VITA

Robert J. Veillette Associate Professor and Chair Department of Electrical and Computer Engineering University of Akron Akron, OH 44325-3904 (330) 972-7483

B.S.E.E. (*summa cum laude*), Virginia Polytechnic Institute and State University, 1982 Electrical Engineering

UNIVERSITY EMPLOYMENT:

The University of Akro

resent Interim Chair, July 2018 – August 2020 Chair, August 2020 – present Member, Graduate Faculty

AWARDS:

MAJOR DEPARTMENTAL SERVICE: Chair August 2020 – present, Interim Chair, July 2018 – August 2020. ECE Department Undergraduate Advisor, Fall 2010 – present. ABET Coordinator for EE progrām, 12 58 S cm BT 510 (T4 589.92T4f [(A) 2 (B) 7 (E 4 0 0 0.24 12 58)

INCIDENTAL SERVICE:

Advisor, Akron Ballroom Dance Club, 2019-present. Advisor, Akron Dodgeball Club, 2015?-present. Advisor, HAkron, 2016?-2018. Advisor, Men in Engineering LLC, 2014?-present. Member, OBR/UA Focus group on Prior Learning Assessment, March 11, 2013. Judge, poster session, Conf on UG & Grad Student Research, UA, April 7, 2011. Graduate Student Grievance Hearing Committee, March 6, 2000 Member, COE Strategic Planning, Ramada Plaza Hotel, Akron, January 8-10, 1997. Department rep., EE table, High-School recruiting event, Oct 25, 1996, Sep 16, 1997, ... Advisor, Eta Kappa Nu, 1996-97. Co-editor of the EE department brochure, Fall 1995 – Spring 1996.

OUTREACH / RECRUITING PRESENTATIONS: (partial list)

"Electrical and Computer Engineering," Willoughby South High School, September 23, 2016

"Why Be ECE?," presented to Upward Bound Pre-engineering group, July 9, 2015

"Why Be ECE?," presented at SEE-UA Women in Engineering Summer Camp, June 14, 2011. Included "LED Cube Programming" lab exercise for the students.

"Why Be ECE?," presented at UA Engineering Career Day, January 29, 2011.

"Why Be ECE?," presented at "Why in the World" Women in Engineering event, October 29, 2009.

"Why Be ECE?,"

COURSES TAUGHT:

Undergraduate

Teolofor Engral ob	4400.404	
Tools for Engr. Lab	4100:101	Fall 1997
Toolsfor ECE Lab	4400:101	Fall 1999
Signal Analysis	4400:243	Fall 1996, 1998;
		Summer 1998
Basic Electrical Engineering	4400:307	Spring 1996-97, 1999-2002#, 2007, 2010-
5 5		13, 2016, 2018;
		Fall 2000
Circuits II	4400:332	Spring 2014-15;
		Summer 2000
Discrete-time Systems	4400:333	Fall 1992-93, 1995;
		Summer 1994-1999
Signals and Systems	4400:340	Fall 2001-04, 2008-2017;
<i>c ,</i>		Summer 2001, 2004-2007, 2009
Electromagnetics I	4400:353	Summer 2001§
Electronic Design	4400:361	Spring 2008
Hybrid Vehicle Design	4400:391	Summer 2005*;
		Fall 2006**
Control Systems II	4400:472	Fall 1991-2020
*		

* Team-taught with I. Husain, R. Gross, and J. Gerhardt.

- ** Team-taught with I. Husain.
- # "Substitute teacher" for the last third of the Spring 2000 semester.
 § "Substitute teacher" for two weeks of the Summer 2001 eight-week session.

Graduate

Control Systems II	4400:572	Fall 1991-2020
Optimal Control	4400:677	Spring 1991-1997*, 1999-2006, 2009-2011,
		2013-14, 2016-19
Robust Control	4400:775	Spring 1993, 1995, 1999, 2003, 2006
Opt Cntrl II/Adv Lin Cntrl S	4400:777/774	Spring 1992, 1994, 1996, 1998, 2000, 2004,
		2009, 2012, 2015, 2020; Summer 1997
Optimal Control	4400:776	Spring 1991
Advanced Topics in Control	4400:779	Spring 1991
SP: Robust Control	4400:693	Fall 1990

* Spring 1995 class transmitted via video link to NASA/OAI video-conference room.

