

Curriculum Vitae of DR. GARY L. BLANK, July 2018



CONTACT INFORMATION:

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OBJECTIVES:

EXPERT WITNESS or **CONSULTANT** for a company in all aspects of
Control Systems, Kalman Filters, Non-Linear Estimators,
Systems and Circuits, Design, Develop, Analysis,
Renewable Energy, Smart Grid, Wind, Solar, Electric Cars

EDUCATION:

All degrees in **Electrical/Electronic Engineering**
Minors in **Mathematics**
B.S. Illinois Institute of Technology
M.S. University of Idaho
Ph.D. University of Wisconsin, Madison

CONTENTS OF RESUME:

Section A. Work Experience in Industry and Consulting
Section B. Work Experience in Academia (Professor)
Section C. Professional Activities
Section D. Awards Received
Section E. Patents and Publications

Section A: WORK EXPERIENCE IN INDUSTRY AND CONSULTING

SUMMARY:

- Experienced in the development, design, analysis, test, integration, and manufacturing of electrical/electronic systems (commercial, industrial, aerospace), analog/digital electronic circuits, motor and generator control systems, (practical, board-level, hands-on included); biomedical systems, space and avionics electronics, trouble-shooting. Also experienced in design and standard requirements for circuits, including worst case and tolerance. Design and analysis of brushless dc motors, actuators, electric power, motors, generators, drives, power electronics, modeling and simulation.
- Worked with Matlab/Simulink, Circuit Maker, PSpice, Orcad, Autocad, etc.
- Taught courses to companies in generators, motors, control systems, electronics, power, modeling, simulation, using various programs including Matlab/Simulink.
- Experienced with Microsoft Word, Excel, and Power Point.

- Strong leadership, management, strategic, verbal, and writing skills.

RECENT CONSULTING ASSIGNMENTS IN REVERSE CHRONOLOGICAL ORDER: Assignments typically vary from 3 months to 2 years.

- 1. ENGINEERING UPDATE INSTITUTE (EUI)**, Elgin, IL, 2/14 to 6/18
Expert Witness cases involving practical circuit design and control systems for brushless DC motors and electronics.
- 2. IEEE-USA**, Washington DC, 1/14 to 12/14
Elected President of IEEE-USA 2014 by the membership of 200,000+ electrical/electronics engineers in industry and professors, requiring extensive USA and international travel, representing the USA overseas and in Congress, lecturing to large audiences of engineers, universities, and business leaders, meeting with representatives of the House, Senators, Secretary of State, other Federal Officials, Directors and CEO's of companies, Department of Justice (Standards), management of 200,000 members and a salaried staff of 17 employees in Washington, DC, and a \$5.6 million budget, ending with a record net surplus of \$0.6 million. Details before election and presidential accomplishments respectively:
Before Election <http://drblank.com/BeforeElection.htm>
President IEEE-USA 2014 Report <http://drblank.com/President2014.htm>
- 3. WOODWARD CO**, Rockford, IL, 8/13 to 01/14
Control Systems for Avionics and related technologies. Consulted on related practical design problems with various motors and electronics, developed and conducted a special course for 40+ Engineers in this subject focusing on material relevant to current company projects.
- 4. HAMILTON-SUNDSTRAND**, (United Technology Aerospace Systems), Rockford, Illinois, 8/12 to 7/13.
Requested by client to help design engineers with practical problems, and to develop and conduct in-house courses in Controls, Power Electronics, Motors, DSP, and Power Systems for 135 engineers.
- 5. U.S. DEPARTMENT OF ENERGY**, Chicago, IL, 3/12 to 8/12
Working through a DOE grant to Illinois Institute of Technology, developed and conducted courses (practical laboratory experiments and theory) in Smart Grid, Renewable Energy, Solar Panels, Fuel Cells, Wind Turbines, and Electric Vehicles for 100+ science teachers of Community Colleges, and Chicago Public Schools.
- 6. HAMILTON-SUNDSTRAND**, Rockford, IL, 10/11 to 02/12
Reviewed and revised the control systems for commercial aircraft electrical power systems and motor controls.
- 7. ENGINEERING UPDATE INSTITUTE (EUI)**, Elgin, IL 04/08 to 09/11
 - EUI is my sole proprietary company established to do consulting work, engineering education and expert witnessing.
 - Working on behalf of EUI, an independent consulting company, provided the consultation services to Process Control Inc, Atlanta, GA, in the area of brushless DC motor control and electronic circuit design for plastic blending and extrusion. (2011)
 - Working on behalf of EUI, an independent consulting company, provided the consultation services to CHF Solutions, Minneapolis, MN, in the area of system and electronic circuit design for dialysis machines. (2010)
 - Working on behalf of EUI, an independent consulting company, provided technical consultation (design review and recommended improvements) to Arens Control, Arlington Heights, IL, in the area of hybrid vehicle power electronics, and electronic engine controls. (2008)
 - Working on behalf of EUI, an independent consulting company, provided technical consultation to Satcon, Baltimore, MD, (a US Navy supplier) on the development and design of new power controls for naval vessels including power electronics, power supplies and engine control. (2009)

- Provided expert witness testimony for attorneys in cases involving electrical, electronics, and communication devices: on behalf of Cub Foods involving automatic shopping cart control, and on behalf of Kohler involving back-up power generators. (2007 to 2012)
- Provided consultation services to capitalists and managers on future technological trends. (2008 to 2011)
- Taught courses for employees of AT&T in fiber optics, wireless systems, data communications, and electronics. (2010)
- Taught courses in electronics at Rock Valley College, Rockford, IL, and at Waubesa College, Sugar Grove, IL. (2010, 2013)
- Hired by the U.S. Department of Energy, working through Illinois Institute of Technology, to develop the curriculum and to train the teachers of the Chicago Public School system on how to teach classes in Smart Grids, Electric Cars, and Renewable Energy (wind, solar, etc). (2011)

8. PARKER HANNIFIN CORP, Long Island, NY 10/07 to 03/08

Analysis, development, design, integration, and evaluation of motion control systems, circuit analysis and design, and electromechanical automation of actuators, fluid pump systems, and engine controls for commercial aircraft using sensor-less brushless dc motors. Work done off-site at contractor's facility in Rockford, IL.

