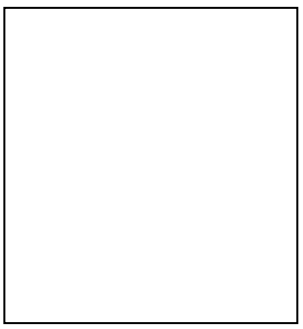
Faculty Profile



Dr. Jinka Ranganayakulu brings over 29 years of combined experience in the railway industry and academia, offering a strong foundation in mechanical engineering practice and education. He began his professional career in 1997 as a Junior Engineer at the Integral Coach Factory, Chennai, and served as a Senior Section Engineer with Southern Railway from 2000 to 2009. He also contributed to technical training as a Mechanical Lecturer at the Supervisors Training Centre, South Western Railway, Bengaluru, and briefly resumed engineering duties in 2013. His extensive industry background has equipped him with deep expertise in mechanical systems, maintenance, and operations.

Transitioning to academia, Dr. Ranganayakulu completed his MS by Research at IIT Madras (2009–2012) and earned his PhD in 2024 from Visvesvaraya Technological University (VTU), with a thesis titled *"Machining Strategies for Optimizing Process Parameters in Electrochemical Discharge Machining of Borosilicate Glass."* He has been with RV College of Engineering since 2014, where he currently serves as an Assistant Professor in the Department of Mechanical Engineering. His research interests include advanced manufacturing, non-traditional machining processes, and process optimization. He has authored several scholarly articles and book chapters, contributing actively to academic research and fostering a practice-oriented, research-driven learning environment for students.

Personal Information

- **Name:** Dr. Jinka Ranganayakulu
- **Designation:** Assistant Professor
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Orcid Id: 0000-0001-8916-5335
Scopus Id: 55210909300
Researcher Id: P-9996-2016
Google Scholar Id: ibABQvkAAAAJ
Vidwan-ID : 209963

Domain of Expertise

- Manufacturing, Non-Traditional Machining, Robotics, Soft Computing, Vehicle Dynamics.

Research Focus

- **Primary Area:** Non-Traditional Machining
- **Allied Areas:**

- Electrochemical Discharge Machining (ECDM)
- Abrasive Jet Machining (AJM)
- Magnetic Abrasive Finisnimg (MAF)

Academic Qualifications

- **Ph.D.**: Mechanical Engineering, VTU, 2024, **"Machining Strategies for Optimizing Process Parameters in Electrochemical Discharge Machining of Borosilicate Glas".**
- **MS (Research)/~~M.Tech~~**: Manufacturing, IIT Madras, 2012
- **Master of Human Resource Management (M.H.R.M)** - Annamalai University, Tamil Nadu, 2006.
- **B.E./B.Tech**: Mechanical Engineering, JNTU Ananthapuramu, 1996.

Professional Experience

Experience			
S.No	**Institute/College/Industry**	**Job Title**	**Duration (From- To)**
1.	RV College of Engineering, Mysore Road, Bengaluru -560059	Assistant Professor	16.06.2014 -Till Date
2.	Vignan University Guntur, AP	Assistant Professor	06.01.2014 - 14.06.2014
3.	Southern Railway, Chennai Division	Senior Section Engineer	08.08.2013 - 20.11.2013
4.	Supervisors Training Centre, South Western Railway, Bangaluru.	Mechanical Lecturer	04.06.2012 - 07.08.2013
5.	IIT Madras, Chennai (On Extradentary Leave)	MS Research Scholar	17.07.2009 - 03.06.2012
6.	Southern Railway, Chennai Division	Senior Section Engineer	27.07.2000 - 16.07.2009
7.	Integral Coach Factory, Perumbur, Chennai, Ministry of Railways.	Junior Engineer	20.05.1997 - 26.07.2000

