

Kamaljit Singh Boparai
Ph. D

Assistant Professor,
Department of Mechanical Engineering,
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H -Index 17; Citations 1117 (Google Scholar)



Personal Information

Date of Birth: 31 March 1978
Nationality: Indian

Educational Details

Institute	University	Education	Year
GNDEC, Ludhiana	I.K.G. Punjab Technical University, Kapurthala	Ph. D (Mechanical Engineering)	2015
GNDEC, Ludhiana	I.K.G. Punjab Technical University, Kapurthala	M. Tech (Production Engineering)	2009
BBSBEC, Fatehgarh Sahib	I.K.G. Punjab Technical University, Kapurthala	B. Tech (Mechanical Engineering)	2001

Work Experience

Teaching experience

Designation	Institute	From	To
Assistant Professor	RIMT-IET, Mandi Gobindgarh	August, 2009	August, 2015
Associate Professor	RIMT-IET, Mandi Gobindgarh	September, 2015	August, 2016
Assistant Professor	GZSCCET, MRS Punjab Technical University, Bathinda, Punjab	August, 2016	Till Date

Industrial experience

S No	Designation	Company	From	To
1	Senior Engineer	Highways Industries Limited, Ludhiana	September, 2005	July, 2007
2	Engineer	Bajajsons Limited, Ludhiana	March, 2003	August, 2005

Total work experience: 13+5= **18 years**

Research Interests

Bio-medical Engineering, Additive Manufacturing, CNC machining, CAD/CAM, Material characterization.

Academic Review Engagement

- Reviewer of Rapid Prototyping Journal (Emerald Publisher).
- Reviewer of Institute of Engineers Journal, Series C (Springer Publisher).
- Reviewer of 3D Printing and Additive Manufacturing Journal.
- Member of Institutes of Engineers, India (Membership no M-147057-9).
- Member of American Society of Mechanical Engineers (Membership no.102093491).

Ph. D Supervision

S No	Candidate Name	Title	Registration No	Status
1	Jasgurpreet Singh Chohan	Investigating the effect of process parameters of fused deposition modeling and vapor smoothing on surface properties of ABS replicas for biomedical applications.	1406012 (IKGPTU Jalandhar)	Completed in 2017
2	Daljinder Singh	Investigating the effect of processing parameters of fused deposition modeling, vapor smoothing and investment casting on mechanical properties of biomedical implants.	1406027 (IKGPTU Jalandhar)	Ongoing
3	Gurmaheshinder Singh Sandhu	Investigating the Mechanical Properties of 3D Prints Prepared with Different Geometries of Extrudate in Fused Filament Fabrication	1910GMPE04 (MRSPTU, Bathinda)	Ongoing
4	Vinod Kumar	Development of 3D Printing Based Smart Insole for Online Health Monitoring	211GMFT01 (MRSPTU, Bathinda)	Ongoing

M. Tech Supervision

S No	Candidate Name	Title	Completed in
1	Sandeep Singh Saini	Geometric features optimization in drilling operation using response surface approach.	2015
2	Navjot Singh Dhadli	Effect of cryogenic treatment on the performance of TIG welding electrode: A comparative experimental study.	2015
3	Deepak Malik	Some experimental investigations to improve the conductivity in work material for EDM process.	2016
4	Simranjit Singh	Magnetic steering effect on weldment with TIG welding process.	2016
5	Gaurav Thukral	Effect of abrasive particle size on the surface roughness of Al pipe using magnetic assisted finishing.	2016
6	Gagandeep Rooprai	Comparative study of cryogenically treated and conventionally treated single point cutting tool.	2016
7	Vivek Goyal	Experimental Investigations for Magnetic Assisted Abrasive Honning Process.	2017

8	Abhishekh Kumar	Fracture Analysis of 3D Printed Canine Femur Intramedullary Bone For Preoperative Surgical Planning	2022
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Research Publications

Books

S No	Book Title	Authors	Publisher	ISBN
1	Application of cryogenic treatment for machining cost reduction: A case study	Rupinder Singh Kamaljit Singh,	Lambert Academic Publishing GmbH & Co. Germany	978-3-8433-7108-7
2	Geometric features optimization for drilling operation using RSM	K.S. Boparai, Sandeep Singh	Lambert Academic Publishing GmbH & Co. Germany	978-3-659-81801-1
3	Enhancing the Machining Performance of EDM Process by using RSM	K.S. Boparai, Deepak Malik	Lambert Academic Publishing GmbH & Co. Germany	978-3-659-93673-9

Journals (SCI)

