

# Dr. AJAY PRAKASH B.V.

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## RESEARCH PROFILE

AI/ML researcher with PhD in Computer Science and 10+ years of hands-on deep learning research experience and 18+ years of teaching experience. Published 40+ papers in Scopus-indexed journals (including Q1 venues) focusing on novel architectures for computer vision, NLP, and applied ML systems. Strong track record in experimental design, PyTorch-based model development, and transitioning research into production systems. Secured ₹25+ lakhs in competitive research grants. Expertise in transformers, CNNs, LSTMs, and hybrid deep learning approaches with proven ability to document findings through technical papers and research reports.

## RESEARCH EXPERIENCE

**Research Professor and Head, AI & ML** | Dr. Ambedkar Institute of Technology, Bengaluru

*December 2023 – Present*

- Leading AI-Based Forensic Technologies research project on handwritten signature verification and authentication using deep learning architectures (Internal Funding)
- Principal Investigator for AICTE-RPS funded project: 'Design and Development of AI-Based Smart Arm for Quality Assurance' (₹34 lakhs budget) - designing novel computer vision models for industrial quality control
- Developing benchmark datasets for signature forensics with multi-lingual document analysis capabilities
- Collaborating with cardiac research institute on AI-driven healthcare applications using PyTorch for ECG analysis and cardiovascular risk prediction models

**Head of Research & Development** | Pentagospace Private Limited, Bengaluru

*October 2021 – November 2023*

- Designed and executed experimental research on novel deep learning architectures for image and text processing, resulting in 8 publications in Q1/Q2 Scopus-indexed journals
- Developed hybrid transfer learning approaches for plant disease classification achieving 94%+ accuracy using ResNet-50, VGG-16, and custom CNN architectures with SHAP-based explainability
- Implemented spiking neural networks and attention mechanisms for multi-crop recommendation systems using TensorFlow and PyTorch
- Built end-to-end video text detection and recognition pipeline (DEFUSE model) combining LSTM-based sequence learning with CNN feature extractors
- Developed emotion recognition framework using multi-layer self-attention networks for feature-level data fusion
- Led cross-functional teams including ML engineers and data scientists to transition research prototypes into production-ready systems

**Associate Professor & Researcher** | SJB Institute of Technology, Bengaluru

*July 2010 – September 2021*

- Principal Investigator: VGST research grant (₹5 lakhs) for 'Intelligent Plant Disease Supervision Using Deep Learning' - developed CNN-based models for real-time disease detection in agricultural applications
- Conducted rigorous research on text localization from natural scene images using transfer learning with deep CNNs (published in Arabian Journal for Science and Engineering, Q2)
- Designed novel neural network architectures for software defect prediction and classification (published in Springer proceedings)

- Mentored junior researchers and PhD scholars in deep learning methodologies, experimental design, and academic publishing

## KEY RESEARCH CONTRIBUTIONS

- **Novel Architectures:** Developed hybrid transfer learning frameworks, spiking neural networks with attention mechanisms, and multi-layer self-attention networks for various ML tasks
- **Benchmark Development:** Created custom datasets for plant disease detection (5000+ annotated images), signature forensics, and agricultural crop recommendation systems
- **Evaluation Frameworks:** Designed SHAP-based explainability pipelines, comparative analysis frameworks for CNN architectures, and validation protocols for medical AI applications
- **Research-to-Production:** Successfully transitioned multiple research prototypes into deployed systems including IoT-based monitoring platforms and real-time computer vision applications

## PUBLICATIONS (Q1/Q2 JOURNALS)

40+ peer-reviewed publications.

- Sneha G, Ajay Prakash B V, Elderly primigravida leading to cardio-renal issues to fast-paced life style”, International Journal of Drug Delivery Technology (IJDDT), 2026. [Q3-Scopus Indexed]
- Bharath V. S Namitha L., Suma, Kushala M. V., Ajay Prakash B. V, FIN-AI: An Intelligent AI -Based System for Household Budgeting and Grocery, Advances in Computing Systems Communication and Networking, Planning, May, 2026.
- Ajay Prakash B V, Sahaj Dubey, Harsh Singh, Priyanshu Yadav, AI-Video Conferencing Platform with Real-Time Transcription and Smart Assistance, IEEE International Conference on Innovations in Engineering and Technology (ICIET 2026).
- Kushala M V Sahaj Dubey, Ajay Prakash B V, Bharath V S, Weather Vibe: A Real Time Weather Ap, Advances in Computing Systems Communication and Networking, May, 2026
- Ashoka, D. V., Ajay Prakash BV, and Basamma Umesh Patil. "Unveiling Sustainable Agriculture: An Ensemble Approach for Precision Crop and Fertilizer Recommendation with Local Interpretable Model-Agnostic Explanations." *Journal of Intelligent Information Systems* (2025): 1-29 [Scopus, SCI Q2].
- Ajay Prakash B.V., Chetan R., Ashoka D.V. (2025). "Soil classification revolutionized: A hybrid transfer learning approach with SHAP analysis." *Multimedia Tools and Applications* (Springer). [Scopus, SCI Q1]
- Raju C., Ashoka D.V., Prakash B.V. (2024). "Improved top-down attention phasmatodea population spiking neural network based multi crop recommendation framework." *Multimedia Tools and Applications* 84: 8071-8105. [Scopus, SCI Q1]
- Prakash B.V. et al. (2023). "Data Integration Based Human Activity Recognition using Deep Learning Models." *Karbala International Journal of Modern Science* 9(1): 106-121. [Scopus, SCI Q1]
- Prakash B.V. et al. (2021). "Text Localization from Natural Scene Images Using Deep Convolution Neural Network with Transfer Learning." *Arabian Journal for Science and Engineering* (Springer). [Scopus Q2]
- Supriya B N, Ajay Prakash B V (2025). "Watchguard: Enhanced Real-Time Women Safety Detection System Using Deep Learning and Computer Vision." *International Journal of Creative Research Thoughts*, 13: 342-350. *International Journal of Creative Research Thoughts*.
- Raju, Chetan; Ashoka, DV; BV, Ajay Prakash (2024). "CropCast: Harvesting the future with interfused machine learning and advanced stacking ensemble for precise crop prediction." *Kuwait Journal of Science*, 51: 100160. Elsevier.
- Basamma Umesh Patil, Ashoka Davanageri Virupakshappa, Ajay Prakash Basappa Vijaya (2024). "Optimized multi-layer self-attention network for feature-level data fusion in emotion recognition." *International Journal of Artificial Intelligence*, 13: 4435-4444. IAES.
- B.V. Ajay Prakash, Sriharsha B S Prasad, Supriya B N, Ravi K S, Mahantesh Mathapati (2024). "Anthropology and Morphology-Based Facial Image Analysis to Support Criminal Investigation in Forensics." *International Journal of Applied Science and Research*, 7: 177-188. *International Journal of applied science and research*.

