

Mehdi Heidari

Assistant Professor of Mechanical Engineering

Department of Manufacturing & Pro,
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Work Experience

Shahrood University of Technology Iran
Assistant Professor
Department of Manufacturing & Pro,
Faculty of Mechanical Engineering, 2019-present
Research field: Precision Machining, Advanced materials, Micro/Nano
Manufacturing, Additive Manufacturing Process

Education

Sharif University of Technology Iran
Postdoctoral Researcher
School of Mechanical Engineering, 2018-2019
Research field: Precision cutting of advanced materials

Keio University Tokyo, Japan
Ph.D. Department of Mechanical Engineering, March 2018
Thesis: Material removal mechanism and surface integrity in ultraprecision cutting of porous materials.

Ferdowsi University of Mashhad Iran
Master of Science, Department of Mechanical Engineering, June 2009
Thesis: Determination of process parameters to optimize manufacturing process using intelligent algorithms: MIG/MAG welding case study

Iran University of Science and Technology Iran
Bachelor of Science, Department of Mechanical Engineering, July 2007
Thesis: A review on recent advances in the machining process

Research Interests

Ultraprecision Machining and Machine Tools
Micro/Nano Manufacturing & Precision Engineering
Mechanics of Material
Advanced Materials (Porous and Composites) and Material Processing
Advanced Manufacturing Technology
Additive Manufacturing Process

Teaching Courses

Machining and Machine Tools
Metal cutting Mechanics
Metallurgy
Material Science
Micro-Manufacturing Technology
Mechanics of Materials

Awards

Iran's National Elites Foundation Postdoctoral Fellowship, 2018-2019
Japan JSPE Young Researcher Award, 2018
Ph.D. Program Scholarship, 2014-2018
Keio University KLL Ph.D. Program Research Grant, 2015-2017
Khorasan Razavi Gas Company Research Grants for Graduate Students, 2008-2010

Activities

Member, The Japan Society for Precision Engineering
Member, Iran's National Elites Foundation
Member, The Academic Society of Iranians in Japan
Member, The Society of Manufacturing Engineering of Iran
Reviewer, Optics & Laser Technology Journal, Elsevier
Reviewer, International Journal of Advanced Manufacturing Technology, Springer

Publications

Atomistic simulation of bicrystal behaviour with 5 grain boundary parallel to nanometric cutting direction, *International Journal of Machining and Machinability of Materials*, 2022.

Effect of nano-void position on surface integrity in nanomachining of single crystal copper, *International Journal Of Materials & Product Technology*, 2022.

Molecular dynamics investigation into the effect of nano-void size on cutting parameters in copper single crystal, *SADHANA*, 47 (1), 2022.

Analysis of the effect of indenter deformation and presence of voids on silicon nanoindentation using molecular dynamics simulation, *AUT Journal of Mechanical Engineering*, 2021.

Effect of nano clay, nano-graphene oxide and carbon nanotubes on the mechanical and tribological properties of crosslinked epoxy nanocomposite, *PLOS ONE*, 16(11), 2021

Improvement of Fatigue Life and Dynamic Strength of an Engine Mounting Bracket Using Experimental and Numerical Approaches, *Iranian Journal of Science and Technology, Transactions of Mechanical Engineering*, 2021.

Analysis of the Effects of Machining Loads on Online Values of Reaction Forces in Fixture Locating System, *Modares Mechanical Engineering*, 21 (9), 2021.

Modelling and Optimization of Surface Roughness and Specific Tool Wear in Milling Process, *Tehnički vjesnik*, 28 (5), 2021.

An investigation of the effect of bolt tightening stress on ultrasonic velocity in cylinder head and main bearing cap bolts of diesel engine, *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, 43(8), 2021.

Design and fabrication of an online inductive sensor for identification of ferrous wear particles in engine oil, *Industrial Lubrication and Tribology*, 73(4), 2021.

Modeling of jamming phenomenon in fixture design application: an analytical, numerical, and experimental study, *Multibody System Dynamics*, 52, pp. 229–253, 2020.

An experimental and numerical study of tool geometry effect on microfracture characteristics in micro/nano machining of brittle porous structure, *Iranian Journal of Manufacturing Engineering*, 6 (5), pp. 47-52, 2019.

Effects of tool rake angle and tool nose radius on surface integrity of ultraprecision diamond turned porous silicon, *Journal of Manufacturing Processes*, 37, pp. 321–331, 2019.

Material removal mechanism and surface integrity in ultraprecision cutting of porous titanium. *Precision Engineering*, 52, pp.356-369, 2018.

Nanometric-scale chip formation behavior of pure titanium in diamond turning. *The International Journal of Advanced Manufacturing Technology*, 95(1–4), pp.479–492, 2017.

Ultraprecision surface flattening of porous silicon by diamond turning. *Precision Engineering*, 49, pp.262–277, 2017.

Fundamental characteristics of material removal and surface formation in diamond turning of porous carbon. *International Journal of Additive and Subtractive Materials Manufacturing*, 1(1), p.23, 2017.

A New Approach for Predicting and Optimizing Weld Bead Geometry in GMAW. *International Journal of Mechanical Systems Science and Engineering*, 5(2), pp.138–142, 2011.

Loading Path Optimization of T-shape Tube Hydroforming Process. *Steel research international*, 81(9), pp.524–527, 2010.

Modeling and optimization of MAG welding for gas pipelines using regression analysis and simulated annealing algorithm. *Journal of Scientific & Industrial Research*, 69(4), pp.259–265, 2010.

Effects of pore size and cutting scale on machining of porous titanium, Proceedings of 5th Annual of International Conference on Materials Science, Metal and Manufacturing, Singapore, 2018.

Chip formation and surface integrity in diamond turning of porous titanium, Japan Society for Precision Engineering Spring Meeting, Tokyo, Japan, 2018.

Ultraprecision surface flattening of porous single-crystal silicon by diamond turning. In International Symposium on Micro-Nano Science and Technology. Tokyo, Japan, 2016.

Investigation on surface formation mechanism of porous carbon in diamond turning. In Proceedings of the 8th International Conference on Leading Edge Manufacturing in 21st Century, LEM 2015. Kyoto, Japan: Japan Society of Mechanical Engineers, pp. 4–9, 2015.

An Investigation into the Optimization of Loading Path in T-shape of Tube Hydroforming. In Proceeding of the 10th International Conference, NUMIFORM. Pohang, Korea pp. 1101–1108, 2010.