S No	Title	Authors	Journal	pp
1	Comparison of tribological behavior of Nylon6-Al-Al ₂ O ₃ and ABS parts fabricated by fused deposition modeling	K.S.Boparai, Rupinder Singh, H. Singh	Virtual and Physical Prototyping, Vol.10, No.2, 2015 doi.org/10.1080/17452759.2015.1037402 (Taylor and Francis)	59-66
2	Wear behavior of FDM parts fabricated by composite material feed stock filament	K.S. Boparai, Rupinder Singh, H.Singh	Rapid Prototyping Journal, Vol. 22, Issue 2, 2016 (Emerald publication)	350-357
3	Experimental investigations for development of Nylon6-Al-Al ₂ O ₃ alternative FDM filament	K.S. Boparai, Rupinder Singh, H. Singh	Rapid Prototyping Journal, Vol. 22, Issue 2, 2016 (Emerald publication)	217-224
4	Development of rapid tooling using fused deposition modeling: A review	K. S.Boparai, Rupinder Singh, H. Singh	Rapid Prototyping Journal, Vol 22, Issue 2, 2016 (Emerald publication)	281-299
5	Process optimization of single screw extruder for development of Nylon6-Al-Al ₂ O ₃ alternative FDM filament	K.S. Boparai, Rupinder Singh, H.Singh	Rapid Prototyping Journal, Vol 22, Issue 4, 2016 (Emerald publication)	766-776
6	Mathematical modeling of surface roughness for vapor processing of ABS parts fabricated with fused deposition modeling	Jasgurpreet S. Chohan, Rupinder Singh, K.S. Boparai	Journal of Manufacturing Processes (Elsevier) Vol. 24, 2016	161-169
7	Parametric optimization of fused deposition modeling and vapour smoothing processes for surface finishing of biomedical implant replicas	Jasgurpreet S. Chohan, Rupinder Singh, K.S. Boparai	Measurement (Elsevier), Vol. 94, 2016	602-613

8	Thermal characterization of recycled polymer for additive manufacturing applications	K.S. Boparai , R. Singh , F. Fabbrocino , F. Fraternali	Composites Part B (Elsevier), Vol. 106,2016	42-47
9	Dimensional accuracy analysis of coupled fused deposition modeling and vapour smoothing operations for biomedical applications	Jasgurpreet Singh Chohan, Rupinder Singh, Kamaljit Singh Boparai , Rosa Penna, Fernando Fraternali	Composites Part B (Elsevier), Vol. 117,2017.	138-149
10	Thermal and Surface Characterization of ABS Replicas Made by FDM for Rapid Tooling Applications	Jasgurpreet S. Chohan, Rupinder Singh, K.S. Boparai	Rapid Prototyping Journal, Vol 24 , Issue 1 , 2018 (Emerald publication)	28-36
11	In-vitro studies of SS 316 L biomedical implants prepared by FDM, vapor smoothing and investment casting	Daljinder Singh, Rupinder Singh, K.S. Boparai , Ilenia Farina, Luciano Feo, Anita Kamra Verma	Composites Part B (Elsevier), Vol. 132,2018.	107-114
12	Investigations for Enhancing Wear Properties of Rapid Tooling by Reinforcement of Nanoscale Fillers for Grinding Applications	Kamaljit Singh Boparai , Rupinder Singh	Journal of Micro and Nano Manufacturing (ASME)	Vol 6, 021004-1-6
13	Development and surface improvement of FDM pattern based investment casting of biomedical implants: A state of art review	Daljinder Singh, Rupinder Singh, K.S. Boparai ,	Journal of Manufacturing Processes Volume 31, 2018	80-95
14	Post-processing of ABS Replicas with Vapour Smoothing for Investment Casting Applications	Jasgurpreet S. Chohan, Rupinder Singh, K.S. Boparai	Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, 2020	1-6
15	Investigations on hardness of investment-casted implants fabricated after vapour smoothing of FDM replicas	Daljinder Singh, Rupinder Singh, K.S. Boparai	Journal of the Brazilian Society of Mechanical Sciences and Engineering, Vol.42, no 4, 2020	1-12
16	Additive Manufacturing Assisted Preoperative Surgical Planning for Canine Femur Bone Fracture	Singh, R., Kumar, A. & Boparai, K.S.	Natl. Acad. Sci. Lett., Vol. 24, 2022	521-524

17	Intramedullary pin fixation in 3D printed canine femur bone model for preoperative surgical planning	Singh, R., Kumar, A. & Boparai, K.S.	J Braz. Soc. Mech. Sci. Eng. 44, (2022)	299
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Journals (Scopus)

