Chethana Prasad K

ML Research Engineer

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EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA. Online. Expected Graduation: 2026
***Master of Sciences MS**, Computer Science. Specialization: Artificial Intelligence.*
CS 6300, CS 6601, CS 7637, CS 7641*, CS 6603, CS 6750, CS 6795, CS 8803 O08*, CS 6460*, CS 6435*.*

PES University, RR Campus, Bangalore, Karnataka, India. 2023-2025
***M.Tech(Research) M.Res** , Computer Sciences Engineering – Machine Learning Engineering.*
***Coursework**: Fundamentals of Scalable computing, Stochastic models of Machine learning, Advanced Cloud Computing, Robotics, Topics in Machine Learning, Million-way Parallelism, Research Methodology and Research Principles.*
***Dissertation:** Federated Machine Learning and Algorithms.*

Visvesvaraya Technological University, Belgaum, Karnataka, India. 2017-2021
K S Institute of Technology, Bengaluru, Karnataka
***Bachelor of Engineering BE**, Electronics and Communication Engineering.*

TECHNICAL SKILLS

- ***Languages**: Python, C, Java, SQL, HDL, MATLAB*
- ***Skills**: Human-Computer Interactions, Machine Learning Ops, Data science and Analytics, Banking and Decision Sciences.*
- ***Research Area:** FedML, ML Crypto-analysis and Quantum Computing.*
- ***Tools, Libraries and Miscellaneous**:*
  - ***Cloud & DevOps**: AWS Cloud Services, Docker, Jenkins, Kubernetes, Keras,Grafana,Openstack,Terraform,Packer.*
  - ***ML/ Data science**: TensorFlow, (PyTorch), Pandas, Numpy, Matplotlib, Scikit-learn, XGBoost, My-SQL, AutoML, MySQL,PostgreSQL,DynamoDB.*
  - ***HCI Tools:** Figma, Adobe XD, Sketch*
  - ***Hardware Description Languages:** Verilog, VHDL*
  - ***Java expertise :** JavaScript, Spring Boot.*
- ***Languages Known**: English, Kannada, Hindi, German(Beginner)*

WORK EXPERIENCE

Senior Research Associate - International Institute of Information Technology, Bangalore Sep 2025 – Present
- Built consent management systems for large-scale data platforms, embedding user consent tokens, purpose codes, and revocation logic into secure APIs.
- Engineered policy enforcement modules that translated legal/regulatory rules (GDPR, DPDP Act) into executable access control and compliance checks.
- Developed prototypes and dashboards for real-time consent tracking, provenance logging, and cross-organization interoperability in digital ecosystems.
- Worked with cross-functional teams (tech, product, compliance) to deliver scalable, regulation-ready consent frameworks aligned with privacy-by-design principles.

Research Intern - Indian Institute of Sciences, Bangalore Jan 2025 –Sep 2025
- Master by Research Thesis: Research Intern working on Federated ML and Frameworks.

Research Scholar Faculty - CRAIs LABS, PES University, Bangalore 2023-Dec 2024
- Graduate Teaching Assistant designing coursework's for undergrads as well as Computational Robotics Teaching Assistant.
- Managed and supervised the development of collaborative robot (Cobot) projects in partnership with industry stakeholders.

Systems Engineer - Infosys Ltd., Bangalore 2021-Dec 2023

- Led testing efforts within the Finacle team, delivering 99% on-time software releases, resulting in a 10% increase in client satisfaction and minimizing delays that could lead to costly downtime.
- Developed table maintenance modules that reduced database testing time by 25%, improving efficiency and contributing to 10% faster deployment cycles, directly enhancing profitability for clients.
- Designed and executed comprehensive test plans using SQL for database validation and JavaScript for front-end testing, achieving 100% accuracy in key testing areas and reducing post-deployment errors.
- Collaborated cross-functionally to proactively resolve software issues, contributing to a 30% reduction in bug resolution time, leading to smoother client operations and improved bottom-line performance.
- Spearheaded test case automation, cutting manual testing efforts by 30% and increasing overall test coverage by 40%, which helped drive cost savings by 20% in testing cycles.

