

Aman Chandra H

B.Tech Computer Science & Engineering (3rd Year) · RV University, Bengaluru

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Profile

Undergraduate researcher focused on **calibration, robustness, and evaluation of machine learning systems in high-stakes clinical settings**, with published article in Springer Nature CCIS and Additional manuscripts under review or submitted as listed below. Experienced across the full research pipeline from problem formulation to empirical validation on large-scale critical care databases.

Education

RV University, Bengaluru B.Tech in Computer Science and Engineering Minor in Innovation, Entrepreneurship and Product Development	2023 – Present
Indian Institute of Technology Madras BS in Data Science (<i>Pursuing alongside B.Tech</i>)	2024 – Present

Research Projects [\(Click here to view a detailed Research Summary\)](#)

Clinical Risk-Weighted Evaluation (CRWS & RWEM)	2025 – 2026
- Introduced cost-sensitive evaluation metrics for ICU mortality prediction that penalise missed deaths over false alarms, evaluated across 5 models and 3 independent critical care databases ($>129,000$ patients). - Exposed an accuracy-safety paradox in standard metrics where the highest-accuracy model missed the most deaths; severity-aware threshold optimisation reduced weighted error by 26.2% ($p < 0.001$) without any model retraining.	
Severity-Weighted Calibration Error (SWCE)	2026
- Proposed a severity-aware calibration metric and showed empirically that aggregate calibration scores consistently mask failures in high-acuity subgroups across datasets, regardless of the weighting scheme applied. - Demonstrated that the aggregate-best model missed 43 of 69 critically ill patients at a standard triage threshold, and demonstrated that per-band isotonic recalibration consistently corrected these failures, while global recalibration did not, replicated across two independent datasets.	
Prevalence Shift as a Driver of Miscalibration	2025
- Quantified hospital-level outcome prevalence as a dominant driver of cross-institutional calibration failure across 185 hospitals and 159,224 patients ($r = 0.52\text{--}0.75$, $p < 10^{-14}$), while AUROC showed no significant correlation. - Derived a zero-label Bayesian correction using only the local mortality rate, achieving 56–65% calibration error reduction and matching the performance of supervised recalibration methods without any labeled target data.	
NOMOS: RAG Framework for Indian Legal QA	2026
- Built a privacy-preserving legal question answering system over 2.32M characters of Indian statutory text (10 Acts + BNS 2023) using local LLM inference, ChromaDB, and a React + Firebase frontend. - In controlled evaluations, outperformed GPT-4 on citation accuracy, jurisdictional specificity, and hallucination resistance for Indian law, with all inference running locally so sensitive queries never leave the user's environment.	
Multilingual LLM Behavioral Divergence	2026
- Designed a controlled 360-response experiment isolating language as the sole variable across 3 prompt categories and 2 models; introduced the Behavioral Divergence Score (BDS) combining semantic, sentiment, and refusal signals. - Found cross-language divergence exceeded within-language noise by up to $2.5\times$, with 30% refusal-class mismatch on normative prompts, revealing that safety alignment is inconsistently applied depending on prompt language.	

Experience

Machine Learning Intern – Ganglia Technologies Pvt. Ltd., MAHE Manipal

2025

- Developed a clinical severity detection pipeline using multiple ML techniques; conducted literature survey for a review paper currently under submission. Gained end-to-end exposure to applied ML workflows in healthcare.

Research Intern – Centre of IoT and Edge Computing, RV University

2024

- Designed a real-time IV fluid monitoring system using microcontroller-based non-contact capacitive sensors, integrated with an IoT platform for centralised alerting. Resulted in a peer-reviewed Springer publication.

Publications & Manuscripts

Published:

1. **Aman Chandra H**, Nandisa Das, Shriyaa Anand, Aditi Gopinath, K.S. Nidhi, M.J. Vidya. “Intravenous Bag Monitoring and Alert System – A Prototype.” *Springer CCIS, ICBEST 2025*.

Under Review:

1. **Aman Chandra H**, K.C. Narendra. “Severity-Aware Evaluation of ICU Mortality Prediction Models Using Risk-Weighted Error Metrics.” *BMC Medical Informatics and Decision Making, Springer Nature*.
2. **Aman Chandra H**, K.C. Narendra. “Severity-Weighted Calibration Error for Reliability Assessment Under Outcome-Severity Imbalance.” *IEEE Access*.
3. **Aman Chandra H**, Abhijna Shivaprakash et al... “Clinical Risk-Weighted Evaluation of ICU Mortality Prediction Models.” *ICAIHC, NIT Raipur*.
4. Sameer Kulkarni, **Aman Chandra H**, S Nithin, Saadhvi S, Shyam Mohan J S. “NOMOS: A Retrieval-Augmented Generation Framework for Jurisdiction-Specific Legal Question Answering over Indian Statutory Corpora.” *ICETCI 2026, Mahindra University*.

Submitted:

1. **Aman Chandra H**, Stuti Shivhare, Suyash Sahu. “Prevalence Shift and ICU Mortality Miscalibration Across Institutions.” *ICETCI 2026, Mahindra University*.
2. **Aman Chandra H**, Sameer Kulkarni, S Nithin, Khushboo Pandey. “Language as a Hidden Variable: Measuring Behavioral Divergence in Multilingual Large Language Models.” *CONNIT 2026, Hubballi*.

Technical Skills

Languages & Core: Python, C, C++, Java, SQL

ML / DL: PyTorch, TensorFlow, Scikit-learn, XGBoost, LightGBM, Pandas, NumPy, LSTM

Medical AI & Calibration: Clinical severity scoring (SOFA/APACHE); ECE, Brier Score, SHAP, isotonic regression

LLM / RAG: LangChain, ChromaDB, Ollama, Hugging Face, Sentence-Transformers

Web & Backend: React, Node.js

Cloud & Platforms: Firebase, Google Cloud Console, Google Apps Script

Tools: Git, Docker, LaTeX, MySQL, MongoDB

Achievements & Relevant Certifications

- **Grand Finale Winner**, Manthan 2024 – FKCCI (Federation of Karnataka Chambers of Commerce and Industry); recognised with total support and awards amounting to INR 1,00,000 (including special appreciation and university support).
- **Runners Up**, Idea2POC Elevate – Startup Karnataka.
- Core Member – Paradox, IIT Madras.
- Affective Computing (12-week course) – NPTEL, IITD.