

Dragomir C. Marinkovich, Ph.D.

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SUMMARY An accomplished leader with a unique combination of industry, academic, and executive leadership experience. An experienced professor of mechanical engineering with an emphasis in CAD, solid mechanics and product design. Nearly twenty years of industry experience in the research, development, design, and manufacturing of new products in the consumer, power tool, and medical instrument fields. A demonstrated ability to lead academic programs as a program director and associate dean. Strong leadership, teamwork, problem solving, analytical, and creative abilities. Adept at developing products from concept to final production. Expert in the field of product design.

EDUCATION

U.S. Army War College , Carlisles Barracks, Pa	<u>Masters of Strategic Studies</u>	(2018)
Marquette University , Milwaukee, WI	<u>Ph.D. Mechanical Engineering</u>	(2006)
University of Illinois , Chicago, IL	<u>MS Mechanical Engineering</u>	(1992)
University of Illinois , Urbana/Champaign, IL	<u>BS Mechanical Engineering</u>	(1986)

ACADEMIC EXPERIENCE

Marquette University, Milwaukee, WI

Assistant Professor of Practice, College of Engineering **2017-Present**

Responsible for instruction in fundamental mechanics courses within the College of Engineering.

Chair of the Engineering Mechanics Committee.

Milwaukee Area Technical College, Milwaukee, WI

Associate Dean, Engineering, Design, and Construction Programs **2013-2017**

Associate dean for a public, two-year comprehensive technical college. Leadership responsibility for ten academic programs in the engineering technology, design, and construction fields. Responsibilities include supervising faculty and staff, developing programs and curriculum, budgeting, allocating resources and facilities, student recruitment, industry partnerships, retention and graduation, assessment, accreditation and program review. Key accomplishments:

- Developed a pre-construction credential designed specifically to provide disadvantaged students experience in the construction trades and improve their employment opportunities.
- Developed, revamped, and/or updated multiple programs that helped improve student success, all validated by industry advisory committees.
- Founder and director of the Center for Design and Additive Manufacturing (CDAM). A center dedicated to introducing additive manufacturing to students and programs using a multi-disciplinary, entrepreneurship approach.

Marquette University, Milwaukee, WI

Instructor, Department of Mechanical Engineering **2015-2017**

Developed and taught, Advanced Product Design using Plastics. The course focuses on the use of plastics in product design and the best practices required for robust designs of products.

Milwaukee School of Engineering, Milwaukee, WI

Assistant Professor- Mechanical Engineering **2008-2013**

Taught the following courses: Statics, Dynamics, Mechanics of Materials, Intermediate Strength of Materials, Introduction to Mechanical Design, Computer Applications in Engineering (Matlab), Design

of Machine Components, and Senior Capstone. Active participant in Research interests included computer-aided design; solid modeling and computational geometry; physical modeling, analysis, and simulation; product design; new product development.

Director of the Mechanical Engineering Technology Program 2009-2013

Responsible for the management and oversight of all aspects of the MET program to include advising and recruiting students. Developed and reviewed new courses and curriculum. Chaired the MET industrial advisory committee. Wrote key portions of program self-study and attained ETAC-ABET re-accreditation. Developed and administered a new assessment procedure for the program and maintained the continuous improvement program

Adjunct Assistant Professor (Full time): Dept. of Mechanical Engineering 2006

Taught introductory mechanical engineering, CAD, and design courses to first year students.

Marquette University, Milwaukee, WI**Lecturer****Fall 2006 and 2008****College of Engineering: Engineering Ethics and Values minor program.**

Developed course material and presentations based on current ethical issues relevant to multi-engineering disciplines.

Assistant Professor (Part time): Dept. of Military Science and Leadership 1998 to 2006

Developed curriculum and taught courses in leadership, ethics, problem solving and basic Military Science for the Army ROTC program.

PROFESSIONAL EXPERIENCE**Milwaukee Electric Tool Corporation, Brookfield, Wisconsin 1995-2003****Chief Engineer**

Manager with overall responsibility for the design and development of professional power tools for both domestic and international markets. Responsible for project planning, performance evaluation, mentoring, and career development. Worked closely with outside customers, product managers, marketing, manufacturing, and sales to develop concepts and products. Provided technical expertise in design and analysis of dynamic systems including high-speed impact and reciprocating electro-mechanical devices. Designs included injected molded parts, aluminum and magnesium castings, precision machined and ground parts, interfaces to feedback control electronics and sensors, electric motors, gearing, and human factor/ergonomic considerations. Developed and approved test plans to ensure performance and life requirements were met.

Key Accomplishments:

- Provided leadership to 25 engineers and technicians of three separate business units in the design and development of power tools and accessories totaling over \$225 million in sales.
- Introduced 9 new major products or product lines that accounted for over \$65M in new annual sales.
- Managed capital budget of over \$6M and annual expense budget of \$3M.
- Awarded 9 patents.

United States Surgical Corporation, Norwalk, Connecticut 1993-1995

A leading manufacturer of wound closure products and advanced surgical devices.

Senior Engineer, Product Research

Senior engineer responsible for the research and development of medical products. Designed medical instruments and devices for vascular and colorectal applications using precision mechanisms, linkage systems, and a variety of materials and manufacturing processes. Managed all engineering aspects of assigned projects including creating layouts, stress and motion analysis, and supervising drawing and prototype fabrication.