PROJECTS and TECHNICAL PUBLICATIONS

- **Federated Neurosymbolic Graph Learning of NMDA–D2 Circuit Dynamics for Perceptual Decision-Making and Cognitive AI in Humanoids.**
  Masters's Thesis. Under Review.
  Developed a federated neurosymbolic learning framework modeling NMDA receptor and D2 dopamine pathway interactions to simulate human-like perceptual decision-making in humanoid agents. Integrated graph neural architectures with symbolic reasoning under federated privacy constraints to model distributed cortical–basal ganglia dynamics, enhancing cognitive inference and adaptive behavior in embodied AI systems.
- **MetaFedGNN-AE: Anchor-Enhanced Federated Graph Neural Networks with Meta-Learned Aggregation over Structurally Incomplete Private Graphs.**
  Under Review.
  Investigated performance, scalability, and privacy metrics across multiple Federated Learning paradigms in constrained environments.
- **A Survey of Noise-Resilient Quantum Aggregation Protocols for Federated Learning on NISQ Devices: NR-QFL and Applications in ADAS**
  WinTechCon 2025
  Proposed a memory-aware scheduling mechanism to optimize federated training throughput on automotive edge systems. The work highlights improvements in rounds-per-second by enhancing on-chip resource utilization across IoT-connected ADAS modules.
- **Visual Categorization Across Minds and Models: Cognitive Analysis of Human Labeling and Neuro-Symbolic Integration**
  Georgia Tech Submission , further revised submission at Cognitive Computation Journal, Springer Nature, 2025.
  Conducted a cognitive experiment comparing human perception and AI predictions across visual classes. Analyzed decision heuristics and disagreement patterns to uncover perception gaps between machine and human classifiers in ambiguous scenarios
- **Federated Machine Learning in Healthcare: Preserving Privacy Across Institutions**
  Project Submission,IISc, 2025
  Designed a cross-institutional federated learning framework for clinical prediction tasks using EHR datasets. Integrated privacy-preserving techniques and domain adaptation to address data heterogeneity in real-world hospital deployments.
- **FinGraphX: Federated and Cloud-Based Framework for Financial Forecasting**
  Georgia Tech Submission and further Conference Submission, 2025
  Developed a federated learning system for collaborative stock market prediction across banking entities. Combined cloud orchestration with edge-level inference to achieve secure, scalable financial analytics.
- **Supply Chain Optimization at Hindustan Aeronautics Limited (HAL)**
  Research Internship, HAL Foundry & Forge Division, Bangalore
  Analyzed procurement cycles and proposed vendor selection strategies that improved supply chain turnaround by 20%.
- **5G and IoT Trends in Strategic Telecom Planning**
  Research Internship, BSNL Mysore, 2020
  Evaluated current 5G and IoT technologies and contributed to strategic insights for modernizing BSNL's service infrastructure.
- **Gaze-Based Authentication Using Morse Code and AI**
  Published in IARJSET, 2021
  Designed a real-time eye-tracking system for secure authentication using Morse code patterns, enabling assistive authentication for users with physical limitations.
- **FIFO Buffer Design for Embedded Video Streaming**
  Presented at ICSEM 2020

Implemented a VHDL-based FIFO architecture to ensure low-latency and high-throughput video stream buffering for embedded systems.

CONFERENCES, WORSHOPS AND RESEARCH ENGAGEMENTS

- *Session Chair, WebSciX 2025 (Workshop on Web Science and eXplainability, Symposium on Data for Public Good, CDPG–IISc) — Chaired sessions on federated reasoning, neurosymbolic cognition, and AI for digital public infrastructure.*
- *Senior Research Associate, IUDX Project (Indian Urban Data Exchange, Ministry of Housing & Urban Affairs / IISc) — Contributed to privacy-preserving data governance, federated graph analytics, and interoperability design for smart-city data ecosystems.*
- *Symphony for Public Good (CDPG–IISc, 2025) — Presented and collaborated on federated AI frameworks for ethical data exchange and governance under the Data for Public Good initiative.*
- *ICDDS 2024 (3rd International Conference on Data, Decision & Systems) — Organized by IEEE Computer Society Bangalore and IEEE CS Student Chapter PES University, RR Campus.*
- *ETCC 2026 (International Conference on Emerging Technologies in Computing and Communication) — IEEE/ComSoc–affiliated conference to be hosted at PES University EC Campus.*
- *WinTechCon 2025 — Presented "Noise-Resilient Quantum Aggregation Protocols for Federated Learning on NISQ Devices (NR-QFL)" in the Automotive Edge Computing track.*
- *COMSNETS 2025 Workshop — Participated in sessions on networked AI, distributed optimization, and privacy-preserving learning.*
- *Industry–Academia Mentorship — Mentored by an industry researcher with NeurIPS and IEEE Workshop publications, contributing to applied neurosymbolic and federated intelligence research.*

CERTIFICATIONS

Professional Certifications —

- *Java and Advanced Java* — Infosys Ltd., Feb 2022
- *Finacle Online Banking Ver 11.2.X (Technical)* — Infosys Ltd., Apr 2022
- *PL/SQL Associate Certification* — Infosys Ltd., Aug 2022
- *AWS Certified Cloud Practitioner Training* — 2024
- *Google Advanced Data Analytics Specialization* — Credential ID: WUC2GYMYY6AM (Jul 2023)
- *Google Project Management Specialization* — Credential ID: E8VU2XTPAWNQ (May 2023)
- *Cisco Introduction to Cybersecurity (Basic)* — 2024

Research Awards & Academic Roles —

- *Research Associate*, IIIT Bangalore — Contributed to IUDX (Indian Urban Data Exchange) and CDPG (Center for Data for Public Good) projects focused on federated AI, privacy-preserving data interoperability, and cognitive learning systems.
- *Research Intern*, Indian Institute of Science (IISc) — Conducted research on federated learning algorithms, client clustering, and secure aggregation protocols.
- *Best Thesis Award & Research Scholarship (RS)* — Recognized for excellence in undergraduate research in machine learning and systems design.