

# Prahalada K Rao

## List of Publications by Year in descending order

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74  
papers

2,225  
citations

201575

27  
h-index

243529

44  
g-index

76  
all docs

76  
docs citations

76  
times ranked

1529  
citing authors

#	ARTICLE	IF	CITATIONS
1	Discrete Greenâ€™s functions and spectral graph theory for computationally efficient thermal modeling. International Journal of Heat and Mass Transfer, 2022, 183, 122112.	2.5	4
2	Effect of contaminations on the acoustic emissions during wire and arc additive manufacturing of 316L stainless steel. Additive Manufacturing, 2022, 51, 102585.	1.7	45
3	Closed-loop control of meltpool temperature in directed energy deposition. Materials and Design, 2022, 215, 110508.	3.3	31
4	Monitoring and prediction of porosity in laser powder bed fusion using physics-informed meltpool signatures and machine learning. Journal of Materials Processing Technology, 2022, 304, 117550.	3.1	31
5	In-process monitoring and prediction of droplet quality in droplet-on-demand liquid metal jetting additive manufacturing using machine learning. Journal of Intelligent Manufacturing, 2022, 33, 2093-2117.	4.4	8
6	Multi phenomena melt pool sensor data fusion for enhanced process monitoring of laser powder bed fusion additive manufacturing. Materials and Design, 2022, 221, 110919.	3.3	14
7	Extrusion bioprinting: Recent progress, challenges, and future opportunities. Bioprinting, 2021, 21, e00116.	2.9	87
8	Process-structure relationship in the directed energy deposition of cobalt-chromium alloy (Stellite) Tj ETQq0 0 0 rgBT/Overlock 10 Tf 50	3.3	17
9	A Computational Fluid Dynamics Investigation of Pneumatic Atomization, Aerosol Transport, and Deposition in Aerosol Jet Printing Process. Journal of Micro and Nano-Manufacturing, 2021, 9, .	0.8	15
10	Recurrence network analysis of design-quality interactions in additive manufacturing. Additive Manufacturing, 2021, 39, 101861.	1.7	7
11	Deep-Learning-Based Multivariate Pattern Analysis (dmVPA): A Tutorial and a Toolbox. Frontiers in Human Neuroscience, 2021, 15, 638052.	1.0	8
12	Six-Sigma Quality Management of Additive Manufacturing. Proceedings of the IEEE, 2021, 109, 347-376.	16.4	31
13	Thermal modeling in metal additive manufacturing using graph theory â€™ Application to laser powder bed fusion of a large volume impeller. Additive Manufacturing, 2021, 41, 101956.	1.7	16
14	Part-scale thermal simulation of laser powder bed fusion using graph theory: Effect of thermal history on porosity, microstructure evolution, and recoater crash. Materials and Design, 2021, 204, 109685.	3.3	38
15	Extrusion-based 3D (Bio)Printed Tissue Engineering Scaffolds: Processâ€™Structureâ€™Quality Relationships. ACS Biomaterials Science and Engineering, 2021, 7, 4694-4717.	2.6	12
16	Toward Defect-Free Additive Fabricating of Flexible and Hybrid Electronics: Physics-Based Computational Modeling and Control of Aerosol Jet Printing. Advances in Intelligent Systems and Computing, 2020, , 351-361.	0.5	3
17	In-process monitoring of porosity in additive manufacturing using optical emission spectroscopy. IISE Transactions, 2020, 52, 500-515.	1.6	54
18	Toward the digital twin of additive manufacturing: Integrating thermal simulations, sensing, and analytics to detect process faults. IISE Transactions, 2020, 52, 1204-1217.	1.6	97