S No	Title	Authors	Journal	pp
1	Process capability analysis of three dimensional printing as cost effective rapid casting solution for low melting alloys	K.S.Boparai , Rupinder Singh, H. Singh	International Journal of Rapid Manufacturing, Vol. 5, Issue 2, 2015	155-169
2	Modelling and optimization of extrusion process parameters for the development of Nylon6-Al-Al ₂ O ₃ alternative FDM Filament	K.S. Boparai , Rupinder Singh, H.Singh	Progress in additive manufacturing (Springer publications) Vol. 1, issue 1-2, 2016	115-128
3	3D Printed Functional Prototypes for Electro Chemical Energy Storage	Kamaljit Singh Boparai , Rupinder Singh	International Journal of Materials Engineering Innovation, Vol 10, no 2, 2019	152-164
4	Vapor smoothing process for surface finishing of FDM replicas	Jasgurpreet S. Chohan, Rupinder Singh, K.S. Boparai	Materials Today: Proceedings, 2019	---
5	Investigations for surface roughness and dimensional accuracy of biomedical implants prepared by combining fused deposition modelling, vapour smoothing and investment casting	Daljinder Singh, Rupinder Singh, K.S. Boparai	Advances in Materials and Processing Technologies, Oct 2020	1-20
6	Manufacturing techniques and applications of polymer matrix composites: a brief review	Jasgurpreet S. Chohan, Rupinder Singh, K.S. Boparai , MSJ Hashmi	Advances in Materials and Processing Technologies, Oct 2020	1-11
7	Reinforced non-conventional material composites: a comprehensive review	K.S. Boparai , Rupinder Singh, MSJ Hashmi	Advances in Materials and Processing Technologies, June 2020	1-10
8	Influence of slicing parameters on selected mechanical properties of fused deposition modeling prints	Gurmaheshinder Singh Sandhu, Kamaljit Singh Boparai , Kawaljit Singh Sandhu	Materials Today: Proceedings, Vol 48, Part 5, 2022	1378-1382
9	Evaluating the microstructural characteristics in friction stir welding of magnesium AZ61a alloy	Sachin Saini, Jasgurpreet Singh Chohan, Kamaljit Singh Boparai	Materials Today: Proceedings, Vol 48, Part 5, 2022	1762-1768

10	On development of correlation matrix for tuning of machining characteristics in modified ECM	Kamaljit Singh Boparai, Rupinder Singh, Jasgurpreet Singh Chohan	Materials Today: Proceedings, Vol 48, Part 5, 2022	1497-1501
11	Effect of slicing parameters on surface roughness of fused deposition modeling prints	Gurmaheshinder Singh Sandhu, Kamaljit Singh Boparai, Kawaljit Singh Sandhu	Materials Today: Proceedings, Vol 48, Part 5, 2022	1339-1345

Journals (other)

S No	Title	Authors	Journal	pp
1	Experimental investigations for statistically controlled vacuum moulding solutions of Al-SiC MMC	Kamaljit Singh, Rupinder Singh	Applied Mechanics and Materials Vol. 330, 2013, Trans Tech Publications, Switzerland Also published in Proceedings of 2 nd International Conference on Manufacturing Engineering and Process, Vancouver, Canada, April 13-14, 2013	91-95
2	Parametric optimization in drilling operation using response surface approach.	K.S. Boparai, Sandeep Singh, Amritpal Singh	Advanced Materials Research, Switzerland (Trans Tech Publications, ISSN: 16629752) Vol. 1137, 2016	117-131
3	Enhancement of machining performance with cryo-treated HSS tool	K. S. Boparai, G. Rooprai, H. Garg	International Journal of Material Science and Engineering, Vol 8, No 1, 2017	23-28
4	Effect of abrasive (Fe ₃ O ₄) particle size on the surface roughness of aluminum (A6063) pipe using magnetic assisted finishing	K.S. Boparai, G. Thukral, J.S. Chohan	International Journal of Material Science and Engineering, Vol 8, No 1	1-5
5	Effect of process parameters on Ra of FDM Fabricated and vapor smoothed abs replicas	Daljinder Singh, Kamaljit Singh Boparai, Rupinder Singh	International Journal of Advanced Mechatronics and Robotics, Vol 9, no 1 2017.	35-40
6	Influence of Magnetic Stirring on TIG Welded Weldment	Simranjeet Singh, Jasgurpreet S. Chohan, K.S. Boparai	International Journal of Material Science and Engineering, Vol 8, No 2, 2017	147-154

Book Chapters

S No	Title	Authors	Book Title	pp
1	Rapid Nano Tooling in Clinical Dentistry	Kamaljit Singh Boparai, Rupinder Singh	Emerging Trends in Nano-bio Engineering	Chapter 11

