

National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

Curriculum Vitae



Brief Profile:

Dr. Praveen Jeyachandran is an Assistant Professor in the Department of Production Engineering at NIT Tiruchirappalli, with research expertise in additive manufacturing of biomaterials and the development of next-generation orthopedic implants, particularly for spinal applications. His work focuses on integrating materials engineering, biomechanics, and biological performance to enable bench-to-bedside translation of implant technologies. He specializes in the design and fabrication of bioactive materials, with emphasis on process–structure–property correlations, lattice-based architectures, and surface biofunctionalization. His research particularly explores the role of engineered surface topographical cues and their influence on cellular mechano-transduction, governing cell–material interactions and enhancing osseointegration.

His research also extends to biomimetic bio-fabrication and functional recapitulation, focusing on the development of 3D-printed platforms that replicate key biological functions for biomedical applications, including drug delivery and disease modelling. He has extensive experience in *in vitro* biological evaluation, biomechanical testing of spinal implants, and imaging compatibility for radiological and radiotherapy applications. Prior to joining NIT Tiruchirappalli, he served as a Research Fellow at the Yong Loo Lin School of Medicine, National University of Singapore, contributing to interdisciplinary research spanning materials development, implant design, and clinical translation. He has authored several high-impact publications and holds intellectual property in orthopedic implant technologies.

1. Name: Praveen Jeyachandran
2. Designation: Assistant Professor
3. Office Address: Department of Production Engineering, NIT Tiruchirappalli, Tamil Nadu, India.
4. Email:
 - Primary praveen@nitt.edu
 - Secondary praveenjitt@gmail.com
5. Field(s) of Specialization: Additive Manufacturing, Biomimetic Design and Functional Recapitulation, Lattice Design & Topology Optimization, Bioactive Materials, Surface Biofunctionalization, Implant Biomechanics, Osseointegration & Tissue Engineering, Spine Implant Development, Bench-to-Bedside Translation

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7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	National Institute of Technology, Tiruchirappalli	March 2026	Till Date
Research Fellow	Yong Loo Lin School of Medicine, National University of Singapore, Singapore.	May 2023	February 2026

8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.,	National Institute of Technology Karnataka, Surathkal.	2022		Mechanical Engineering
M.E.,	Thiagarajar College of Engineering, Madurai.	2015	First Class with Distinction	Production Engineering
B.E.,	Government College of Technology, Coimbatore.	2013	First Class with Distinction	Mechanical Engineering

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Laboratory Safety Lead - BSL2 Facilities	Department of Orthopaedic Surgery, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.	March 2024	February 2026
Member, Department Safety & Health Committee	Department of Orthopaedic Surgery, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.	March 2024	February 2026

10. Academic/Administrative Responsibilities outside the University

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Position	Institution	From	To
-	-	-	-

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2015	Best Outgoing Student – Silver Medal – M.E.	Thiagarajar College of Engineering, Madurai
2015	Top Rank Holder – M.E.	Thiagarajar College of Engineering, Madurai
2009	School First – HSC	PACR Memorial HS School, Rajapalayam.
2007	School First – SSLC	School Education Department, Tamil Nadu

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2016	Ph.D. Fellowship	Ministry of Human Resource Development, India		

13. Details of Academic Work

- (i) Curriculum Development
- (ii) Courses taught at Postgraduate and Undergraduate levels
- (iii) Projects guided at Postgraduate level
- (iv) Other contribution(s)

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
-	-	-	-	-

15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
-	-	-	-

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16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue
Sep, 2016	Workshop on Advanced Materials and Manufacturing	National	Participant	National Institute of Technology Karnataka, Surathkal.	National Institute of Technology Karnataka, Surathkal.
Oct, 2016	Workshop on Tribology Frontiers in Design & Manufacturing	National	Participant	National Institute of Technology Karnataka, Surathkal.	National Institute of Technology Karnataka, Surathkal.
Dec 2016	GIAN workshop on Hybrid composites: Manufacturing, Mechanics and Materials	International	Participant	National Institute of Technology Karnataka, Surathkal.	National Institute of Technology Karnataka, Surathkal.
March, 2017	Workshop on Laser Processing of Materials	National	Participant	National Institute of Technology Karnataka, Surathkal.	National Institute of Technology Karnataka, Surathkal.
June 2017	Faculty Development Programme on 3D Printing Technologies in Engineering Education	National	Participant	National Institute of Technology, Warangal, Telangana.	National Institute of Technology, Warangal, Telangana.
Nov, 2018	Annual Technical Meet	National	Paper Presenter	Indian Institute of Metals, Kolkata.	Hotel J W Marriott, Kolkata.
Dec 2018	GIAN Workshop on Dynamic Responses of Advanced	International	Participant	National Institute of Technology Karnataka, Surathkal.	National Institute of Technology Karnataka, Surathkal.