#	ARTICLE	IF	CITATIONS
19	Heterogeneous sensing and scientific machine learning for quality assurance in laser powder bed fusion – A single-track study. Additive Manufacturing, 2020, 36, 101659.	1.7	31
20	Machine learning–driven in situ process monitoring with vibration frequency spectra for chemical mechanical planarization. International Journal of Advanced Manufacturing Technology, 2020, 111, 1873-1888.	1.5	2
21	Paired Trial Classification: A Novel Deep Learning Technique for MVPA. Frontiers in Neuroscience, 2020, 14, 417.	1.4	7
22	Process–Structure–Quality Relationships of Three-Dimensional Printed Poly(Caprolactone)-Hydroxyapatite Scaffolds. Tissue Engineering - Part A, 2020, 26, 279-291.	1.6	50
23	Computational heat transfer with spectral graph theory: Quantitative verification. International Journal of Thermal Sciences, 2020, 153, 106383.	2.6	15
24	A Sparse Representation Classification Approach for Near Real-Time, Physics-Based Functional Monitoring of Aerosol Jet-Fabricated Electronics. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2020, 142, .	1.3	4
25	Thermal Modeling in Metal Additive Manufacturing Using Graph Theory: Experimental Validation With Laser Powder Bed Fusion Using In Situ Infrared Thermography Data. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2020, 142, .	1.3	16
26	Layer-wise spatial modeling of porosity in additive manufacturing. IJSE Transactions, 2019, 51, 109-123.	1.6	31
27	Image-Based Closed-Loop Control of Aerosol Jet Printing Using Classical Control Methods. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2019, 141, .	1.3	13
28	Heterogeneous sensor-based condition monitoring in directed energy deposition. Additive Manufacturing, 2019, 30, 100916.	1.7	27
29	A cybermanufacturing and AI framework for laser powder bed fusion (LPBF) additive manufacturing process. Manufacturing Letters, 2019, 21, 41-44.	1.1	16
30	Design Rules for Additive Manufacturing – Understanding the Fundamental Thermal Phenomena to Reduce Scrap. Procedia Manufacturing, 2019, 33, 375-382.	1.9	8
31	Thermal Modeling in Metal Additive Manufacturing Using Graph Theory. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2019, 141, .	1.3	38
32	The role of low-level image features in the affective categorization of rapidly presented scenes. PLoS ONE, 2019, 14, e0215975.	1.1	8
33	Joint Multifractal and Lacunarity Analysis of Image Profiles for Manufacturing Quality Control. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2019, 141, .	1.3	19
34	Prediction and Experimental Validation of Part Thermal History in the Fused Filament Fabrication Additive Manufacturing Process. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2019, 141, .	1.3	24
35	Design Rules and In-Situ Quality Monitoring of Thin-Wall Features Made Using Laser Powder Bed Fusion. , 2019, , .		11
36	In Situ Monitoring of Thin-Wall Build Quality in Laser Powder Bed Fusion Using Deep Learning. Smart and Sustainable Manufacturing Systems, 2019, 3, 20190027.	0.3	14

#	ARTICLE	IF	CITATIONS
37	Predicting Part-Level Thermal History in Metal Additive Manufacturing Using Graph Theory: Experimental Validation With Directed Energy Deposition of Titanium Alloy Parts. , 2019, , .		2
38	Functional Quantitative and Qualitative Models for Quality Modeling in a Fused Deposition Modeling Process. IEEE Transactions on Automation Science and Engineering, 2018, 15, 393-403.	3.4	32
39	A Spectral Graph Theoretic Approach for Monitoring Multivariate Time Series Data From Complex Dynamical Processes. IEEE Transactions on Automation Science and Engineering, 2018, 15, 127-144.	3.4	34
40	Hybrid Processes in Additive Manufacturing. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	124
41	Quantifying Geometric Accuracy With Unsupervised Machine Learning: Using Self-Organizing Map on Fused Filament Fabrication Additive Manufacturing Parts. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	88
42	In-Situ Image-Based Monitoring and Closed-Loop Control of Aerosol Jet Printing. , 2018, , .		3
43	Layerwise In-Process Quality Monitoring in Laser Powder Bed Fusion. , 2018, , .		27
44	Fractal Pattern Recognition of Image Profiles for Manufacturing Process Monitoring and Control. , 2018, , .		6
45	In Situ Functional Monitoring of Aerosol Jet-Printed Electronic Devices Using a Combined Sparse Representation-Based Classification (SRC) Approach. , 2018, , .		4
46	Process Mapping and In-Process Monitoring of Porosity in Laser Powder Bed Fusion Using Layerwise Optical Imaging. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	92
47	Sensor-Based Build Condition Monitoring in Laser Powder Bed Fusion Additive Manufacturing Process Using a Spectral Graph Theoretic Approach. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	63
48	In-Process Monitoring of Material Cross-Contamination Defects in Laser Powder Bed Fusion. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	54
49	Stochastic Modeling and Analysis of Spindle Power During Hard Milling With a Focus on Tool Wear. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, .	1.3	9
50	A Computational Fluid Dynamics (CFD) Study of Material Transport and Deposition in Aerosol Jet Printing (AJP) Process. , 2018, , .		5
51	Defect Detection and Monitoring in Metal Additive Manufactured Parts through Deep Learning of Spatially Resolved Acoustic Spectroscopy Signals. Smart and Sustainable Manufacturing Systems, 2018, 2, 20180035.	0.3	19
52	Identifying Diagnostic Features in Rapid Affective Image Categorization. Journal of Vision, 2018, 18, 138.	0.1	0
53	Computational Fluid Dynamics Modeling and Online Monitoring of Aerosol Jet Printing Process. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2017, 139, .	1.3	74
54	Classifying the Dimensional Variation in Additive Manufactured Parts From Laser-Scanned Three-Dimensional Point Cloud Data Using Machine Learning Approaches. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2017, 139, .	1.3	85

