Curriculum Vitae

Brief Profile: Dr. Hemachandran currently serves as an Assistant Professor in the Department of Mechanical Engineering at the National Institute of Technology Tiruchirappalli. He completed his Bachelor's degree in Mechanical Engineering from Anna University Chennai, where he graduated as a University Rank Holder. He pursued his Master's degree Anna University, Chennai, earning a Gold Medal for academic excellence. He went on to obtain his Ph.D. from the Indian Institute of Technology Madras. His academic pursuits were supported by the MHRD Fellowships for both his Master's and Doctoral studies. Further strengthening his research credentials, he was awarded the Institute Post-Doctoral Fellowship at IIT Madras.

Dr. Hemachandran's research interests lie at the cutting edge of interdisciplinary engineering, particularly in Lab-on-Chip Devices, Acoustofluidics, Microfluidics, Bio-Microsystems, Heat Transfer Enhancement. His work bridges mechanical engineering with biomedical and micro-scale technologies, contributing to advancements in next-generation diagnostic and fluidic systems. He has authored around 15 research publications in reputed international journals and conference proceedings. Delivered several invited talks at academic and research forums. Published two patents. Secured consultancy grants amounting to Rs. 18 Lakhs. He has also served as a Faculty in centrally funded institutions, including National Institute of Advanced Manufacturing Technology, Ranchi and Indian Institute of Information Technology Design and Manufacturing, Kurnool. He is an active life member of several esteemed professional bodies, including, Indian Society for Technical Education. Indian Society of Heat and Mass Transfer, National Society for Fluid Mechanics and Fluid Power.

1. Name: Dr. E. Hemachandran
2. Designation: Assistant Professor
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4. Telephone (Direct) (Optional):

   Telephone : Extn (Optional):

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5. Email (Primary): hemachandran@nitt.edu Email (Secondary) :hemachandranw@gmail.com

6. Field(s) of Specialization: Microfluidics, Acoustofluidics, Heat Transfer

7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	National Institute of Technology Tiruchirappalli.	05-01-2026	Present
Assistant Professor	National Institute of Advanced Manufacturing Technology, Ranchi.	09-10-2023	02-01-2026
Assistant Professor (Adhoc)	Indian Institute of Information Technology, Design & Manufacturing, Kurnool.	29-06-2022	05-10-2023
Associate Professor	Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai.	07-10-2021	25-06-2022
Assistant Professor	St. Josephs Institute of Technology, OMR, Chennai	16-06-2014	09-04.2016

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

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	IIT Madras	2021	NA	Microfluidics
M.E.	Anna University	2014	Distinction	Refrigeration and Air-Conditioning
B.E.	Anna University	2012	Distinction	Mechanical Engineering
H.S.C	State Board	2008	First Class	Physics, Chemistry, Math’s
S.S.L.C	State Board	2006	First Class	Math’s, Science

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To
Warden	NIAMT Ranchi	16-02-2024	02-01-2026
Tabulator for Preparation of ADC Results	NIAMT Ranchi	18-09-2024	02-01-2026
Lab in charge of a) Design and Simulation lab b) Closed die Forging lab c) Metrology and Inspection lab	NIAMT Ranchi	01-02-2024	02-01-2026
Institute Disciplinary Committee for students	NIAMT Ranchi	09-07-2024	02-01-2026
Member of Welfare and Reservation Cell	NIAMT Ranchi	09-07-2024	02-01-2026
Member of Hostel Management Committee	NIAMT Ranchi	09-07-2024	02-01-2026
Disciplinary & Crisis Management committee – Mechanical Dept.	IIITDM Kurnool	25-07-2022	05-10-2023
DAC Convenor	IIITDM Kurnool	25-07-2022	30-06-2023
Faculty Advisor	IIITDM Kurnool	25-07-2022	04-09-2023

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2012	University Rank Holder	Anna University Chennai
2014	Gold Medal in Masters	Anna University Chennai

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2014	PG – Fellowship	MHRD	Aug 2012	May 2014
2016	Ph.D. Fellowship	IIT Madras	Dec 2016	Feb 2021
2021	IPDEF Fellowship	IIT Madras	Feb 2021	Aug 2021

13. Details of Academic Work

(i) Curriculum Development

(ii) Courses taught at Postgraduate and Undergraduate levels:

a. MEMS Design and Fabrication
b. Engineering Graphics
c. Engineering Thermodynamics
d. Applied Thermodynamics
e. Thermal Engineering
f. Heat and Mass Transfer

g. Metrology and Measurements
h. Simulation in Casting and Forging
i. Engineering Science
j. Concepts in Engineering Design

(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
Capacity Building Program for Existing Workforce Involving Foundry, Forging, and Powder Metallurgy Manufacturing Processes	Small Industries Development Bank of India (SIDBI)	17.02.25	17.07.25	Completed
Forge Technician, Heat Treatment Technician, Sand Moulder, and Core Maker	Indian Iron & Steel Sector Council, Kolkata	24.07.24	31.12.24	Completed

