Annette R. von Jouanne, Ph.D., P.E., IEEE Fellow
Professor of Energy Systems: Power Electronics, Power Systems, Renewables, Motors and Drives
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Professional Preparation

Ph.D.	Electrical Engineering/Power Electronics, Texas A&M University, College Station, TX	1995
M.S.	Electrical Engineering/Power Systems, Southern Illinois University, Carbondale, IL	1992
B.S.	Electrical Engineering with Math Minor, Southern Illinois University, Carbondale, IL	1990

Appointments

- Professor, Baylor University, Department of Electrical and Computer Engineering, 2017-present
- Professor, Oregon State University, School of Electrical Engineering and Computer Science (EECS), June 2004 - 2017
- Associate Professor, Oregon State University, Department of Electrical and Computer Engineering, June 2000 – June 2004
- Assistant Professor, Oregon State University, Department of Electrical and Computer Engineering, September 1995 - June 2000
- Post Doctoral Research Associate, Texas A&M University, Department of Electrical Engineering, College Station, TX, June - August 1995
- Engineering Assistant, Advanced Motor/Drive Technical Development, Toshiba Industrial Division, Houston, TX, June 1993 - August 1995

Research: Power Electronics, Power Systems, Renewables (Wind, Solar, Wave, Geothermal), Electric Motors and Drives, Variable Frequency Drive Systems and Application Issues, Electric Vehicles (EVs) and Hybrid Electric Vehicles (HEVs), Navy All-Electric Ship, Electric Propulsion in Sustainable Transportation.

Research Projects: Total = $32,911,747 My Portion = $11,364,394

Current Research Projects (3 additional proposals under review)

- **PI, Navy (ONR),** "Development of Advanced Inverter Duty Motor Bearings for SiC Applications", $300,000, Jan. 1, 2020 – March 31, 2022.
- **PI, Navy (ONR)**, "Advancement of CM, EMI and Motor Bearing Compatibility Solutions in Support of PEPDS and SiC Applications", $200,000, March 1st, 2021 – Dec. 31st, 2022.

Completed Research Contracts During Time at Baylor (since Aug. 2017):

- **Co-PI, ARPA-E, "**Converting Natural Gas to Liquid Fuels by Low Energy Electrical Corona Discharge Processes", $2,421,497, 2 post docs, 3 GRAs, 4 Co-PIs, (my portion $300k), 3.5 years, Jan. 2016- July 31st, 2019.
- **PI, Navy (ONR),** "Motor Bearing Characterization in SiC-based Variable Frequency Drive Applications", $100,000, Jan. 1 – Dec. 31, 2019.
- **PI, Navy (NSWC)** Naval Surface Warfare Center, "Variable Frequency Drive Application Issues", $24,930, 2019.
- **PI, Navy (NSWC)** Naval Surface Warfare Center, "Variable Frequency Drive Application Issues", $24,930, 2018.
- **PI, TEES,** "Advanced Vehicle Technologies", $2,500, 2018.
- **Co-PI, Navy (ONR)** Naval Platform Power and Energy, Insulation Degradation and Breakdown Modeling for Cables and Windings of Variable Speed Drives $363,777, 2015-2019, (with PI J. Zhang)

Thesis Advisor and Postgraduate-Scholar Sponsor: Currently advising 6 Ph.D., 1 M.S., and 4 Undergrad Researchers; Graduated 13 Ph.D. and 42 Masters Students, Supervised 3x Postdoctoral Scholars.

Synergistic Activities

- Director and Founder of the Baylor Energy and Renewable Systems Laboratory.
- Have taught 19 Industrial Short Courses on Power Electronics and Drive Systems.
- 3x Patents and 15x Invention Disclosures.
- Conducting research on SiC variable frequency drive application issues for ONR
- Hardware-in-the-loop (HIL) testbed developments.
- Electric and hybrid vehicle chassis dynamometer testbed, power analysis, battery modeling and performance optimization, fast charging, data acquisition.
- Initiated the Wave Energy program at OSU in 1998, developed into a $13.5M internationally recognized multidisciplinary program (NNMREC – Northwest National Marine Renewable Energy Center).

Example Products from past 6 years – Overall, Published 62 Journal papers and 177 Conference papers, 2 Book Chapters (Continued on next page)

