

# Mehdi Heidari

*Assistant Professor of Mechanical Engineering*

Department of Manufacturing & Pro,  
Faculty of Mechanical Engineering,  
Shahrood University of Technology  
7<sup>th</sup> Tir Square, Shahrood, Iran  
P.O.Box: 3619995161  
Email: Heidari@shahroodut.ac.ir  
TEL: +982332300240 Int. 3363

<b>Work Experience</b>	<b>Shahrood University of Technology</b> Iran
	Assistant Professor Department of Manufacturing & Pro, Faculty of Mechanical Engineering, 2019-present Research field: Precision Machining, Advanced materials, Micro/Nano Manufacturing
	<b>Sharif University of Technology</b> Iran
	Visiting Assistant Professor School of Mechanical Engineering, 2018-2019 Research field: Precision cutting of advanced materials
<b>Education</b>	<b>Keio University</b> Tokyo, Japan
	Ph.D. Department of Mechanical Engineering, March 2018 Thesis: Material removal mechanism and surface integrity in ultraprecision cutting of porous materials.
	<b>Ferdowsi University of Mashhad</b> 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
	<b>Iran University of Science and Technology</b> Iran
	Bachelor of Science, Department of Mechanical Engineering, July 2007 Thesis: A review on recent advances in the machining process
<b>Research Interests</b>	Ultraprecision Machining and Machine Tools Micro/Nano Manufacturing & Precision Engineering Mechanics of Material and Material Processing Advanced Materials (Porous and Composites) Additive Manufacturing Technology
<b>Teaching Courses</b>	Machining and Metal Cutting Mechanics Metallurgy, Material Science Micro-Manufacturing Technology Machine Tools Additive Manufacturing

## 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, International Journal of Machine Tools and Manufacture, Elsevier  
 Reviewer, International Journal of Mechanical Sciences, Elsevier  
 Reviewer, Journal of Manufacturing Processes, Elsevier  
 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 Materials & Product Technology*, 2022.

Effect of nano-void position on surface integrity in nanomachining of single crystal copper, *International Journal of Machining and Machinability of Materials*, 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.

Analysis and Modeling of Damage and Crack Growth in Composite Workpieces under Machining Process using the Bond-Based Peridynamic Theory, *Modares Mechanical Engineering*, 23 (10), 2023.

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.