

EXPERIENCE

BRG MACHINERY CONSULTING, LLC, Charlottesville, VA
Consultant, September 2007 - Present

Dynamic systems analyst, consulting on magnetic bearing systems.

JAMES MADISON UNIVERSITY, Harrisonburg, VA
Professor and Department Head, Integrated Science and Technology, 2010 – 2016

UNIVERSITY OF VIRGINIA, Charlottesville, VA
Professor, 2003 – 2010
Associate Professor, 1995 – 2003
Assistant Professor, 1990 – 1995
Graduate Research Assistant, 1986 – 1990

Dr. Maslen conducts research in the application of automatic control theory to mechanical systems for vibration reduction and stability. He is particularly interested in the use of magnetic bearings in turbomachinery. He is also involved in the design of magnetic actuators, sensors, power amplifiers, and feedback controllers.

ROTATING MACHINERY & CONTROLS LABORATORIES, University of Virginia
Lab Director, June 2000 – May 2003
Faculty Member, September 1990 – April 2005
Lab Engineer, September 1988 – May 1989

Provided technical support of experimental work (instrumentation, methodology, rig construction) to the students and faculty of ROMAC.

Research Assistant, January 1997 – January 2007

Developed a new experimental facility to explore the application of active magnetic bearings to a high speed avionics cooling compressor. This involved design and construction of the rotor, test casing, pedestal, AMB magnet arrays, sensors, power amplifiers (at component level) and analog controls. The test rig was operated to 23,000 RPM, passing its first free-free bending mode (as well as two bearing critical speeds).

KOPPERS COMPANY, INC, Glen Arm, MD
Research and Development Engineer, October 1980 - May 1985

Conducted research and development in new product design for corrugating and finishing equipment in the corrugated container machinery division. Developed a new singlefacing method, called "positive pressure" which is now an industry standard. Conducted numerous field studies of the performance of existing machine designs, produced recommendations for improved designs and diagnostic instrumentation methods.

EDUCATION

UNIVERSITY OF VIRGINIA, Charlottesville, VA
Doctor of Philosophy, Mechanical and Aerospace Engineering, January 1991
Dissertation: *Magnetic Bearing Synthesis for Rotating Machinery*

CORNELL UNIVERSITY, Ithaca, NY
Bachelor of Science, Mechanical Engineering, January 1980

PROFESSIONAL ACTIVITIES

Member, ISO TC108 SC2 WG7 Magnetic Bearings Standards Committee

Member, Pi Tau Sigma and Tau Beta Pi (Engineering honor societies)

Gastprofessor, Technische Universität Wien (Austria), Institut für Maschinendynamik und Meßtechnik, research and lecture position, invited by Prof. Dr. Helmut Springer, Head of Institute, May 1, 1995 – June 30, 1995

Visiting Professor, Technische Universität Darmstadt (Germany), Department of Mechanics, invited by Prof. Richard Markert, June 16–30, 2001

Visiting Scholar, University of California at Berkeley (US), Department of Mechanical Engineering, invited by Prof. Arun Majumdar, August 2002 – December 2002

Visiting Scholar, Shandong University (PR China), Department of Electrical Engineering, invited by Prof. Shuqin Liu, August 6-16, 2007

HONORS AND AWARDS

Keynote/Plenary Speeches:

Invited Lecturer, IEEE Advances in Magnetics: Bormio, Italy, March 2016.

Keynote Speaker, First Brazilian Workshop on Magnetic Bearings: October 2013.

IMEchE Conference September 8-10, 2008

ISMB 10, International Symp. on Magnetic Bearings, August 21-23, 2006

ISMST 6, International Symp. on Magnetic Susp. Tech., October 8-11, 2001

Best Paper:

Jorgen Lund Memorial Award, International Federation for the Promotion of Mechanism and Machine Science (IFTToMM): October 2010.

Rudolph Kalman Best Paper Award (1 awarded annually): “Robustness Limitations in Self-Sensing Magnetic Bearings”, ASME, 2006.

Best paper of conference (5 awarded annually): “Practical Applications of Singular Value Decomposition in Rotordynamics,” IFTToMM 6th Int’l Conference on Rotor Dynamics, Sydney, Australia, September 2002.

Best paper, IEEE Control Systems Magazine, 1999 (1 awarded annually): “Feedback Control Applications in Artificial Hearts”

Best Paper of Session, American Control Conf., session on Controls Experiments, Albuquerque, NM, June 1997: “Meaningful Control Experiments”

Best Paper, ASME Int’l Gas Turbine Inst., Struct. and Dyn. Committee, 1995: “Measured Force/Current Relations in Solid Magnetic Thrust Bearings”

CONFERENCE PAPERS

Professor Maslen has published in excess of 100 conference papers in rotating machinery, magnetic bearings, and general controls venues. A complete list of publications is available upon request.

