David Edward Fly, P.E.

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328 Fryklund Hall

University of Wisconsin-Stout

OVERVIEW

David is a licensed professional engineer specializing in the area he teaches, mechanics of materials and manufacturing processes. His strengths and interest are mechanics of materials, finite element modeling, solid modeling, robotics, industrial tooling, statistics, research in additive manufacturing and composites. He has owned and operated an engineering company with Solidworks software, designed machines, worked in China with engineers there, and commercialized patented technology. He is currently all but dissertation in a doctoral program in Industrial and Systems Engineering from Auburn University.

TEACHING

Undergraduate Courses Taught

- MECH-293 Statics and Dynamics
- MECH-294 Mechanics of Materials
- MFGE-415 Machine Vision and Robotics
- MFGE-441 Design of Jigs and Fixtures
- MFGE-707 Field Project Formulation
- MFGE-410 Capstone 2
- MFGE-106 Impacts of Engineering Design
- MFGE-407 Flexible Manufacturing Systems
- MFGE-325 Computer Aided Manufacturing
- MFGE-391 Fluid Mechanics
- MFGE-405 Industrial Robotics
- MFGT-102 Manufacturing & Materials
- POWER-260 Introduction to Fluid Power

Industry Courses Taught

2015 Industrial Robotics End of Arm Tooling Using 3D Printing. Professional workshop for global applications engineers from Stratasys Inc. January, 2015

2008 Statistics Workshop to Engineering Department at S&S Cycle, Viroqua WI

Graduate Students Advised

2015 Anita Gradowski, Measurement Systems for parts made by Fused Deposition Modeling (FDM).

2011 Mike Hemmila, Utilization of a Vision System to Inspect Thermo Set Cores

2010 Amanda Normand, A Study of the Venturi Effect and the Venturi Exhaust Primer

2010 Ryan Geissler, Assessing Improvements to Technical Instruction Manuals

2009 Christian Gausman, Implementing Lean Manufacturing and Design for Mfg.

2008 Rebecca Anderson, Design and Justification of an Automated Palletizing Line

2007 Doug Reinhardt, Training of Diesel Technicians

SERVICE

Service to Students

2011 Independent Study in Materials Engineering, Buğra M. Açan from Ankara Turkey
2011 River Falls Charter School, River Falls WI.
2010 First Lego League Robotics Competition at UW Stout
2009 First Lego League Robotics Competition, regional and state
2009 Advised Student Organization – Stout Trigger Guards
2005 Taught Solidworks one on one to Capstone students (after sabbatical)
2001 TEAMS Competition for High Schools (Event Coordinator)
1998-2000 Advise Student Chapter of Society of Manufacturing Engineers
1998-2001 STEPS Camp

Service on Committees

- Faculty Senate
- Advisory Board for Mfg. Engineering
- Program Review Committee
- ABET Accreditation Committee
- Recruiting Committee
- Chancellor's Task Force on C.I.
- Search and Screen Committees
- Advisory Board for Stout Online
- Curriculum and Instruction Committee
- Personnel Committee, Chair
- Executive Committee

Service in Administration

2012 Chancellor's Task Force on Customized Instruction
2012 to present, Chair and Member of our Department Personnel Committee
2009 to 2012, Program Director for Master of Science in Manufacturing Engineering
2010 Program Revision and Self Study Report
2011 $5000 Gift in Kind of Machine Vision Camera from Imperx
2008 $16,930 Machine Vision Lenses from PPT Vision
2007 $20,000 Gift in Kind of Robot from Phillips Plastics
2002-2003 Director of Small Business Incubator

SCHOLARSHIP

Scholarship in Research Publications

2014 3D Printing Thin Skinned Composites to Achieve the Strength-to-Weight Ratio of Aluminum. Solid Freeform Symposium, Austin Texas, August, 2014.
2014 Measurement Systems Comparison on Various Feature Sizes of FDM Parts. Solid Freeform Symposium, Austin Texas, August, 2014.
2005 Dash Knob Inspection Project ASEE North Midwest Conference. Brookings South Datkota. October 14, 2005
1996 Low Power Laser Heat Treatment to Improve Fatigue Life of Low Carbon Steel Journal of Laser Applications vol.8 no.2 1996
1994 PC-Based Multiple Camera Machine Vision System for Pine Seedling Measurements. Applied Engineering in Agriculture (ASAE) vol. 10 no. 6 1994

Scholarship in Presentations or Workshops

2015 Industrial Robotics End of Arm Tooling Using 3D Printing. Professional workshop for global applications engineers from Stratasys Inc. January, 2015.
2014 National Science Foundation Workshop on Additive Manufacturing and the Environment.
2014 3D Printing Thin Skinned Composites to Achieve the Strength-to-Weight Ratio of Aluminum. Solid Freeform Symposium, Austin Texas, August, 2014.
2014 Measurement Systems Comparison on Various Feature Sizes of FDM Parts. Solid Freeform Symposium, Austin Texas, August, 2014.
2012 FDM Build Layer Parameter Influence on Tensile and Impact Strength. American Society of Engineering Educators Regional Conference. Fargo, ND.
2002 Developing Successful Academic Partnerships. Wisconsin Business Incubation Association Annual Meeting. Madison Wisconsin.
2002 Administration of Incubators. Economic Development Administration Chicago Regional Office Annual Conference, Chicago Illinois.
1995 Poster session on Laser Heat Treatment to Improve Fatigue Life. Intl. Congress on the Applications of Lasers and Electo-Optics (ICALEO) San Diego California.

Scholarship in Patents

2014 U.S. Patent Application, 14/347926 Layered 3D Printing with Lower Viscosity Fluid Fill
2010 U.S. Patent 7,770,870 Tow Ball Winch Mount
2009 Canadian Patent 2504029 Alignment pin and fastener with bi-directional clamping.
2006 U.S. Patent 6,997,658 Alignment pin and fastener with bi-directional clamping.
2000 U.S. Patent 6,019,359 Lightweight welding table.

Scholarship in Grants as Principal Investigator

2014 $20,000 Writing NSF Grant Proposal on Additive Manufactured Hybrid Composites. Faculty Senate Research Fellowship. November, 2014. University of Wisconsin-Stout. (not awarded).
2013 $11,629 Establishment of a Research Program in Additive Manufacturing. Faculty Research Initiative Grant. University of Wisconsin – Stout.
2009 $776,000 Machine Vision Measurement of Micro-Endmill Deflection. National Science Foundation Proposal (not awarded).
2003 $64,100 Incubator Expansion Project. WI. Department of Commerce
2003 $74,100 Incubator Expansion Project. Rural Business Enterprise Grant
2000 $1,982 Increasing Knowledge of Industrial Hydraulic Circuits. UW-Stout
2000 $10,000 Non-tenured Faculty Professional Development Grant. 3M Corp.
1998 $43,392 Develop Production Processes and Equipment for New Welding Platen

Scholarship in Peer Reviews

2014 Reviewer for Oak Ridge Associated Universities. Reviewed Proposal: Industrial Manipulator Based Intelligent Assist System for Cooperative Assembly Tasks