9. L-3 COMMUNICATIONS, Combat Propulsion Systems Div, Muskegon, MI 08/07 to 10/07

Design and analysis of motor control systems and electronic circuits for missiles, military weapons, surveillance, and engine control, including systems modeling, simulation, test and integration.

10. OSHKOSH TRUCK CORP, Oshkosh, WI 07/07 to 10/07

Design, develop, modify, and test electronic controls for brushless dc motors on military trucks, including engine control.

11. DANFOSS DRIVES, Loves Park, IL 01/07 to 02/07

Design, development, analysis, and testing of electric/electronic drives, over 1 Megawatt.

12. ALLIED HEALTHCARE PRODUCTS INC., St. Louis, MO 09/06 to 01/07

Design of analog/digital electronics circuits (including top level design, board layout, selection of components, PIC microchip, microcontrollers, routing, and testing) used for electronic control of assisted breathing in CPR, and near death emergencies.

Other previous assignments (less recent, prior to those listed above) include: Engineering Update Institute, Woodward MPC Products, Woodward Co., Recon Optical Inc., Teradyne Telecommunications, Packard Instrument Co., Recon Optical, Barber Coleman, Rockwell-Collins, Lucent Technologies (Bell Labs), Anasco Photo Optical, Traffic Control Devices, Data Specialties Inc., Honeywell, Northrop Electromechanical, TRE Electromask, System Technika, Pertec Corp., Micropolis Corp., Xerox Corp., EMM SESCO, Terminal Data Corp., Hughes Aircraft, Litton Guidance & Control, Litton Data Systems, UNISYS Corp. (MI), UNISYS Corp.(CA), Teledyne Systems, General Motors (DELCO), A.O. Smith Co.

Section B: ACADEMIC (TEACHING) EXPERIENCE

SUMMARY:

Experienced in teaching graduate and undergraduate courses. Also, conducting and supervising graduate research in all areas of Electrical Engineering.

FULL-TIME 3 years, (Associate Professor) Marquette University,

FULL-TIME 4 years, (Associate Professor) Northern Illinois University,

FULL-TIME 5 years, (Visiting Professor) Illinois Institute of Technology,

Taught graduate and undergraduate courses in controls, signal processing, power systems, circuit design, rotating machinery, electronics, logic design, and modern control. Also directed graduate research and theses, obtained grants, and advised students. In addition, at Ill. Inst. of Tech, taught every required course in the undergraduate EE curriculum at least once over a period of 5 years.

PART-TIME 1 year (Adjunct Professor) University of Florida,

PART-TIME 14 years (Adjunct Professor) UCLA,

PART-TIME 4 years (Adjunct Professor) Rock Valley College, Rockford, IL.

PART-TIME 2 year (Adjunct Professor) Waubensee College, Sugar Grove, IL,

Taught graduate and undergraduate courses in controls, signal processing, circuit design, rotating machinery, electronics, logic design, and modern control.

Section C: Professional Activities

- **President 2014, IEEE-USA, elected by membership of 200,000+ in USA**
- **Vice President, IEEE-USA**, VP of Careers and Member Services, 2010-12.
Elected by IEEE-USA membership (200,000 members) to position of **Member-at-Large on Board of Directors, IEEE-USA**, 2008, 2009.
- **Vice President, IEEE-USA**, VP of Member Activities Council, 2003-04.
- **Chairman and founder** of the Chicago/Rockford IEEE Consultants' Network
- IEEE-USA Employment & Career Services Committee
- IEEE-USA Licensure & Registration Committee
- IEEE-USA Entrepreneurs Networks Committee
- IEEE-USA Board of Directors 2003-04, 2008-2012
- IEEE-USA Communications Committee
- IEEE MGA Leadership/Training Initiative Committee
- IEEE-USA Awards & Recognition Committee
- IEEE-USA Pre-College Education Committee
- IEEE-USA K-12 STEM Literacy Committee
- IEEE-USA Surveys Committee
- IEEE Senior Member
- IEEE Region 4 Student Activities Chairman
- IEEE Region 4 Major Conferences Chairman
- IEEE Benefits and Services Committee
- IEEE Career Services Committee
- IEEE Educational Activities Board Committee on Skills Assessment
- MIDCON Board of Directors
- Convention and Conference Chairman, MIDCON
- Conducts seminars in USA and Canada on how to be a successful engineering consultant, and how to form consultants' networks.
- Teaches and provides engineering review courses live and on video for candidates preparing for the Professional Engineers License Examinations.

Section D: Awards Received

- Funded research grant (Brushless dc motor research, funded by Chicago Aerial Industries).
- Awarded "Best conference paper and best presentation" at the Pan American Congress of Electrical and Mechanical Engineers.
- Recognition/Awards by students several times: Outstanding Teacher, Best Professor.

Section E. Patents and Publications

- **Patent** (Northern Illinois University) **for Velocity-Controller for Brushless DC Motors.**
- Published and/or presented **24 papers in scholarly publications** and at conferences (list of publications and papers available upon request).

Professional References provided upon request.