JOURNAL PUBLICATIONS

Professor Maslen has published 57 journal papers in rotating machinery, magnetic bearings, and general controls venues. He has received numerous awards for these publications, including:

Keynote Speech Invitation, IMechE Conference September 8-10, 2008

Keynote Speech, ISMB 10, International Symposium on Magnetic Bearings, August 21-23, 2006

Plenary Speech, ISMST 6, International Symposium on Magnetic Suspension Tech., October 8-11, 2001

Rudolph Kalman Best Paper Award (1 awarded annually): E. H. Maslen, T. Iwasaki, and D. T. Montie, “Robustness Limitations in Self-Sensing Magnetic Bearings”, ASME, 2006.

Best paper of conference (5 awarded annually): Cloud C. H., Foiles W. F., Li G., Maslen E. H. and Barrett L.E., “Practical Applications of Singular Value Decomposition in Rotordynamics,” IFTToMM Sixth International Conference on Rotor Dynamics, Sydney, Australia, September 2002.

Best paper, IEEE Control Systems Magazine, 1999 (1 awarded annually): “Feedback Control Applications in

Artificial Hearts,” IEEE Control Systems Magazine, Vol. 18, No. 6, December 1998, pp. 26–34
Best Paper of Session, American Control Conference session on Controls Experiments, Albuquerque, New Mexico, June 1997: “Meaningful Control Experiments”
Best Paper, International Gas Turbine Institute, Structures and Dynamics Committee, 1995: “Measured Force/Current Relations in Solid Magnetic Thrust Bearings,” ASME Paper 95–GT–400

A complete list of journal publications is available upon request.

BOOKS

Allaire, P. E., Maslen, E. H., Humphris, R. R., Knospe, C. R., and Lewis, D. W., “Magnetic Bearings,” Chapter in CRC Handbook of Lubrication (Theory and Practice of Tribology), ed. E. Richard Booser, CRC Press, Ann Arbor, 1994.

Schweitzer, G. and Maslen, E. (ed.) *Magnetic Bearings Theory, Design, and Application to Rotating Machinery*, Springer, 2009.

PATENTS

United States Patent US 9,539,969

Date of Patent: January 10, 2017

System and Method for Minimizing Occupant Injury during Vehicle Crash Events

Inventors: Bose, Dipan; Crandall, Jeff; Maslen, Eric; Untaroiu, Costin.

Assignee: ActiveRestraint, LLC, Charlottesville, VA.

United States Patent Number US 6,595,762 B2

Date of Patent: July 22, 2003

Hybrid Magnetically Suspended and Rotated Centrifugal Pumping Apparatus and Method

Inventors: Khanwilkar, P. S.; Allaire, P. E.; Bearnson, G. B.; Olsen, D. B.; Maslen, E. H.; Long, J. W.

Assignees: Medquest Products, Inc. (Salt Lake City, UT); Univ. of Virginia Patent Foundation (Charlottesville, VA).

United States Patent Number US 6,302,661

Date of Patent: October 16, 2001

Electromagnetically suspended and rotated centrifugal pumping apparatus and method

Inventors: Khanwilkar, P. S.; Allaire, Paul E.; Bearnson, Gill Brent; Olsen, Don B.; Maslen, Eric H.; Long, James W.

Assignees: Medquest Products, Inc. (Salt Lake City, UT); University of Utah Research Foundation (Salt Lake City, UT); University of Virginia Patent Foundation (Charlottesville, VA).

United States Patent Number US 6,074,180

Date of Patent: June 13, 2000

Hybrid magnetically suspended and rotated centrifugal pumping apparatus and method

Inventors: Khanwilkar; P. S. (Salt Lake City, UT); Allaire; P. E. (Charlottesville, VA); Bearnson; G. B. (Salt Lake City, UT); Olsen; D. B. (Salt Lake City, UT); Maslen; E. H. (Earlsville, VA); Long; J. W. (Salt Lake City, UT).

Assignees: Medquest Products, Inc. (Salt Lake City, UT); University of Utah Research Foundation (Salt Lake City, UT); University of Virginia Patent Foundation (Charlottesville, VA).

United States Patent Number US 5,347,190

Date of Patent: Sept. 13, 1994

Magnetic bearing systems

Inventors: Lewis, D. W., Humphris, R. R., Maslen, E. H., Allaire, P. E., Williams, R. D., and Yates, S.

Assignee: University of Virginia Patents Foundation

United States Patent Number US 5,077,540

Date of Patent: Dec. 31, 1991

Minimum Pulse Width Switching Power Amplifier

Inventors: Keith, F. J. and Maslen, E. H.

Assignee: University of Virginia Patents Foundation

United States Patent Number US 5,355,042

Date of Patent: Nov. 13, 1990

Magnetic bearings for pumps, compressors and other rotating machinery

Inventors: Lewis; David W.; Humphris; Robert R.; Maslen; Eric H.; Allaire; Paul E.; Williams; Ronald D.

Assignee: University of Virginia Patent Foundation (Charlottesville, VA).