MEHMET M. BAYSAL

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EDUCATION

Syracuse University, Syracuse, NY

Ph.D. in Mechanical and Aerospace Engineering, May 2012
- Dissertation: *"Functional and Behavioral Product Information Representation and Consistency Validation for Collaboration in Product Life-Cycle Activities"*

Cukurova University, Adana, Turkey

Master of Sciences in Mechanical Engineering, Thesis: *"Expert System Development for Gearbox Design",* May 2000

Bachelor of Sciences in Mechanical Engineering, Ranked third among 80 graduates, June 1997

EXPERIENCE

SUNY Morrisville, Morrisville, NY

Assistant Professor, Aug. 2014–Present
Department Chair, Aug. 2015–2018
Acting Chair, Aug. 2014–2015

Mechanical Engineering Technology (MET) and Computer-Aided Design Technology Programs.
- Taught Engineering Drawing, CAD: AutoCAD and advanced solid/surface modeling using SolidWorks, kinematic and structural analysis with SolidWorks Simulation, Dimensional Metrology, **GD&T,** and Mechanical Design (kinematics, position, and velocity analysis, design of power transfer drive systems.)
- **Co-founded** the SUNY Morrisville **Manufacturing Training Institute**; **developed training curriculums;** identified and purchased training equipment; prepared **hybrid** courses using **SME-ToolingU** online courses and **hands-on equipment; provided hands-on, on-site training for industry partners** (i.e., 13 weeks with two cohorts "**Building Blocks to Mechatronics" training** at Corning Inc., Oneonta, NY) and **boot camps** with a local **workforce development** agency.
- Developed and implemented MET Student Outcome Assessment &Continuous Improvement Process.
- Coordinated ABET assessment; authored one ABET self-study and three ABET interim reports.
- Received grant for course development for an Industrial Automation course (in progress)

Syracuse Academy of Science, Syracuse, NY
STEM Coordinator, Aug. 2013–July 2014
- Coordinated and supported research and engineering programs in the fields of robotics, science, technology, engineering, and math; taught Introduction to Robotics and Introduction to Engineering.
- Coordinated and supervised the Engineering and Technology, Robotics, and Rocketry Clubs.

Syracuse University, Syracuse, NY
Research Scholar, May 2012–2013
- Conducted research for the studies "Traceability and Consistency Validation Issues in the Product Information Model" and "A Material Information Model for Sustainable Manufacturing." Supported by the National Institute of Standard and Technology (NIST).

Research/Teaching/ Graduate Assistant, Aug. 2006–May 2012
- Conducted research for "Product Information Representation and Modeling" and "Sustainable Manufacturing" as part of a joint research group supported by NIST.
- Assisted with CAD/CAM courses for undergraduate and graduate students. Taught engineering drawing, GD&T, solid/surface modeling using **Pro/Engineer** and **SolidWorks**. Utilized Static/dynamic **structural analysis** for 2D/3D objects using **FEA tools.** Prepared tutorials, delivered lectures, supervised projects, and prepared and administered exams.

Visiting Scholar, May 2002–May 2005
- Conducted research for the article "Product Information Representation and Modeling: Developing a Standard Model to Represent Assembly-Related Product Information for Interoperability Among Different CAD/CAM Tools."

Cukurova University, Adana, Turkey
Research Assistant, 1997–1998 and 2002–2006
Lecturer, 1998–2002

- Designed and integrated an automatic **control system with PLC**; participated in **designing** and manufacturing **parts under high pressure and dynamic loads** for a water jet cutting system design and manufacturing project; the first prototype was designed and manufactured in Turkey.
- Supervised undergrad and grad student use of I**ndustrial Automation, Pneumatics** and Robotics Lab and **Material Properties Lab**; prepared instructional manuals for lab equipment and performed testing.
- Taught CAD/CAM-, CNC-, and CAD-related courses.
- Performed *material property tests* (tensile, bending, compression, hardness, Charpy impact, etc.) and prepared *expert reports* to assist courts and institutions with checking the *conformity of materials to standards and regulations*.

TEACHING INTERESTS

- Product Design and Development
- Mechanical Design, Statics, Dynamics, and Strength of Materials, Finite Elements
- Industrial Automation and Mechatronics
- CAD/CAM Systems, Design for Manufacturing and Manufacturing Subjects.

RESEARCH INTERESTS

- Product information modeling for the entire Product Life-Cycle
- Sustainable manufacturing: Reuse, replacement, remanufacturing
- Industrial automation and mechatronics

COMPUTER SKILLS

- CAD/CAM: SolidWorks; Pro/Engineer Wildfire/Creo (solid modeling and manufacturing); AutoCAD: Extensive experience with part and assembly solid modeling, parametric modeling, product and assembly family modeling, detailed engineering drawings.
- FEA Modeling and Analysis: SolidWorks Simulation, a basic–level ANSYS: Expertise with 2D and 3D structural analysis under static and dynamic loads.

