

## **CURRICULUM VITAE**

Reinhold Ludwig, Ph.D.

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### **PRESENT POSITION**

Professor and Associate Department Head of Electrical and Computer Engineering,  
Professor of Mechanical and Biomedical Engineering,  
Worcester Polytechnic Institute, Worcester, Massachusetts 01609.

### **PROFESSIONAL CAREER**

<b>2019 – present</b>	Associate Department Head
<b>2018 – 2019</b>	interim Department Head
<b>2016 – 2018</b>	Associate Department Head
<b>2002 – 2015</b>	Chief Scientific Officer, InsightMRI
<b>1996 – present</b>	Professor
<b>1992 – 1993</b>	Engineer at Medical Imaging Division, HP Corp.
<b>1990 – 1996</b>	Associate Professor
<b>1986 – 1990</b>	Assistant Professor
<b>1986</b>	Ph.D., Electrical Engineering, ColoradoState University
<b>1983</b>	MS (Dipl.-Ing.), Electrical Engineering, University of Wuppertal, Germany

### **TEACHING**

Has developed and taught courses and seminars at WPI for 35 years. Key courses: ECE 3113, RF Circuit Design; ECE 2112, Electromagnetic Fields; ES 4011, Modern Control Systems; ECE 2311, Signals and Systems; and ECE 514, Microwave Engineering. International project advisor at WPI's global centers in Copenhagen, Denmark, Melbourne, Australia, San Juan, Puerto Rico, Windhoek, Namibia, and San Juan, Costa Rica.

### **SCHOLARSHIP**

Over 160 journal and conference publications, two technical textbooks, 21 patents (<https://patents.justia.com/inventor/reinhold-ludwig>); graduated 110 BS, 21 MS, and 14 PhD students; has generated approximately \$6.24M in sponsored research activities in the areas of nondestructive evaluation (NDE), high-frequency circuit design, biomedical instrumentation, sensing, and imaging. Founder and director of the Center for Imaging and Sensing (CIS) at WPI. The center focuses on fundamental research and prototype development of electromagnetic, optical, and thermal inspection systems for its industrial partners.

## **INDUSTRIAL ACTIVITIES**

### ***Medical Design Engineer***

Medical Imaging Division Hewlett-Packard Corporation, Andover, MA

**1992 - 1993**

Researched and developed ultrasonic array antennas for medical diagnostics.

Conducted harmonic, modal, and transient finite element and method of moment simulations of elastic wave generation and propagation in piezoelectric solids as well as their radiation behavior into biological tissue. Designed circuits and systems for laser interferometric characterization of piezoelectric media.

### ***Senior Technical Consultant***

TVM-Capital, Boston, MA

**2004 – 2011**

Responsible for technical analysis and due diligence of electronic design automation and information technology companies. Conducted detailed technology reviews and market assessments of more than 80 early-stage corporations.

### ***Chief Scientific Officer***

InsightMRI, Worcester, MA

**2002 – 2015**

Responsible for research and development of radiofrequency (RF) resonator coils in high-strength magnetic resonance imaging (MRI) scanners for animal and clinical applications. Developed a four-channel breast cancer screening coil, obtained FDA 510K approval and OEM acceptance by Siemens within 18 months; constructed anatomically shaped MRI receive coils and coil arrays, including a seven-channel access breast coil system and a wrist coil; designed and constructed the first successful RF microstrip resonator coil operational in an 11.7T MRI scanner at the National Institute of Health.

### ***Advisory Board Member***

Dyn-Corporation, Hudson and Manchester, NH

**2011 – 2013**

Advised on Internet hosting, monitoring, and routing technologies as well as market analyses. Dyn hosted such popular websites as Amazon, Twitter, Netflix, and Etsy; in 2016 it performed on average more than 40 billion traffic optimizations daily for approximately 3,500 enterprise customers. In 2017 the company was acquired by Oracle for \$600M.

## **SELECTED CONSULTING**

US Army Material Technology Laboratory, Watertown, MA, and Watervliet, NY (1988-94); Hewlett Packard Corp., Andover, MA (1989–92); United Technologies Research Center (1992-95), Hartford, CT; The Gillette Co., Boston, MA (1996-02); Heraeus, Houtalen, Belgium (1997-02); Visteon, Nuevo Laredo, Mexico, (2004); TVM-Capital, Boston, MA (2004-11); Bitwave Semiconductors, Chelmsford, MA (2006-09); Analogic, Peabody, MA (2011-12).