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	Composites				
Jan 2020	Workshop on Advanced XRD Theory, Practical and Training	National	Participant	National Institute of Technology Karnataka, Surathkal.	National Institute of Technology Karnataka, Surathkal.

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
-	-	-	-	-

18. Invited Talks delivered

Topic	Date	Inviting Organization
-	-	-

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date
-	-	-

20. Academic Foreign Visits

Country	Duration of Visit	Programme
-	-	-

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21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
Naresh Kumar, Namith Rangaswamy, Si Jian Hui, Lionel Yan Jin Lee, <u>Praveen Jeyachandran</u> , Niyou Wang, Jerry Ying Hsi Fuh, A. Senthil Kumar, James Thomas Patrick Decourcy Hallinan, and Balamurugan A. Vellayappan	Shaping the future of spinal implants: advancing bioactive composites with 3D printing for next-generation surgical care	Journal of Orthopaedic Surgery and Research			2026	2.8 (2026)
Naresh Kumar, Niyou Wang, Jagadeesh Babu Veluru, <u>Praveen Jeyachandran</u> , Lionel Yan Jin Lee, Si Jian Hui, A Senthil Kumar, Balamurugan Vellayappan, James Thomas Patrick DeCourcy Hallinan	Filament to Print: Structural Evolution and Impacts on the Mechanical Properties of PEEK-HA-Mg ₂ SiO ₄ composites	Additive Manufacturing Frontiers			2026	-
<u>Praveen Jeyachandran</u> , Lionel Yan Jin Lee, Si Jian Hui, Balamurugan Vellayappan, Jerry Ying Hsi Fuh, James Thomas Patrick DeCourcy Hallinan, A. Senthil Kumar, and Naresh Kumar	Leveraging 3D Printing Induced Spherulitic Topographical and Biochemical Cues on Poly-ether-ether-ketone/Hydroxyapatite/Magnesium Orthosilicate Composites for Orthopedic	ACS Applied Materials & Interfaces			2026	8.2 (2026)

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	Applications					
<u>Praveen Jeyachandran</u> , Si Jian Hui, Lionel Yan Jin Lee, Balamurugan Vellayappan, Jerry Ying Hsi Fuh, James Thomas Patrick DeCourcy Hallinan, A Senthil Kumar, Naresh Kumar	Printability Assessment and Mechanical Properties of Pellet 3D Printed Poly-ether-ether-ketone composites	Journal of Materials Research Technology			2025	6.6 (2026)
Naresh Kumar, Si Jian Hui, Yiong Huak Chan, Yong Hao Tan, <u>Praveen Jeyachandran</u> , Laranya Kumar, Jiaqian Cui, Rohan Parihar, James Thomas Patrick DeCourcy Hallinan, Rohit Vijay Agrawal, Jiong Hao Tan	Does Intraoperative Cell-Salvaged Autologous Blood Transfusion in Metastatic Spine Tumour Surgery Impact Clinical Outcomes: A Prospective Clinical Study With 4-year Follow-Up	Global Spine Journal			2025	3.2 (2026)
Naresh Kumar, Si Jian Hui, Shahid Ali, Renick Lee, <u>Praveen Jeyachandran</u> , Jiong Hao Tan	Vacuum Assisted Closure and Local Drug Delivery Systems in Spinal Infections A review of current evidence	North American Spine Society Journal			2023	2.5 (2026)
Narendran Ganesan, Avdhoot Walunj, A. Mohan Kumar, <u>Praveen Jeyachandran</u> , Nasser S. Awwad, Hala A. Ibrahim, M. R. Gorji, and D. Arumuga Perumal	Experimental Demonstration of Compact Polymer Mass Transfer Device Manufactured by Additive Manufacturing with Hydrogel Integration to	Bioengineering			2023	3.7 (2026)