Publications & Patents

Journal Publications

International Journals

1. Venkata Rao K, Suvarna Raju L., Suresh Gamini, **Ranganayakulu J,** Krishna Jogi, "Modelling of kerf width and surface roughness using vibration signals in laser beam machining of stainless steel using design of experiments", Optics and Laser Technology, Vol. 169, article id. 110146. 2024, doi.org/10.1016/j.optlastec.2023.110146.
2. **Jinka Ranganayakulu,** PV Srihari, K Venkata Rao, "A strategy to improve performance in electrochemical discharge machining using periodic bi-directional tool rotation". *Int J Adv Manuf Technol,* Vol. **123**, pp. 1459–1476, 2022. https://doi.org/10.1007/s00170-022-10227-x
3. **Jinka Ranganayakulu**, PV Srihari, K Venkata Rao, "An optimization strategy to improve performance in electrochemical discharge machining of borosilicate glass using graph theory

algorithm and desirability index", *Silicon*, Vol. 14, Issue 10, pp. 5241-5254, 2022.

4. Kaki Venkata Rao, Yekula Prasanna Kumar, Vijay Kumar Singh, Lam Suvrna Raju, **Jinka Ranganayakulu**, "Vibration-based tool condition monitoring in milling of Ti-6Al-4V using an optimization model of GM (1, N) and SVM", *Int J Adv Manuf Technol,* Vol. **115**, pp. 1931–1941, 2021.
5. **Jinka Ranganayakulu**, PV Srihari, "Investigations on the effect of helical tool diameter assisted with high speed rotation in electrochemical discharge machining", *International Journal of Precision Technology*, Vol. 10, pp. 60-73, 2021.
6. **Jinka Ranganayakulu,** P.V. Srihari, "Multi-objective Optimization using Taguchi's Loss Function based Principal Component Analysis in Electrochemical Discharge Machining of Micro-channels on Borosilicate Glass with Direct and Hybrid Electrolyte", Advances in Manufacturing Processes, Springer, 340-360, 2019.
7. Darshan Kumar H.K, Rakesh Pandith T.S, **Jinka Ranganayakulua**, H.N Narashimha Murthya, P.V. Srihari, K. Venkata Raob, Koti Naveen Kumar, "Experimental Investigations on the Influence of Mixing Chamber Design in Micro – Abrasive Jet Machining of Borosilicate Glass", Materials Today: Proceedings, vol.5,2018, pp.24075– 24084.
8. PBGSN Murthy, **Jinka Ranganayakulu**, K P Vidhu, K Venkata Rao, "Heuristic Search Algorithm for the Single-Row Machine Layout in an Automated Manufacturing System", *Science Direct Procedia Technology*, Vol. 25, pp.1088 – 1095, 2016.
9. LijoPaul, Somashekhar S. Hiremath, **Jinka Ranganayakulu**, "Experimental investigation and parametric analysis of electrochemical discharge machining", *International Journal of Manufacturing Technology and Management (IJMTM)*, Vol.28, No. 1/2/3, 2014.
10. **Jinka Ranganayakulu,** Somashekhar S. Hiremath, Lijo Paul. "Parametric analysis and a soft computing approach on material removal rate in electerchemical discharge machining", *International Journal of Manufacturing Technology and Management (IJMTM)*, Vol.24, No.1/2/3/4, pp.23 – 39, 2011.

Conference Papers

International Conference:

1. **Jinka Ranganayakulu**, P.V. Srihari, "Experimental Investigations on the Effect of High Speed Helical Tool Diameter in Electrochemical Discharge Machining. 11th International Conference on Precision, Meso, Micro and Nano Engineering, 11th COPEN, 12th – 14th December 2019, IIT Indore**.**
2. **Jinka Ranganayakulu**, P.V. Srihari, "Multi-objective Optimization using Taguchi's Loss Function based Principal Component Analysis in Electrochemical Discharge Machining of Micro-channels on Borosilicate Glass with Direct and Hybrid Electrolyte", International conference on engineering materials metallurgy & Manufacturing, ICEMMM2018 - Paper ID: MMM164,15-16, February 2018, SSN College of Engineering, Chennai.
3. Darshan Kumar H.K, Rakesh Pandith T.S, **Jinka Ranganayakulu,** H.N Narashimha Murthy, P.V. Srihari, K. Venkata Rao, "Experimental Investigations on the Influence of Mixing Chamber Design in Micro – Abrasive Jet Machining of Borosilicate Glass", Icon AMMA International Conference on Advances in Materials & Manufacturing Applications, 17th – 19th August 2017, pp. 113 – 607.
4. LijoPaul, Somashekhar S. Hiremath, **Jinka Ranganayakulu**, "Optimisation of Process Parameters using Electrochemical Discharge Machining", International Conference on Mechanical Engineering Technology (ICOMET), St. Joseph's College of Engg., and Tech., Kerala, India, January 21, 2012, page 165-169.
5. LijoPaul, Somashekhar S. Hiremath, **Jinka Ranganayakulu**, "Characterisation of micro holes machined using electrochemical discharge machining", International Conference on " Advances