HONORS C

SENIOR PROJECT ADVISING: (27 total, plus 2 in progress)

Emmanuel Djabeng, "Modeling, Simulation, and Implementation of a Fractional-Order Control System," August 2014.

Sneha Bhattaram, "Signal Compression Methods for a Wear Debris Sensor," August 2014. (Co advisor with J. E. Carletta.)

Joseph P. Davis, "Electronic Interface for an Inductive Wear Debris Sensor for Detection of Ferrous and Non-Ferrous Particles," December 2013. (Co-advisor with J. E. Carletta.)

Tanvir Tanvir, "Design and Stability Analysis of a High-Temperature SRAM," December 2012. (Co-advisor with J. E. Carletta.)

Utthej Nukala, "Design of a Temperature Independent MOSFET-Only Current Reference

Andrew G. Tulenko, "Design and Prototype Construction of Hot Wire Anemometer Instrumentation for use in Industrial Convection Ovens," May 2000.

Frank R. Martire, "Prototyping of a High-speed Electromechanical Weighing System," August 1995.

Arvind Srinivasan, "Projective Control Design for Multi-zone Crystal Growth Furnace," December 1993. (Co-Advisor with C. Batur, Mechanical Engineering)

Brian R. Holowecky, "A Parameter Optimization Approach to Controller Partitioning Based on the Frobenius-Hankel Norm," December 1992. (Co-Advisor with P. Schmidt, Mathematical Sciences.)

DOCTORAL COMMITTEE MEMBERSHIPS: (partial list)

Kris Pierson, ME, Spring 2019. (M. J. Braun)

Nasser Salem, EE, 1991. (T. T. Hartley or J. A. De Abreu) Liane Piercy, EE, Fall 1991. (T. T. Hartley) Timothy E. Nelson, EE, Spring 1991. (J. Welch)

EXTERNAL M.S. THESIS COMMITTEE MEMBERSHIP:

Yuqiong Liu, Nanyang Technological University, Singapore, Spring 1997.

M.S. COMPREHENSIVE EXAM COMMITTEE MEMBERSHIPS: (partial list)

Gregory Mueller, Spring 2014. John Shuman, Spring 2013. Udaya Sindhura Guthikonda, Fall 2005. Brian Dimit, Fall 2002. Jin Wang, Spring 2002. Artem Artyushkov, Summer 2000, chair. Gang Wu, (date). Dennis Cameron, (date). John Haydock, Spring 1996. Ming Shi, (date).

OTHER PROFESSIONAL ACTIVITIES:

Member: IEEE Control Systems Society, 1990 - present IEEE Industrial Electronics Society, 1992 – present IEEE Circuits and Systems Society, 2010 – present ASEE, 1991-2017 IEEE Transactions on Automatic Control IEEE Transactions on Control System Technology IEEE Transactions on Fuzzy Systems Cindy X. Jiang, Joan E. Carletta, Tom T. Hartley, and Robert J. Veillette, "A systematic approach for implementing fractional-order operators and systems," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS)*, vol. 3, no. 3, pp. 301-312, September 2013. [17 citations as of Aug 2019]

J. L. Adams, R. J. Veillette, and T. T. Hartley, "Conjugate-order systems for signal processing: Stability, causality, boundedness, compactness," *Signal Image and Video Processing*, vol. 6, no. 3 (Special Issue), pp. 373-380, September 2012. [3 citations as of Aug 2019]

L. Du, J. Zhe, J. E. Carletta, and R. J. Veillette, "Real-time monitoring of wear debris in Iubrication oil using a microfluidic inductive Coulter counting device," *Microfluidics and Nanofluidics*, vol. 9, no. 6, pp. 1241-1245, May 2010. [68 citations as of Aug 2019]

L. Du, J. Zhe, J. E. Carletta, and R. J. Veillette, "Inductive coulter counting: detection and differentiation of metal wear particles in lubricant," *Smart Materials and Structures*, vol. 19, no. 5, March 2010. [28 citations as of Aug 2019]