15. Number of PhDs guided

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

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

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
Special Training Programme on Advance Foundry Techniques and Processes for Naval Dockyard Mumbai	03.11.25 to 7.11.25	Naval Dockyard Mumbai at NIAMT Ranchi
Soft Matter Young Investigators Meet 2024	12.06.24 to 14.06.24	IIT Madras
Micromachining and Microfabrication for Biomedical Devices	31.03.24 to 06.04.24	IIITDM Kancheepuram
Recent Technologies and Innovations in Mechanical Engineering	03.02.25 to 09.02.25	KK University Nalanda

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date
Life member – ISHMT	Indian Society for Heat and Mass Transfer	Member ID: 1954
Life Member – NSFMFP	National Society of Fluid Mechanics and Fluid Power	LM923
Life member – ISTE	Indian Society for Technical Education	LM142072

20. Academic Foreign Visits

Country	Duration of Visit	Programme

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
E.Hemachandran, S. Z. Hoque, T. Laurell and A. K. Sen	Reversible stream drop transition in a microfluidic co-flow system via on-demand exposure to acoustic standing waves	Physical Review Letters (PRL)	127	134501	2021	9.1
E. Hemachandran, T. Laurell and A. K. Sen	Continuous Droplet Coalescence in a Microchannel Coflow Using Bulk Acoustic Waves	Physical Review Applied	12	044008	2019	4.98
Thirisangu J, E. Hemachandran and Subramani K	Suspending droplets beyond the Rayleigh limit: The interplay of acoustic and gravity forces	Phys. Fluids	35(12)	3323–46	2023	4.91
E. Hemachandran, S. Karthick, T. Laurell and A. K. Sen	Relocation of coflowing immiscible liquids under acoustic field in a microchannel.	Europhysics Letters (EPL)	125	54002	2019	1.95
Meikandan M, Malarmohan K, Hemachandran E.	Experimental investigation on thermal performance of nano coated surfaces for air-conditioning applications.	Thermal Science	23(2A)	457-463	2019	1.62

Jeyapradhap Thirisangu, Varun Kumar Rajendran, Snekan Selvakannan, Sujith Jayakumar, E Hemachandran, and Karthick Subramani.	Droplets in Acoustic Fields: A Unified Theory from Migration to Splitting	Physics of Fluids	37	052012	2025	4.91
Singh P, Hemachandran E, Prasad U, Singh KK, Mallik B	Numerical analysis of a gas solid vortex dryer integrated with a waste heat recovery system	Journal of the Taiwan Institute of Chemical Engineers	171	106037	2025	6.3

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
E. Hemachandran, S. Karthick, T. Laurell and A. K. Sen	Dynamics of Immiscible Fluid Flow Under Acoustic Fields in Microchannel	FMFP 2018	FMFP2018–PAPER NO.184	FMFP 2018	IIT Bombay	2018
E.Hemachandran, T. Laurell and A. K. Sen	Acoustic Manipulation of Droplets at Liquid-Liquid Interface in a Microchannel	FMFP 2019	FMFP2019–PAPER NO. 11	FMFP 2019	PSG College of Technology, Coimbatore, India	2019
E.Hemachandran, T. Laurell and A. K. Sen	On-demand Droplet Generation	Droplets 2021		Droplets 2021	Virtual	2021
E. Hemachandran and A. K. Sen	Droplet demulsification at parallel flow interface using sound waves	Acoustofluidics 2020		Acoustofluidics 2020	Virtual	2020
E.Hemachandran, T. Laurell and A. K. Sen	On-demand droplet generation using bulk acoustic wave	Acoustofluidics 2021		Acoustofluidics 2021	Virtual	2021

E. Hemachandran, T. Laurell and A. K. Sen	Bulk Acoustic Wave Activated Droplet Generation and Isolation	FMFP 2021	FMFP2021–07–231	FMFP 2021	BITS Pilani, Hyderabad Campus	2021
Abaethan Saravanabhava, Jeyapradhap Thirisangu, Karthick Subramani and E. Hemachandran	Enhancing heat transfer in microgravity – the role of interdigitated electrodes in annular Dielectrophoresis	Third International conference on sustainable energy resources, materials and technologies		ISERMAT 2025	SSN College of Engineering, Chennai	2025
Sujith Jayakumar, Videsh Vk, Jeyapradhap T, Hemachandran E, and Karthick Subramani	On the Evolution of a Neutral Configuration of Inhomogeneous Fluids under Acoustic Fields	Acoustofluidics 2024		Acoustofluidics 2024	Uppsala, SWEDEN	2024

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
E.Hemachandran, Pavitra Singh, Vijaya K Singh	Manufacturing Methods for Composite Materials	CRC Press	2024	ISBN:9781003564355
E. Hemachandran, Karthick Subramani, Pavitra Singh, Ayar V S and Rajendran Prabakaran	VOCs and Odor Control in Air Purification	Cambridge Scholars Publishing	2026	ISBN:9781036467012