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55	Multi-Objective Accelerated Process Optimization of Part Geometric Accuracy in Additive Manufacturing. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2017, 139, .	1.3	23
56	Assessing the Geometric Integrity of Additive Manufactured Parts From Point Cloud Data Using Spectral Graph Theoretic Sparse Representation-Based Classification. , 2017, , .		10
57	Online Monitoring of Functional Electrical Properties in Aerosol Jet Printing Additive Manufacturing Process Using Shape-From-Shading Image Analysis. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2017, 139, .	1.3	36
58	Dirichlet Process Gaussian Mixture Models for Real-Time Monitoring and Their Application to Chemical Mechanical Planarization. IEEE Transactions on Automation Science and Engineering, 2017, 14, 208-221.	3.4	20
59	In Situ Sensor-Based Monitoring and Computational Fluid Dynamics (CFD) Modeling of Aerosol Jet Printing (AJP) Process. , 2016, , .		7
60	Three Dimensional Point Cloud Measurement Based Dimensional Integrity Assessment for Additive Manufactured Parts Using Spectral Graph Theory. , 2016, , .		7
61	Online non-contact surface finish measurement in machining using graph theory-based image analysis. Journal of Manufacturing Systems, 2016, 41, 266-276.	7.6	48
62	Graph Theoretic Compressive Sensing Approach for Classification of Global Neurophysiological States from Electroencephalography (EEG) Signals. Lecture Notes in Computer Science, 2016, , 42-51.	1.0	1
63	Assessment of Dimensional Integrity and Spatial Defect Localization in Additive Manufacturing Using Spectral Graph Theory. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2016, 138, .	1.3	35
64	An online sparse estimation-based classification approach for real-time monitoring in advanced manufacturing processes from heterogeneous sensor data. IIE Transactions, 2016, 48, 579-598.	2.1	45
65	Heterogeneous Sensor Data Fusion Approach for Real-time Monitoring in Ultraprecision Machining (UPM) Process Using Non-Parametric Bayesian Clustering and Evidence Theory. IEEE Transactions on Automation Science and Engineering, 2016, 13, 1033-1044.	3.4	36
66	Quantification of Ultraprecision Surface Morphology using an Algebraic Graph Theoretic Approach. Procedia Manufacturing, 2015, 1, 12-26.	1.9	7
67	A graph-theoretic approach for quantification of surface morphology variation and its application to chemical mechanical planarization process. IIE Transactions, 2015, 47, 1088-1111.	2.1	37
68	Online Real-Time Quality Monitoring in Additive Manufacturing Processes Using Heterogeneous Sensors. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2015, 137, .	1.3	211
69	Real-Time Identification of Incipient Surface Morphology Variations in Ultraprecision Machining Process. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2014, 136, .	1.3	40
70	Process-Machine Interaction (PMI) Modeling and Monitoring of Chemical Mechanical Planarization (CMP) Process Using Wireless Vibration Sensors. IEEE Transactions on Semiconductor Manufacturing, 2014, 27, 1-15.	1.4	27
71	Experimental dynamics characterization and monitoring of MRR in oxide chemical mechanical planarization (CMP) process. International Journal of Machine Tools and Manufacture, 2008, 48, 1375-1386.	6.2	19
72	Classification of atrial fibrillation episodes from sparse electrocardiogram data. Journal of Electrocardiology, 2008, 41, 292-299.	0.4	22

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73	Statistical analysis and design of RFID systems for monitoring vehicle ingress/egress in warehouse environments. International Journal of Radio Frequency Identification Technology and Applications, 2007, 1, 123.	0.5	3
74	Process characterization and statistical analysis of oxide CMP on a silicon wafer with sparse data. Applied Physics A: Materials Science and Processing, 2007, 88, 785-792.	1.1	16