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	Bio-Mimic the Liver Functions					
<u>Praveen Jeyachandran</u> , Srikanth Bontha, Subhadip Bodhak, Vamsi Krishna Balla, Mrityunjay Doddamani	Quasi-static compressive behavior of bioactive glass reinforced high density polyethylene composites	Materials letters			2022	2.7 (2026)
<u>Praveen Jeyachandran</u> , Srikanth Bontha, Subhadip Bodhak, Vamsi Krishna Balla, Mrityunjay Doddamani	Material extrusion additive manufacturing of bioactive glass/high density polyethylene composites	Composites Science and Technology			2021	9.8 (2026)
<u>Praveen Jeyachandran</u> , Srikanth Bontha, Subhadip Bodhak, Vamsi Krishna Balla, Biswanath Kundu, Mrityunjay Doddamani	Mechanical behaviour of additively manufactured bioactive glass/high density polyethylene composites.	Journal of the Mechanical Behaviour of Biomedical Materials			2020	3.5 (2026)
K. Chockalingam, N. Jawahar, U. Chandransekhar, <u>J. Praveen</u> and M. Karthic	Development of process model for optimal selection of process parameters of geometric tolerances and surface roughness in stereolithography	International Journal of Advanced Design and Manufacturing Technology			2016	-
K. Chockalingam, N. Jawahar, <u>J. Praveen</u>	Enhancement of anisotropic strength of fused deposited ABS parts by Genetic	Journal of Materials and Manufacturing Processes			2016	4.7 (2026)

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(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
Si Jian Hui, <u>Praveen Jeyachandran</u> , Senthil Kumar, Jerry Y H Fuh, Naresh Kumar	Novel Filament-Free 3D Printable PEEK-HA-Mg ₂ SiO ₄ Composite Material for Spine Implants	Global Spine Congress 2025			Rio de Janeiro, Brazil	2025
Si Jian Hui, Naresh Kumar, Yiong Huak Chan, Yong Hao Tan, <u>Praveen Jeyachandran</u> , James Hallinan	Intra-Operative Salvaged Blood Transfusion in Metastatic Spine Tumour Surgery: A Propensity Score Group Matched Analysis	Global Spine Congress 2025			Rio de Janeiro, Brazil	2025
<u>Praveen Jeyachandran</u> , Si Jian Hui, Jiong H J Tan, Senthil Kumar, Jerry Y H Fuh, Naresh Kumar	Printability assessment of novel PEEK composites for Freeformer 3DP	18th International Conference on Biomedical Engineering			NUS, Singapore	2024
<u>Praveen Jeyachandran</u> , Si Jian Hui, Jiong H J Tan, Senthil Kumar, Jerry Y H Fuh, Naresh Kumar	3D Printing of Novel PEEK Composites into Spinal Implants for Operative Management of Metastatic Spine Disease	NUHS Scientific and Innovation Summit 2024			Shangri-La (Orchard), Singapore	2024
Si Jian Hui, Jiong Hao Tan, Yiong Huak Chan,	Does intraoperative cell-salvaged autologous blood transfusion in metastatic spine	EuroSpine 2024			VIECON, Vienna, Austria	2024

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<u>Praveen Jeyachandran</u> , T. P. D. J. Hallinan	tumour surgery improve long-term clinical outcomes? A prospective clinical study					
Naresh Kumar, Jagadeesh Babu Veluru, <u>Praveen Jeyachandran</u> , Balamurugan A. Vellayappan, James Thomas Patrick Decourcy Hallinan, Jerry Ying Shi Fuh, and Senthil Kumar Anatharaman	Design and 3D printing of novel Ti spine rods with lower flexural modulus/stiffness with optimised imaging compatibility	Transactions on Additive Manufacturing Meets Medicine 2023			Lubeck, Germany	2023
Naresh Kumar, <u>Praveen Jeyachandran</u> , Jagadeesh Babu Veluru, Balamurugan A. Vellayappan, James Thomas Patrick Decourcy Hallinan, Jerry Ying Shi Fuh, and Senthil Kumar Anatharaman	3D-printable PEEK- HA-Mg ₂ SiO ₄ composite material for spine implants: biocompatibility and imaging compatibility assessments	Transactions on Additive Manufacturing Meets Medicine 2023			Lubeck, Germany	2023
<u>Praveen Jeyachandran</u> , Srikanth Bontha, Subhadip Bodhak,	Bioglass/thermoplastic composite for biomedical application using 3D printing	Indian Institute of Metals – National Metallurgists’ Day – Annual			Hotel JW Marriott, Kolkata, India	2018

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Vamsi Krishna Balla and Mrityunjay Doddamani		Technical Meeting 2018				
<u>Praveen</u> <u>Jeyachandran</u> , Balu Patil, Mrityunjay Doddamani, Srikanth Bontha and Vamsi Krishna Balla	Development of thermoplastic feedstock filament for 3D printing	10th International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 10 - 2017)			Indian Institute of Technology - Madras, Chennai, India	2017

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
-	-	-	-	-