishi, K. Macfall, Y. Takahashi, H. Tsuji, “Effect of Perturbation Length on the Stability of a Cable-in-conduit Conductor,” *15th International Conference on Magnet Technology*, Beijing China, 1997.

Funded grants

- 04/05/2016: $1500 from KSU Center for Excellence in Teaching and Learning Course Design Enhancement Fund, “Anchoring mechatronics engineering skills for capstone design in sophomore-level course”, role: PI
- 02/02/2016: $10,000 from KSU Office of the Vice President for Research Pilot/Seed Grant program, “Modular Mechatronics Component Laboratory to Support Research and Education”, role: PI.
- 12/07/2015: $14,400 from KSU Southern Polytechnic College of Engineering and Engineering Technology, “VEX Robotics Kits for MTRE 1000”, role: PI.
- 05/04/2015: $14,000 from KSU Strategic Internationalization Grant program “Establishing International Partnerships for Mechatronics Research and Scholarship”, role: co-PI

- 11/12/2014: $10,091 from Southern Polytechnic State University Technology Fee TF-15-12 “A Robotics Training Platform for Educational Research Purposes”, role: PI
- 06/18/2014: $3000 from BEST Robotics Inc. to increase engagement high schools participating in the BEST robotics competition, role: PI
- 07/15/2014: $38,775 grant GDOT RP 13-28, “Development of Guidelines for Proper Selection of Finer Graded Aggregate Base for Georgia Pavements-Phase I", role: supporting personnel.
- 05/27/2014: $15,000 from the Environmental Protection Agency P3 awards “Achieving Increased Photovoltaic Panel Energy Collection with Cell-Strings That Track the Sun”, role: co-PI
- 01/17/2014: $5,000 from Southern Polytechnic State University Area A mini-grant “Light Lab: Eco-Morphology Kinetic Architecture”, role: co-PI
- 07/29/2009: $18,000 National Science Foundation Division of Undergraduate Education flow-through grant via Penn State University, “Toys ‘n MORE”, role: PI