in Manufacturing Technology" - ICAMT 2012, Chennai Institute of Technology, Chennai, India, 2012, page 241-247.

6. Lijo Paul, Somashekhar S. Hiremath and **Jinka Ranganayakulu, "**Experimental Investigation and Response Surface Modeling of Metal Removal Rate in Electrochemical Discharge Machining", 4th International & 25th All India Manufacturing Technology, Design and Research Conference (AIMTDR 2012), Jadavpur University, Kolkata, India, December 14th-16th, 2012, pp. 499-504.

National Conference:

1. Sarfaraj Ahmed, **Jinka Ranganayakulu**, Vignesh, Prasanna Kulkarni, "Non-traditional machining Processes: A Review", NSET 2016, National Symposium on Engineering and Technology, Shree Ramachandra College of Engineering, Pune, Maharashtra, March 11 – 12, 2016.
2. **Jinka Ranganayakulu**, P.V. Srihari, P. Rayudu, Subhash R Patil, "Various Tool Feed Mechanisms in Electrochemical Discharge Machining Process: A Review", 3rd National Conference on Innovations in Mechanical Engineering, NCIME'15, Madanapalle Institute of Technology and Science, ISBN: 978 – 93 – 85100 – 53 – 6 , 23 & 24 December, 2015, pp.300 – 302.
3. **Jinka Ranganayakulu,** Rayudu Peyyala, Keshav M, "Application of Soft Computing Techniques in Electrochemical Discharge Machining Process: A Review", Second National Conference on Innovations in Mechanical Engineering, NCIME'14, Madanapalle Institute of Technology and Science, ISBN: 978 – 93 – 82163 – 75 – 6 , 18 &19 December, 2014, pp.418 – 426.
4. Suresh R. Gadad, **Jinka Ranganayakulu**, Permi Jagadish, "Experimental investigation of effect of process parameters in electrochemical discharge machining", Conference on Advances in R & D and DIDS, R.V. College of Engineering, 25 & 27 April 2015, pp.151.
5. Subhash R Patil, **Jinka Ranganayakulu**, Permi Jagadish, "Optimisation of processes parameters in micro-electrochemical discharge machining", Conference on Advances in R & D and DIDS, R.V. College of Engineering, 25 & 27 April 2015.

Books/Book Chapters

1. Rithwik Shankar Raj, Neeraj Bagi, **Jinka Ranganayakulu**, A. Bharatish and K. Venkata Rao, Parametric Optimization in Electrochemical Discharge Machining of Microchannel on Glass Using Multiple Tool Passes, Chapter 22, pp. 377-393, Book Editor(s):Sandip Kunar, Norfazillah Binti Talib, Gurudas Mandal, *Advanced Machining and Micromachining Processes*, 1st Edition, Print ISBN:9781394301690, © 2025 Scrivener Publishing LLC, First published:7 March 2025, Wiley online library, ISBN:9781394301744, https://doi.org/10.1002/9781394301744.ch22.
2. **Jinka Ranganayakulu**, P.V. Srihari, K. Venkata Rao, Rithwik Shankar Raj, and Mallikarjun Mahajanshetti. on "Machining Strategies for Micromachining of Glass Using Electrochemical Discharge Machining: A Review", Chapter 6, pp. 132-153, edited by Kumar Rakesh, P., & Davim, J.P. (Eds.). (2024). *Innovative Development in Micromanufacturing Processes,* 1st edition, CRC Press, eBook ISBN 9781003364948. https://doi.org/10.1201/9781003364948.