INDUSTRIAL EXPERIENCE

Manufacturing Training Institute, SUNY Morrisville, 2017 – present
- Assess the needs for and develop hybrid online and hands-on courses and training curriculums for **workforce development** and *provided hands-on, on-site training* **for the manufacturing industry partners**,

Emerald Equipment Systems, Liverpool, NY
Mechanical Design Engineer, 2008
- Measured the size of parts with various dimensional measurement instruments; developed parametric solid models; prepared detailed engineering drawings, with specifications for bids from manufacturers.

Cukurova University, Adana, Turkey
Expert and Test Engineer, 1997 – 2002
- Performed property tests (tensile, bending, compression, hardness, charpy impact, etc.), prepared expertise reports for courts and institutions to check the conformity of materials to standards and regulations,

New Holland Tractor Factory, Ankara, Turkey
Intern Engineer, 1995 and 1996 (summers)

SERVICES

- Co-founder, SUNY Morrisville Manufacturing Training Institute
- Representative, SUNY Transfer Path for Mechanical and Manufacturing Engineering Tech. 2016 - present
- Communication Officer and SUNY Morrisville Representative New York Cyber Security and Engineering Technology Association, Member since 2015, Communication officer, 2020 – present
- Chair, MET Assessment Committee; coordinator for ABET accreditation, 2014 – present
- Member, SUNY Micro-Credential Interest Group, 2018 - Current
- Vice President and Secretary, Board of Trustees, SANY Schools, Syracuse, Utica NY, 2016 – present

HONORS AND AWARDS

Syracuse University

- Graduate Assistantships, 2011 – 2012
- Teaching Assistantships, 2005 – 2010
- Summer Stipend Award, 2007 – 2010

TUBITAK (Scientific and Technical Research Council of Turkey), Ankara, Turkey

- PhD Scholarship, 2000 – 2002

MEMBERSHIPS

- Member, American Society of Mechanical Engineers (ASME), 2004 – present
- Member, Society of Manufacturing Engineers (SME), Syracuse Chapter, 2005 – present
- President of Turkish Student Association at Syracuse University, 2007 – 2010

PUBLICATIONS

Peer-Reviewed Journal Papers

U. Roy, **M. M. Baysal**, M. I. Sarigecili, M. Shuaib, F. Badurdeen, I.S. Jawahir. "Development of an Integrated Product Information Model for Product Sustainability Assessment." *International Journal of Sustainable Manufacturing*, v 3, n 2, p 156–169, 2014.

M. I. Sarigecili, **M. M. Baysal**, B. Zhu, U. Roy, I. S. Jawahir. "Disassembly Process Model for End-of-Life (EOL) Activities for Manufactured Products." *International Journal of Sustainable Manufacturing*, v 3, n 1, p 37–56, 2013.

S. Rachuri, M. M. Baysal, U. Roy, S. Foufou, C. Bock, S. J. Fenves, E. Subrahmanian, K. Lyons, and R. D. Sriram. "Information Models for Product Representation: Core and Assembly Models." International Journal of Product Development, v 2, n 3, p 207–35, 2005.

Peer-Reviewed Conference Papers

M. M. Baysal "Implementation of a New Student Outcome Assessment and Continuous Improvement Procedure for ABET-ETAC at SUNY Morrisville." International Mechanical Engineering Congress and Exposition, SUNY Morrisville, Morrisville, NY, USA, 2018 (ASME-IMECE-2018). Technical Presentation, IMECE2018-88855.

M. M. Baysal and U. Roy. "Representation of Function, Behavior, Structure and Interrelationships at Different Abstract Levels of Product Information." ASME 2015 International Mechanical Engineering Congress and Exposition, Houston, Texas, USA, November 13–19, 2015. Publication: *Volume 11: Systems, Design, and Complexity*, IMECE2015-53584, pp. V011T14A039; 9 pages, DOI:10.1115/IMECE2015-53584

M. M. Baysal and U. Roy. "Consistency of Assembly-Related Product Information: Part 1 — Representation." ASME 2014 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Buffalo, New York, USA, August 17–20, 2014. Publication: *Volume 1B: 34th Computers and Information in Engineering Conference*, DETC2014-34016, pp. V01BT02A016; 10 pages DOI:10.1115/DETC2014-34016

M. M. Baysal and U. Roy. "Development of a Product Information Model to Support Replacement Analysis." *ASME* International *Design Engineering Technical Conference*, Portland, OR, USA, August 4–7, 2013. Publication: *Proceedings of the ASME 2013 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, DETC2013-13385.

