

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



Curriculum Vitae

Brief Profile:

Dr. Alwin Varghese works as an Assistant Professor at the National Institute of Technology, Tiruchirappalli (NIT Trichy). He completed his Ph.D. at the Indian Institute of Technology Bombay and his M.Tech at the National Institute of Technology Calicut. Dr. Varghese has authored over 12 international journal publications in the fields of micromachining and the application of machine learning techniques in manufacturing. He also brings three years of industrial experience, focusing on the application of machine learning and data analytics in the metal casting industry. His expertise in casting includes Low-Pressure Die Casting, High-Pressure Die Casting, and Gravity Die Casting.

1. Name: Alwin Varghese
2. Designation: Assistant Professor
3. Office Address: MTB-112, CIM Lab,
Department of Production Engineering,
National Institute of Technology, Tiruchirappalli
4. Mobile (Optional):
5. Email (Primary): alwin@nitt.edu
6. Field(s) of Specialization:
 - Mathematical and Analytical Modeling of Manufacturing Processes,
 - Cutting Tool Condition Monitoring using Machine Learning Methods
 - Development of AI Models for predicting and improving the casting quality
 - Micro-machining
7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	National Institute of Technology, Tiruchirappalli	2024	Till date
Data Scientist	Tvarit Solutions Private Limited	2021	2024
Research Associate	Indian Institute of Technology Bombay	2021	2021

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

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	IIT Bombay	2021	Distinction	Manufacturing
M.Tech.	NIT Calicut	2014	Distinction	Manufacturing Technology
B.Tech.	College of Engineering Trivandrum, Kerala University	2011	Distinction	Mechanical Engineering
12 th	CBSE	2006	Distinction	
10 th	CBSE	2004	Distinction	

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/ Centre/Institution	From	To
Convener (BoS for M.Tech- Industrial Engineering)	Department	2024/July	2024/July
Convocation - Seating and Logistics Committee Member	Institute	2024/July	2024/July
Anti-ragging squad member	Institute	2024/August	2024/September

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To
Nil			

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2022	Best Employee Award Q3&Q4	Tvarit Solutions Pvt. Ltd
2022	Best Employee Award Q1&Q2	Tvarit Solutions Pvt. Ltd

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
Nil				

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13. Details of Academic Work

(i) Curriculum Development:

a. Convener – BoS for M.Tech- Industrial Engineering , 2024.

(ii) Courses taught at Postgraduate and Undergraduate levels

a. Postgraduate: Data Science for Manufacturing

b. Undergraduate: Data Analytics, Engineering Practice.

(iii) Projects guided at Postgraduate level:

a. Ongoing: 2

(iv) Other contribution(s)

14. Details of Major R&D Projects

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

15. Number of PhDs guided

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

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
10-14 June, 2019	Conference- NAMRC 47	International	Paper presenter	North American Manufacturing Research Conference	Penn State Behrend, Erie, Pennsylvania, USA
10-14 June, 2019	Conference- MSEC 2019	International	Paper presenter	ASME Manufacturing Science and Engineering Conference	Penn State Behrend, Erie, Pennsylvania, USA
10-12 December, 2018	Conference- FMFP	International	Paper presenter	National Society of Fluid Mechanics and	IIT Bombay

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				Fluid Power India and IIT Bombay	
18-20 December, 2017	CEP course on 'Realizing Science and Applications of Micro and Nano- machining'	National	Participant	IIT Bombay	IIT Bombay
11-14 December, 2017	Conference- AMPT	International	Paper presenter	VIT Chennai	VIT Chennai
5-6 September, 2015	Workshop on Advances in Tooling for Diamond Turning	National	Participant	IIT Bombay in association with Mechvac India Ltd, Navi Mumbai	IIT Bombay
12-14 December, 2014	Conference- AIMTDR	International	First author	IIT Guwahati	IIT Guwahati
11 January 2014	Workshop on High Temperature Mechanical Properties of Materials	National	Participant	NIT Calicut (TEQIP Sponsored Workshop)	NIT Calicut
13-15 December, 2013	Conference- COPEN	International	Paper presenter	NIT Calicut	NIT Calicut
2 nd – 14 th December 2013	Modeling Week and Study Group Meeting on Industrial Problems	National	Participant	National Program on Differential Equations: Theory, Computations and Applications - DST	NIT Calicut

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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
MEGRES-2015 (2 nd Mechanical Engineering Graduate ResearchSymposium)	National	21 st March 2015	Publicity Organizer	IIT Bombay