1. Annette von Jouanne, Ryan Collin, Madeline Stephens, Hellen Chen, Caleb Li, Emmanuel Agamloh, Alex Yokochi, "Development of Inverter Duty Motor Bearings for Si- and SiC-Based Variable Frequency Drive Applications Including Advanced 4D Finite Element Modeling", ECCE, Oct. 2021.
2. Ryan Collin, Annette von Jouanne, Alex Yokochi, "Novel Characterization of Si- and SiC-based PWM Inverter Bearing Currents Using Probability Density Functions for Lifetime Prediction", ECCE, Oct. 2021.
3. J. Adegbohun, A. von Jouanne, B. Phillips, E. Agamloh, A. Yokochi, High Performance Electric Vehicle Powertrain Modeling, Simulation and Validation, Energies Journal, March 2021.
4. Yu Miao, Annette von Jouanne, Alex Yokochi, "Technologies in Polyolefin Depolymerization Process and The Road Ahead", Polymers Journal, January 2021, doi: 10.3390/polym13030449.
5. Emmanuel Agamloh, Annette von Jouanne, Alex Yokochi, "An overview of electric machine trends in modern electric vehicles", Machines Journal, April 2020, 8(2), 20; doi:10.3390/machines8020020.
6. Annette von Jouanne, Ryan Collin, Madeline Stephens, Brian Thayil, Caleb Li, Emmanuel Agamloh, Alex Yokochi, "Motor Bearing Current Characterization in SiC-based Variable Frequency Drive (VFD) Applications", ECCE, Detroit, Oct. 2020.
7. Annette von Jouanne, Jimi Adegbohun, Ryan Collin, Madeline Stephens, Brian Thayil, Caleb Li, Emmanuel Agamloh, Alex Yokochi, "Electric Vehicle Benchmarking using a Chassis Dynamometer Test Bed with On-Board Diagnostics Data Capture", ECCE, Detroit, Oct. 2020.
8. Ryan Collin, Madeline Stephens, Annette von Jouanne, "Development of SiC-Based Motor Drive Using Typhoon HIL 402 as System-Level Controller", ECCE, Detroit, October, 2020.
9. Emmanuel Agamloh, Annette von Jouanne, Alex Yokochi, "An overview of electric machine trends in modern electric vehicles", Machines Journal, 2020.
10. Collin, R.; Miao, Y.; Yokochi, A., Enjeti, P.; von Jouanne, A., "Advanced Electric Vehicle Fast-Charging Technologies", Energies Journal 2019.
11. Miao, Y.; Hynan, P.; von Jouanne, A.; Yokochi, A., Current Li-Ion Battery Technologies in Electric Vehicles and Opportunities for Advancements, Energies Journal 2019. **Energies Journal Best Paper of 2019 Award, Awarded in April 2021 after citation accumulation.**

12. J. Adegbohun, A. von Jouanne, K. Lee, “Autonomous Battery Swapping System and Methodologies of Electric Vehicles”, Energies Journal 2019.
13. Annette von Jouanne, Alex Yokochi, “Variable Frequency Drive Application Issues”, Short Course Manual for the Naval Surface Warfare Center (NSWC), March 2019.
14. Annette von Jouanne, Ryan Collin, Scott Harpool, Adam Shareghi and Alex Yokochi, “Power Electronics Testbed for Converting Methane to Liquid Fuels via Electrical Corona”, IEEE ECCE 2018, Sept. 23rd – 27th, Portland, OR.
15. Han Xiong, Julia Zhang, Annette von Jouanne, “Control of Variable Frequency Drive PWM to Mitigate Motor Overvoltage Due to Double Pulsing in Reflected Wave Phenomenon”, IEEE ECCE 2018, Sept. 23rd – 27th, Portland, OR.
16. A. von Jouanne, T. Brekken, “Ocean and Geothermal Energy Systems”, Power Electronics in Smart Grid and Renewable Energy Systems, Proceedings of the IEEE Special Issue, 2017.
17. Han Xiong, Alex Louie, Julia Zhang, Annette von Jouanne, “Finite Element Analysis Modeling and Experimental Verification of Reflected Wave Phenomena in Variable Speed Machine Drive Cables”, IEMDC 2017, Miami, FL, May 2017.
18. A. von Jouanne, T. Brekken, T. Lettenmaier, E. Amon, S. Moran, A. Yokochi, Advancing the Wave Energy Industry, IEEE Potentials, JANUARY/FEBRUARY 2015 issue, Vol. 34, pages 41-47.

Teaching: Power Electronics and Renewable Energy Integration, Electric and Hybrid Electric Vehicles, Variable Frequency Drive systems, Power Systems, Engineering Analysis, Electrical Circuit Theory, Electrical Circuit Laboratory, Conventional and Alternative Energy Systems.

Research Awards and Honors:

- Eight Prize Paper and Prize Poster Awards as of 2021.
- Energies Best Paper of the Year Award for 2019, Awarded April 2021
- OSU College of Engineering Research Award, 2014.
- National Sea Grant Research to Application Award, 2012.
- Selected by Portland Monthly and OMSI as one of top 12 contemporary Oregon innovators (125 Oregon innovators were nominated), 2011.
- OSU Impact Award for Outstanding Scholarship, 2010.
- OSU College of Engineering Research Collaboration Award, 2009.
- “OMSI Genius Award” for Wave Energy Pioneering Work, 2009.
- IEEE Fellow, Elected November 2008, for "contributions to ocean wave energy systems."
- International Ocean Energy Conference “Ocean Energy Pioneer Award”, 2007.
- OSU College of Engineering Alumni Professor Award, 2007.
- “Most Enthusiastic Professor Award”, voted on by the Students in the School of Electrical Engineering and Computer Science, 2007.
- “Professor of the Year Award”, voted on by the Students in the School of Electrical Engineering and Computer Science, 2003-2004.
- IEEE-Industry Applications Society (IAS) Outstanding Young Member Award, 2000
- Selected by NAE to be profiled as one of the NAE’s “Celebrated Women Engineers”, 1999
- OSU College of Engineering Engelbrecht Young Faculty Award, 1998
- NSF CAREER Award, 1998
- American Control Conference Best Session Paper Presentation Award, 1995