U. Roy, **M. M. Baysal**, M. I. Sarigecili, M. Shuaib, and I. S. Jawahir. "Extraction of Necessary Information from the Open Assembly Model for Evaluation of Product Sustainability Indices." CIRP: 10th Global Conference on Sustainable Manufacturing, Istanbul, Turkey, October 31–November 2, 2012.

M. I. Sarigecili, **M. M. Baysal**, Bicheng Zhu, U. Roy and I. S. Jawahir. "Disassembly Process Model for End-of-Life (EoL) Activities." CIRP: 10th Global Conference on Sustainable Manufacturing, Istanbul, Turkey, October 31–November 2, 2012.

M. M. Baysal, M. I. Sarigecili and U. Roy. "Functional and Behavioral Representation of Product Information for Collaboration in the Product Life-Cycle." ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, 2007. Publication: *Proceedings of the ASME International Mechanical Engineering Congress and Exposition* v 3, p 133–141, 2008.

M. I. Sarigecili, **M. M. Baysal,** U. Roy, S. Rachuri, R. D. Sriram, M.. "An Evaluation Mechanism for Defining Gaps and Overlaps in Product Information Exchange Standards." ASME International Mechanical Engineering Congress and Exposition, Seattle, WA, 2007. Publication: *Proceedings of the ASME International Mechanical Engineering Congress and Exposition*, v 3, p 179–185, 2008.

M. M. Baysal, U. Roy, S. Rachuri, R. D. Sriram and K. W. Lyons. "Product Information Exchange Using the Open Assembly Model: Issues Related to the Representation of Geometry Information." ASME IMECE, Orlando, FL, 2005. Publication: *Proceedings of the ASME IMECE - Manufacturing Engineering Division (MED),* v 16–1, p 601–609, 2005.

M. M. Baysal, U. Roy, R. Sudarsan, R. D. Sriram and K. W. Lyons. "The Open Assembly Model for the Exchange of Assembly and Tolerance Information: Overview and Example." ASME Design Engineering Technical Conference and Computers and Information in Engineering Conference, Salt Lake City, Utah, 2004. Publication: *Proceedings of the ASME Design Engineering Technical Conference*, v 4, p 759–770, 2004.

N. Geren and **M. M. Baysal**. "Investigation of the Effects of the Surface Coating Techniques on Fatigue Strength in Machine Elements Design." GAP Engineering Conference, Sanliurfa, Turkey, 6–8 June 2002. Publication: *4. GAP Mühendislik Kongresi,* p 394–400 (in Turkish).

M. M. Baysal and N. Geren. "A Study of Commercial and Prototype Expert System Software Used in Mechanical Engineering." MATIT Machine Design and Manufacturing Technologies Congress, Konya, Turkey, 2–3 November 2001. Publication: *MATİT Makine Tasarım ve İmalat Teknolojileri Kongresi Bildiriler Kitabı*, p 241–251, (in Turkish).

N. Geren and **M. M. Baysal**. "Selection of Tools for Developing Expert Systems and Applications in Mechanical Engineering." MATIT Machine Design and Manufacturing Technologies Congress, Konya, Turkey, 2–3 November 2001. Publication: *MATİT Makine Tasarım ve İmalat Teknolojileri Kongresi Bildiriler Kitabı*, 2001 (in Turkish).

N. Geren and **M. M. Baysal** "Expert System Development for Spur Gear Design." UMTIK2000 at METU, Ankara, Turkey, 13–15 September 2000. Publication: *9th International Machine Design and Production* Conference Proceedings (on CD-ROM).

N. Geren, M. Bayramoglu, B. Sahin, **M. M. Baysal,** and T. Tunc. "Integration and Automation of a Water Jet Cutting System." ODTÜ, Ankara, 9–11 September 1998. Publication: *8th International* Machine *Design and Production Conference Proceedings* (in Turkish).

Published Reports

S.Rachuri, **M. M. Baysal**, U.Roy, S.Foufou, C. Bock, S. J. Fenves, E. Subrahmanian, K. Lyons, and R. D. Sriram. "NISTIR 7173: Information Models for Product Representation: Core and Assembly Models." Gaithersburg, MD, December 2004. Publication: *NIST Report (NISTIR)* – 7173.

Work in Progress

M. M. Baysal, "Development of a Material Information Model to Support Product Life-Cycle Activities."

M. M. Baysal, "A Behavior Information Model for Tracing Failures of Product Functions and Form Features."