S. M. N. Hasan, I. Husain, J. E. Carletta, and R. J. Veillette, "A PM brushless DC starter/generator system for series-parallel 2x2 hybrid electric vehicle," *IEEE Transactions on Industry Applications*, 2007. [12 citations as of Aug 2019]

S. M. N. Hasan, I. Husain, R. J. Veillette, and J. E. Carletta, "Power generation in series mode," *IEEE Industry Applications Magazine*, vol. 16, no. 2, pp. 12-21, March 2010. [2 citations as of Aug 2019]

J. L. Adams, T. T. Hartley, and R. J. Veillette, "Hankel-norm estimation for fractional-order systems using the Rayleigh-Ritz method," *Computers and Mathematics with Applications*, vol. 59, no. 5, March 2010. [3 citations as of Aug 2019]

S. Sastry, O. Gundogmus, T. T. Hartley, and R. J. Veillette, "Coordinated discharge of a

Theses:

T. Gambone, T. T. Hartley, C. F. Lorenzo, J. L. Adams, and R. J. Veillette, "An experimental validation of the time-varying initialization response in fractional-order systems," in *Proceedings of the ASME 2011 International Design Engineering Technical Conference (IDETC/CIE 2011)*, Washington, DC, August 2011. [9 citations as of Aug 2019]

N. R. Karnati, <u>K.-S. Lee</u>, J. E. Carletta, and R. J. Veillette, "A power-efficient polyphase sharpened CIC filter for sigma-delta ADCs," in *Proceedings of the 54*^{*} *IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2011)*, Seoul, Korea, August 2011.

D. R. Desai, F. H. Hassan, R. J. Veillette, *et al.*, "An analog logarithmic number system subtractor for edge detection in logarithmic CMOS image sensors," in *Conference on Sensors, Cameras, and Systems for Industrial, Scientific, and Consumer Applications XII*, San Francisco, CA, January 25-27, 2011.

J. L. Adams, R. J. Veillette, and T. T. Hartley, "Estimates of conjugate-order Hankel norms," IFAC FDA 2010, Extremadura, Spain, October 2010.

J. L. Adams, R. J. Veillette, and T. T. Hartley, "Compactness of the Hankel operator for a class of conjugate-order systems," IFAC FDA 2010, Extremadura, Spain, October 2010.

D. R. Desai, J. E. Carletta, <u>R. J. Veillette</u>, F. Hassan, "Design of an accurate min-max current selector," in *Proceedings of the 53⁻⁻⁻ IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2010)*, Seattle, WA, August 2010. [5 citations as of Aug 2019]

M. L. R. Vatte, F. Hassan, J. E. Carletta, and <u>R. J. Veillette</u>, "Image sensor readout circuitry supporting the analog computation of large vertical surrounds," in *Proceedings of the* 53^{n} *IEEE International Midwest Symposium on Circuits and Systems (MWSCAS 2010)*

S. Khorbotly, J. E. Carletta, and R. J. Veillette, "A methodology for implementing pipelined fixed-point infinite impulse response filters," in *Proceedings of the 41*⁺ Southeastern Symposium on System Theory, Tullahoma, TN, March 15-17, 2009, pp. 280-284. [3 citations as of Aug 2019]

J.L.Adams

<u>Y. Wu</u>, R. J. Veillette, D. H. Mugler, and T. T. Hartley, "Stability analysis of wavelet-based controller design," in *Proceedings of the 2001 American Control Conference*, Arlington, VA, June 2001. [4 citations as of Aug 2019]

D. C. Deckler, R. J. Veillette, M. J. Braun, an

<u>R. J. Veillette</u>, "Projective controls for 2-DOF quarter-car suspension," in *Proceedings of the 1991 American Control Conference*, Boston, MA, June 1991, pp. 421-426. [2 citations as of Aug 2019]

<u>R. J. Veillette</u>, J. V. Medani!, and W.R. Perkins, "Design of reliable control systems," in *Proceedings of the 29th IEEE Conference on Decision and Control*, Honolulu, HI, December 1990, pp. 1131-1136. [1 citation as of Jul 2017]

<u>R. J. Veillette</u>, J. V. Medani!, and W. R. Perkins, "Computation of families of H-infinity control laws," in *Proceedings of the 29th IEEE Conference on Decision and Control*, Honolulu, HI, December 1990, pp. 2630-2631.