18. Invited Talks delivered

Topic	Date	Inviting Organization
Nil		

19. Membership of Learned Societies

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

20. Academic Foreign Visits

Country	Duration of Visit	Programme
Nil		

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
Manwar, Ashish, Alwin Varghese , Sumant Bagri, and	Online tool condition monitoring in micromilling using LSTM	<i>Journal of Intelligent Manufacturing</i>		1-21	2023	

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Suhas S. Joshi.						
Alwin Varghese, Vinay Kulkarni, and Suhas S. Joshi.	Modeling cutting edge degradation by chipping in micro-milling	<i>Wear</i>	448	204141	2022	
Kolay, Santa, Anandita Singh, Alwin Varghese, and Parag Bhargava.	Mechanical properties and machinability of lithium silicate glass-ceramics with varying MgO content	<i>Journal of the Mechanical Behavior of Biomedical Materials</i>	132	105296	2022	
Alwin Varghese, Vinay Kulkarni, and Suhas S. Joshi.	Tool life stage prediction in micro-milling from force signal analysis using machine learning methods	<i>Journal of Manufacturing Science and Engineering</i>	143(5)	054501	2021	
Alwin Varghese, Vinay Kulkarni, and Suhas S. Joshi.	Monitoring Shearing-Plowing Transitions in Micro-Milling Using Fluctuations in Cutting Forces	<i>Journal of Micro-and Nano-Manufacturing</i>	9(4)	041004	2021	
Alwin Varghese, and Suhas S. Joshi.	Effect of straight and circular tool paths in micro channel fabrication using micro-milling.	<i>International Journal of Precision Technology</i>	10(1)	87-103	2021	
Alwin Varghese, Vinay S. Kulkarni, and Suhas S. Joshi.	Modelling of process geometry and mechanics in micro-milling along straight and circular	<i>International Journal of Mechatronics and Manufacturing Systems</i>	14(3-4)	266-288	2021	

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	tool paths					
Bagri, Sumant, Ashish Manwar, Alwin Varghese , Soham Mujumdar, and Suhas S. Joshi.	Tool wear and remaining useful life prediction in micro-milling along complex tool paths using neural networks	<i>Journal of Manufacturing Processes</i>	71	679-698	2021	
Khadtare, Avinash, Raju Pawade, Alwin Varghese , and Suhas Joshi. "	Micro-drilling of straight and inclined holes on thermal barrier coated Inconel 718 for turbine blade cooling.	<i>Materials and Manufacturing Processes</i>	35(7)	783-796	2020	
Alwin Varghese , Piyush Kumar Maurya, Vinay Kulkarni, and Suhas S. Joshi	Experimental investigation of the correlation between surface roughness and tool-life in micromilling	<i>Advances in Materials and Processing Technologies</i>	5(1)	67-77	2019	
Kuriachen, B., Alwin Varghese , K. P. Somashekhar, S. Panda, and Jose Mathew	Three-dimensional numerical simulation of microelectric discharge machining of Ti-6Al-4V	The International Journal of Advanced Manufacturing Technology	79	147-160	2015	

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
K Khan, Alwin Varghese , P Dixit, SS	Effect of tool path complexity on top burrs	Procedia Manufacturing	Vol. 34, 432-439	North American Manufacturing Research	Erie, Pennsylvania, USA	2019

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Joshi	in micromilling			Conference (NAMRC-47)		
Alwin Varghese, V Kulkarni, SS Joshi	Effect of tool condition on cutting mechanism in micromilling	International Manufacturing Science and Engineering Conference		International Manufacturing Science and Engineering Conference (MSEC)	Erie, Pennsylvania, USA	2019
Alwin Varghese, PK Maurya, V Kulkarni, SS Joshi	Experimental investigation of the correlation between surface roughness and tool-life in micromilling	Advances in Materials and Processing Technologies			VIT-Chennai	2019
Alwin Varghese, K Khan, P Dixit, SS Joshi	Micro-milling of High Quality Micro Channels for Micro-Fluidic Applications	7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP)		Fluid Mechanics and Fluid Power	IIT Bombay	2018
Alwin Varghese, B. Kuriachen, Satyananda Panda, and J. Mathew.	Experiments and simulation of three dimensional micro EDM with single and multiple discharges.	<i>Proceedings of the 5th international and 26th all india manufacturing technology, design and research conference,</i>		All India Manufacturing Technology, Design and Research Conference (AIMTDR)	IIT Guwahati	2014
Alwin Varghese, B. Kuriachen, Satyananda Panda, and J. Mathew.	A Finite Volume Approach for Solving Three Dimensional Micro EDM Model	International Conference on Precision, Meso, Micro And Nano Engineering (COPEN8)		Conference on Precision, Meso, Micro And Nano Engineering	NIT Calicut	2013

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(C) Books & Monographs

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