Ongoing & Completed Research Projects

1. **SETTING UP OF A CUSTOM ENGINEERED ELECTROCHEMICAL DISCHARGE MACHINING (ECDM) SYSTEM FOR MICROFLUIDICS,** Vision Group on Science & Technology, KSTePS, Department of IT, BT and S&T, Karnataka – 560 001, for the support through KFIST Level (1) project under the VGST Scheme, No: KSTePS/VGST/GRD-678/KFIST(L1)/2018, 27.08.2018 - 2023. Co-PI

Professional Memberships

- **LIFE MEMBER:** The Indian Society for Technical Education – LM 125230

Awards & Recognitions

1. **Domain Certificate** - NPTEL in "Manufacturing Processes and Technology", **April 2025**.
2. **Top Performing Mentor** – *NPTEL*, for the course "Fundamentals of Welding Science and Technology", **Jan–Apr 2025**.
3. **Super Star – Mechanical Engineering** – *NPTEL*, Certificate of Appreciation, **Jan–Apr 2025.**
4. **Super Star – Mechanical Engineering** – *NPTEL*, Certificate of Appreciation, **Jul–Dec 2024.**
5. **Enthusiast –** *NPTEL*, Certificate of Appreciation, **Jul–Dec 2024.**
6. **Discipline Star – Mechanical Engineering** – *NPTEL*, Certificate of Appreciation, **Jul–Dec 2024.**
7. **Top Performing Mentor** – *NPTEL*, for the course "Ethics in Engineering Practice", **Jan–Apr 2024**.
8. **Discipline Star – Mechanical Engineering** – *NPTEL*, Certificate of Appreciation, **Jul–Dec 2022**.
9. **Top Performing Mentor** – *NPTEL*, for the course "Rapid Manufacturing", **Jul–Dec 2021**.
10. **Top Performing Mentor** – *NPTEL*, for the course "Rapid Manufacturing", **Jul–Dec 2020**.
11. **Best Paper Award** – *11th International Conference on Precision, Meso, Micro and Nano Engineering (COPEN)*, IIT Indore, for the paper *"Experimental Investigations on the Effect of High-Speed Helical Tool Diameter in Electrochemical Discharge Machining"*, **Dec 2019**.
12. **Top Performing Mentor** – *NPTEL*, for the course "Robotics", **Jul–Dec 2019**.
13. **Top Performing Mentor** – *NPTEL*, for the course "Introduction to Machining and Machining Fluids", **Jan–Apr 2019**.
14. **Top Performing Mentor** – *NPTEL*, for the course "Metal Cutting and Machine Tools", **Jan–Jun 2018**.
15. **Best Paper Award** – *International Conference on Emerging Materials and Manufacturing Methods (ICEMMM 2018)*, SSN College of Engineering, Chennai, for the paper *"Multi-Objective Optimization using Taguchi's Loss Function based Principal Component Analysis in Electrochemical Discharge Machining of Micro-Channels on Borosilicate Glass"*, **Feb 2018**.

Student Supervision

- **M.Tech/~~M.Sc.~~ Students:** 06
- **Undergraduate Research Mentees:** 10

Professional Roles

Industry Advisor:

- *MeuKron Technologies, Belagavi, Karnataka, India*

Teaching

Core Courses:

- **VEHICLE DYNAMICS AND SYSTEM MODELING**

Advanced/Lab Courses:

- Idea Lab, CAEG Lab

Responsibilities

- **Academic:** NPTEL UG Elective Coordinator, UG & PG Major project review committee.
- **Administrative:** BE Honors & Minor Degree UG - Coordinator

External Connect

- TATA Technologies Ready Engineers
- Reviewer for IEEE conferences,Measurement and Control, Institution of Engineers Part - B.
- Invited speaker Mechanical Engineering for Non-Mechanical Engineers - BEL Bengaluru, Karnataka, India.
- Invited Speaker Multi-Disciplinary Divisional Training Institute, South Western Railway, Bengaluru.