

## MR. SURIYAPRASAAD B

Date of Birth: 20<sup>th</sup> September 2001

Research Scholar

Thermal and Fluid Transport Laboratory (TFTL)

**Indian Institute of Technology Patna, India**

[Google Scholar](#) | [LinkedIn](#) | [ResearchGate](#) | [ORCiD](#)

✉ [suriyaprasaad\\_2421mell@iitp.ac.in](mailto:suriyaprasaad_2421mell@iitp.ac.in)

☎ +91-9790628368

Address: TFTL, Block III, IIT Patna,  
Bihta, Bihar-801103, India

### Research Interests

Pool Boiling, Bubble Acoustics, Machine Learning

### Skills

- **Programming:** Python, C++, Java
- **Machine Learning Frameworks:** PyTorch, TensorFlow
- **Tools & Platforms:** Git, LabVIEW, Microsoft Office

### Instrument Operation

High-Speed Camera (Phantom-v 7.3, V410L, V640L), Hydrophone (B&K-8103), Data Acquisition Unit (Agilent, NI), DC Power Supply (Agilent)

### Education

| Degree                               | Institute                                                             | Duration            | C.P.I. % |
|--------------------------------------|-----------------------------------------------------------------------|---------------------|----------|
| Ph.D. (Mechanical)                   | Indian Institute of Technology Patna                                  | July 2024 - Present | 8.65     |
| B.Sc. (Programming and Data Science) | Indian Institute of Technology Madras                                 | Jan 2021 - May 2024 | 8.11     |
| B.Tech. (Mechanical)                 | Sant Longowal Institute of Engineering and Technology (Punjab), India | Dec 2020 - May 2024 | 8.34     |

### Professional Experiences

| Teaching/Industrial                                                           | Role                                                                                                                                                                                                                                                                                                                                                                                                                 | Duration                                               |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Teaching Assistant,<br>IIT Patna                                              | <ul style="list-style-type: none"><li>➤ <b>Undergraduate Course:</b> Data Analytics and Machine Learning Tools for Engineers (ME 3101); <b>Instructor:</b> Dr. Rishi Raj, Dr. Atul Thakur and Dr. Ashwani Assam; <b>No. of Students:</b> 93</li><li>➤ <b>Undergraduate Course:</b> Engineering Mechanics (ME 102); <b>Instructor:</b> Dr. Rishi Raj and Dr. Sunil Kumar Singh; <b>No. of Students:</b> 384</li></ul> | August 2025 – Present<br><br>January 2025 – April 2025 |
| Research Intern at<br>AI4Bharat, IIT<br>Madras                                | <ul style="list-style-type: none"><li>➤ Developed and optimized components of the data acquisition pipeline for <i>Sangraha</i>, involving large-scale PDF scraping and SFT data transliteration.</li><li>➤ Contributed to <i>IndicLLMSuite</i>, which received the <b>Outstanding Paper Award</b> at ACL 2024.</li></ul>                                                                                            | December 2023 – June 2024                              |
| Research Intern at<br>Thermal and Fluid<br>Transport<br>Laboratory, IIT Patna | <ul style="list-style-type: none"><li>➤ Conducted research on boiling heat transfer and developed an unsupervised machine learning framework to interpret bubble images and acoustic signals.</li><li>➤ Analysed bubble dynamics and classified boiling regimes, revealing correlations between acoustic and visual features. This work was submitted to the <b>IHMTC 2023 Conference</b>.</li></ul>                 | May 2023 – August 2023                                 |
| Mentor at IIT<br>Madras                                                       | <ul style="list-style-type: none"><li>➤ Mentored student cohorts in programming courses such as <b>Python</b> and <b>Database Management Systems</b>.</li><li>➤ Conducted interactive mentoring sessions in online mode, focusing on problem-solving and practical implementation.</li></ul>                                                                                                                         | August 2022 – February 2023                            |

## Peer-Reviewed Journal

- [1] Suriyaprasaad, B., Upadhyay, A., Assam, A., Thakur, A. and Raj, R. (2025). “[Explainable boiling acoustics analysis using Grad-CAM and YAMNet for robust pool boiling regime classification](#)”. *Applied Thermal Engineering*, 127220. [Link](#)
- [2] Suriyaprasaad, B., Upadhyay, A., Assam, A., Thakur, A. and Raj, R. (2025). “[Boiling Acoustics: Synergizing Physical Modeling, Experimental Standardization, and Data-Driven Methods](#)”. *npj Thermal Science and Engineering*. [Under Review](#)

## Peer-Reviewed Conference Proceedings

- [1] Suriyaprasaad, B., Upadhyay, A., Assam, A., Thakur, A. and Raj, R., “[Interpretable and Robust Acoustic-Based Classification of Boiling Regime via Transfer Learning](#)” Proceedings of the *1<sup>st</sup> International Conference on Thermofluids Engineering*, IIT(ISM) Dhanbad, Dhanbad-826007, India, October 10-12, 2025. **(Oral)**
- [2] Rahman Khan, M. S. U., Mehta, P., Sankar, A., Kumaravelan, U., Doddapaneni, Suriyaprasaad, B., Balan G, V., ... & Khapra, M. M. (2024). “[IndicLLMSuite: A Blueprint for Creating Pre-training and Fine-Tuning Datasets for Indian Languages](#)”. *Association for Computational Linguistics 2024*, Bangkok, Thailand, August 11-16, 2024. **Outstanding Paper Award (Oral)**
- [3] Suriyaprasaad, B., Upadhyay, A., Assam, A., and Raj, R., “[Boiling Regime Classification via Principal Component Analysis on Bubble Images and Acoustics](#),” Proceedings of the *27<sup>th</sup> National and 5<sup>th</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference*, IIT Patna, Patna-801103, India, December 14-17, 2023. **(Poster)**

## Conference Presentations

- [1] Suriyaprasaad, B., Upadhyay, A.\*, Assam, A., Thakur, A. and Raj, R., “Interpretable and Robust Acoustic-Based Classification of Boiling Regime via Transfer Learning” Proceedings of the *1<sup>st</sup> International Conference on Thermofluids Engineering*, IIT(ISM) Dhanbad, Dhanbad-826007, India, October 10-12, 2025. **(Oral)**

## Other Activities

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| <b>Membership</b> | ➤ American Society of Mechanical Engineers: NY, US (Student Member, ID: 103789807) |
|-------------------|------------------------------------------------------------------------------------|

## Academic Achievements

- Recipient of Ministry of Human Resource Development (MHRD) Fellowship from 2024–Present (Ph.D.)