2	Advances in Fused Deposition Modeling	Kamaljit Singh Boparai, Rupinder Singh	Reference Module in Materials Science and Materials Engineering. Oxford: Elsevier; 2017.	1-10.
3	Effect of Process Parameters of Fused Deposition Modeling and Vapor Smoothing on Surface Properties of ABS Replicas for Biomedical Applications	Jasgurpreet Singh Chohan, Rupinder Singh, and Kamaljit Singh Boparai	Additive Manufacturing of Emerging Materials. Springer	Chapter 7
4	Development of Rapid Tooling Using Fused Deposition Modeling	Kamaljit Singh Boparai, Rupinder Singh	Additive Manufacturing of Emerging Materials. Springer	Chapter 8
5	Fused deposition modelling Applications and advancements	Kamaljit Singh Boparai, Rupinder Singh and Jasgurpreet Singh Chohan	Additive Manufacturing, Applications and Innovations, CRC Press, Taylor and Francis group.	Chapter 4, 127-184
6	Electrochemical Energy Storage using Batteries, Superconductors and Hybrid Technologies.	Kamaljit Singh Boparai, Rupinder Singh	DOI: 10.1016/B978-0-12-803581-8.11277-9 Reference Module in Materials Science and Materials Engineering	Accepted, In Press
7	Thermoplastic composites for fused deposition modelling filament: Challenges and Applications	Kamaljit Singh Boparai, Rupinder Singh	DOI: 10.1016/B978-0-12-803581-8.11409-2 Reference Module in Materials Science and Materials Engineering	Accepted, In Press
8	Recyclability of Packaging Materials for Domestic Applications	Kamaljit Singh Boparai, Rupinder Singh	Doi:10.1016/B978-0-12-803581-8.10858-6 Reference Module in Materials Science and Materials Engineering	1-5

9	Development and Applications of Composites of Polymeric and Biodegradable Materials Since 1990	Kamaljit Singh Boparai , Rupinder Singh Ranvijay Kumar	doi:10.1016/B978-0-12-803581-8.11580-2 Reference Module in Materials Science and Materials Engineering	1-7
10	Environment Impact of Subtractive and Additive Manufacturing Processes	Kamaljit Singh Boparai , Rupinder Singh and Jasgurpreet Singh Chohan	Reference Module in Materials Science and Materials Engineering, 2019, M.S.J. Hashmi, Elsevier,	pp 1-7
11	Abrasive Jet Machining	Kamaljit Singh Boparai , Rupinder Singh and Jasgurpreet Singh Chohan	Non-Conventional Hybrid Machining Processes: Theory and Practice. 2020	Chapter 8, 117.

In Conferences

S No	Title	Authors	Conference	pp
1	Enhancement of tool material machining characteristics with cryogenic treatment: A review	Rupinder Singh, Kamaljit Singh	Proceedings of the 2010 International Conference on Industrial Engineering and Operations Management, Dhaka, Bangladesh, January 9 –10, 2010 ISBN No. 978-984-33-0988-4	225-230
2	Effect of cryogenic treatment for machining cost reduction: A case study	Rupinder Singh, Kamaljit Singh	Proceedings of 18 th Annual International Conference on Mechanical Engineering, Sharif university of technology, Tehran, Iran, May 11-13, 2010	Published in CD
3	Application of cryogenic treatment in process industry for tooling cost reduction	Rupinder Singh, Kamaljit Singh	Proceedings of 4 th International Conference on Advances in Mechanical Engineering, (ICAME-2010), SVNIT, Surat, India, Sep.23-25, 2010	423-427
4	Effect of cryogenic treatment on wear characteristics of carbide inserts in CNC machining	Rupinder Singh, Kamaljit Singh	Proceedings of International Conference on Emerging Trends in Mechanical Engineering (ICETME 2010), Thapar University, Patiala, Feb 24-26, 2011	353-357
5	Experimental investigations for statistically controlled vacuum moulding solutions of Al-SiC MMC	Kamaljit Singh, Rupinder Singh	Proceedings of 2 nd International Conference on Manufacturing Engineering and Process (ICMEP 2013) Vancouver, Canada, April 13-14, 2013	Published in CD
6	Experimental investigations for tool life enhancement using cryogenic treatment	Kamaljit Singh, Rupinder Singh	Proceedings of National conference on Advancements and Futuristic trends in Mechanical and Materials Engineering at Punjabi University Guru Kashi Campus, Talwandi Sabo, Feb. 19-20, 2010	71-75

7	A framework for feedstock filament development in FDM process. 37-40.	K.S. Boparai, Rupinder Singh, H.Singh	International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering (October 16-18, 2014)	37-40
8	Experimental investigations for wear properties of rapid tooling with nano scale fillers for grinding applications	K.S. Boparai, Rupinder Singh,	ASME 2017 12th International Manufacturing Science and Engineering Conference MSEC2017 June 4-8, 2017, Los Angeles, CA, USA	
9	Investigations for wax coated 3D printed hybrid patterns for partial dentures	K.S. Boparai, Rupinder Singh,	ASME 2019 14th International Manufacturing Science and Engineering Conference MSEC2019 June 10-14, 2019, The Behrand College, Penn State University, Erie, PA, USA	

Research Grants

S No	Project Title	Funding Agency	Amount

Dated:

Kamaljit Singh Boparai