Key accomplishments:

- Designed and developed vascular hole closure device for the femoral artery.
- Designed and developed device to laparoscopically resect intestines.
- Designed device to remove breast lumps.
- Awarded 4 patents.

ITW Paslode Corporation, Lincolnshire, Illinois

1988-1993

A leading manufacturer and marketer of cordless and pneumatic fastening systems for construction, remodeling and industrial applications.

Senior Engineer, Advanced Tool Technology Group

Project Leader and team member responsible for designing and developing a line of portable internal combustion-powered nailers from concept to final production. Designed and supervised the design of molded plastic components, die-castings, stampings, investment castings, powdered metal parts, and electro-mechanical switches and harnesses. Analyzed failures due to mechanical and thermal stresses, fatigue, & shock. Developed lab tests to evaluate nailer performance.

Key Accomplishments:

- Project leader that designed first prototype of a cordless angled trim nailer.
- Team member for next generation cordless framing nailer and first “Impulse” finish nailer.

Alkco Manufacturing Company, Franklin Park, Illinois

1986-1988

A manufacturer of commercial, residential, and medical lighting products.

Project Engineer, New Product Development

Project responsibility for designing and developing commercial indoor/outdoor lighting products from concept to final production. Collaborated with industrial designers to design an innovative indoor/outdoor commercial lighting fixture from concept to production.

RESEARCH EXPERIENCE

Marquette University, Milwaukee, Wisconsin

2003-2006

Doctoral Dissertation Research

Developed an analytical model of the foot and ankle based on a spatial linkage system in order to allow clinicians and doctors the ability to non-invasively predict motion of the talus bone in the ankle complex. Model was developed to enhance existing motion and gait analysis systems' capabilities. An IRB approved study was conducted at the Medical College of Wisconsin involving cadaveric specimens.

Dissertation title: “Modeling and Simulation of the Foot and Ankle to Predict Ankle and Subtalar Joint Motion.”

RESEARCH INTERESTS

Applications of Additive Manufacturing (3D-Printing): Developing methods to improve performance of printed components using concurrently controlled deposition of multiple materials. Development of 3d printed models with visco-elastic behavior.

Methods to improve the teaching of mechanical design: Developing curriculum integrating analysis and design more effectively in design and mechanics courses. Developing new and improved design methodologies utilizing solid modeling and 3d-printing.

Lower extremity gait analysis: Developing models of the foot and ankle to improve gait analysis capabilities, improve categorization of subtalar motion utilizing spatial ankle models, and developing more realistic lower extremity prosthetics.

Modeling and Simulation of mechanical systems: Optimization of blow energy and frequency in demolition hammers with applications in other fields.

PUBLICATIONS

Marinkovich, Dragomir C., Kremer, John M., Shabana, A. A., (1993), Parametric and Experimental Study of a Power Construction Tool, *Advances in Design Automation*, ASME Design Engineering Division (Publication) DE. Publ by ASME, New York, NY, USA. v 65 pt 1. p 109-116

Marinkovich, Dragomir C., (2006), A Spatial Linkage System to Model the Ankle and Subtalar Joints, *Proceedings of the 2006 ASME Bioengineering Conference*, Amelia Island, FL., ASME, NY, NY.

Book Chapter

“A Spatial Linkage Model of the Ankle Complex”

Harris, Gerald F., Smith, Peter A., Marks, Richard M., *Foot and Ankle Motion Analysis: Clinical Treatment and Technology*, CRC Press, Boca Raton, FL 2008

Work in Progress

Marinkovich, Dragomir C., *The Effects of Blow Energy and Frequency in Demolition Hammers.*

Marinkovich, Dragomir C., *Categorization of Subtalar Motion Utilizing a Spatial Ankle Model (SAM).*

Marinkovich, Dragomir C., *Solution of a 5-Bar Linkage System.*

PATENTS AWARDED

1. “Apparatus and Method for Applying and Adjusting an Anchoring Device” 5,562,689 (1996)
2. “Loading Mechanism for a Surgical Suturing Instrument” D374,285 (1996)
3. “Vascular Hole Closure” 5,810,846 (1998)
4. “Apparatus and Method for Removing Tissue” 5,709,697 (1998)
5. “Keyless Blade Clamp” 6,209,208 (2001)
6. “Reciprocating Saw” 6,212,781 (2001)
7. “Quick Lock Power Cord” 6,368,133 (2002)
8. “Quick Lock Power Cord” 6,609,924 (2003)
9. “Reciprocating Saw” 6,742,267 (2004)
10. “Reciprocating Saw” 6,772,662 (2004)
11. “Rotary Hammer” 7,032,683 (2006)
12. “Reciprocating Saw” 7,096,590 (2006)
13. “Rotary Hammer Including Breather Port” 7,168,504 (2007)

KEY PROFICIENCIES

Expertise in Solidworks, Autodesk Inventor, Pro-Engineer, Matlab, Lean Six-Sigma Certification

MILITARY EXPERIENCE

U.S. Army Reserve (1989 to present)

Active reservist with the rank of Colonel.

Various assignments of increasing responsibilities as an Army Engineer officer.

Current assignment: Commander, 1st Operations Brigade, 86th Training Division.