R. J. Veillette, J. V. Medani!, and <u>W. R. Perkins</u>, "Robust control of uncertain systems by decentralized control," in the 1990 *IFAC World Congress*. [7 citations as of Aug 2019]

J. V. Medani!, <u>W. R. Perkins</u>, and R. J. Veillette, "On the design of reliable control systems," in *Proceedings of the 1990 American Control Conference*, San Diego, CA, June 1990, pp. 3030-3035. [17 citations as of Aug 2019]

<u>R. J. Veillette</u>, J. V. Medani!, and W. R. Perkins, "Robust stabilization and disturbance rejection for systems with structured uncertainty," in *Proceedings of the 28th IEEE Conference on Decision and Control*, Tampa, FL, December 1989, pp. 936-941. [54 citations as of Aug 2019]

R. J. Veillette and <u>J. V. Medani</u>, "An algebraic Riccati inequality and *H* -norm bounds for stable systems," in *Proceedings of the Workshop on the Riccati Equation in Control, Systems, and Signals*, Como, Italy, June 26-28, 1989, pp. 63-68. [6 941.589.92 7 019

R. J. Veillette, "A study of controller partitioning," report on Summer work in *NASA-ASEE Summer Faculty Fellowship Program at Lewis Research Center*, August 1992.

R. J. Veillette, "Controller partitioning for decentralized integrated flight/propulsion control design," report on Summer work in *NASA-ASEE Case-Lewis Summer Faculty Fellowship Program*, August 1991.

Abstracts in Journals:

F. K. Choy, R. J. Veillette, V. Polyshchuk, and M. J. Braun, "Quantification of Gear Tooth Damage by Optimal Tracking of Vibration Signatures," *NASA Tech Briefs*, MCTB p. 7b, October 1997.

R. J. Veillette, "Reliable State-feedback Control Systems," *The Ohio Journal of Science*, 92(2), p. 52, April 1992.

UNPUBLISHED TECHNICAL PRESENTATIONS: (partial list)

"Insulation Fault Detection in Underground Power Cables: A Feedback Control Application," presented to Cleveland Control System Society, Cleveland State University, April 5, 2018.

"A Controllable Tilting-Pad Bearing," presented to GE Aircraft Engines, Cincinnati, OH, October 15, 2003.

"Simulation of a Controllable Bearing and Associated Strategies," presented at the STLE annual meeting, New York, April 30, 2003.

"Modeling and Control of a Tilting-Pad Bearing," presented to the Department of Electrical and Computer Engineering, Cleveland State University, January 25, 2002.

"Modeling and Control of a Tilting-Pad Bearing," presented at the Workshop on Advances in Systems and Control, Urbana, IL, September 25, 1999.

"State-Variable Descriptions and Optimal Control," presented to Math Department Graduate Seminar, March 5, 1999.

"Frequency-Domain Analysis and Design of Control Systems," presented to Math Department Graduate Seminar, February 26, 1999.

"Controllable Bearings and Seals," presented to Rolls-Royce Allison, Mechanical Systems Technology Group, Indianapolis, IN, August 4, 1998.

"Let's Talk H," presented to BF Goodrich Advanced Technology Group, Brecksville, OH, June 26, 1998.

"Let's Talk H," presented to Aircraft Braking Systems, Akron, OH, June 10, 1998.

"Identification and Prognostication of Mechanical Failures in Turbomachinery," with F.K. Choy, presented to Army group at NASA Lewis Research Center, September 20, 1994.

"A High-speed Weighing System Using Voice-coil Actuation," presented to Eveready Battery Co., Westlake, OH, August 2, 1994.

"Reliable Control Design for a Reusable Rocket Engine," presented to the Advanced Controls Technology Branch, NASA Lewis Research Center, August 16, 1993.

FUNDED RESEARCH:

I have participated in bringing to the university more than \$4,965,000. (My share = \$833,000)

R. J. Veillette, J. A. De Abreu, T. T. Hartley, "Feasibility Study for a High-Speed Weighing