- Chetan, R; Ashoka, DV; Ajay Prakash, BV (2023). "HybridTransferNet: Advancing Soil Image Classification through Comprehensive Evaluation of Hybrid Transfer Learning." .
- Chetan, R; Ashoka, DV; BV, Ajay Prakash (2023). "Advancing Soil Image Classification through Comprehensive Evaluation for Crop Suggestion." .
- Chaitra, YL; Dinesh, R; Gopalakrishna, MT; Prakash, BV Ajay (2022). "Deep-CNNLT: text localization from natural scene images using deep convolution neural network with transfer learning." *Arabian Journal for Science and Engineering*, 47: 9629-9640. Springer Berlin Heidelberg Berlin/Heidelberg.
- Chetan R, D.V. Ashoka, Ajay Prakash B V (2022). "IMLAPC: Interfused Machine Learning Approach for Prediction of Crops." *RIA*, 36: 169-174. International Information and Engineering and Engineering Technology.
- G M Sridevi, DV Ashoka, B. V. Ajay Prakash (2022). "Partial Pseudo-Random Hashing for Transactional Memory Read/Write Data Processing and Validation." *Karbala International Journal of Modern Science*, 8: 71-80. University of Kerbala.
- D V Ashoka, Basamma Umesh Patil, R Chetan, Ajay Prakash B V (2022). "Liquefied Petroleum Gas Level Monitoring and Leakage Detection Using Internet of Things." *Society 5.0 and the Future of Emerging Computational Technologies*: 14. Taylor & Francis eBooks.
- Chaitra Y LDinesh R,Gopalakrishna M T, Ajay Prakash B V (2022). "DEFUSE: Deep Fused End-to-End Video Text Detection and Recognition." *revue d'intelligence artificielle*: 459-466. International Information and Engineering Technology Association,.
- Vineeth, R; Rithish, R; Sai Varma, DVSN; Monish Gowda, N; Ajay Prakash, BV (2021). "Text Extraction from Electronic Health Records for Predicting the Patient Diabetics Level by Machine Learning." *Data Engineering and Intelligent Computing: Proceedings of ICICC 2020*: 283-291. Springer Singapore Singapore.
- Rao, Sinchana N; Sunitha, N; Swathi, MS; Shreevaishnavi, VV; Ajay Prakash, BV (2021). "Snooze Breaker: Driver Drowsiness Detection Using Machine Learning." *Data Engineering and Intelligent Computing: Proceedings of ICICC 2020*: 531-540. Springer Singapore Singapore.
- Patil, Basamma Umesh; Ashoka, DV; Prakash, BV Ajay (2021). "Optimization of hyper parameters in machine learning techniques for air quality predictive analysis." *International Journal on Information Technologies & Security*, 13.
- Chaitra Yuvaraj Lakkondra, Dinesh Ramegowda, Gopalakrishna Madigondanahalli Thimmaiah, Ajay Prakash Bassappa Vijaya, Manjula Hebbaka Shivananjappa (2021). "ETDR: An Exploratory View of Text Detection and Recognition in Images and Videos." *RIA*, 35: 383-393. International Information and Engineering and Engineering Technology ....
- Vineeth, R; Rithish, R; Sai Varma, DVSN; Ajay Prakash, BV (2020). "Smart health care chatbot for prognosis of treatments and disease diagnosis using machine learning." *Journal of Computational and Theoretical Nanoscience*, 17: 3947-3951. American Scientific Publishers.
- Gowtham B.C, Ajay Prakash B.V (2019). "I3 Bot: Empowering Small and Medium Scale Enterprises with Machine Learning." *International Journal of Scientific and Research Publications*, 9: 751-755. IJSRP.
- Sanjay K Hoysala, Santhosh K S, Srihari D R, Mr. Suhith Shekar Chandra, Ajay Prakash B V (2019). "Recognition and Classification of Leaf Disease in Potato Plants." *Journal of Data Mining and Management*, 4: 25-29. MAT Journals.
- Chetan R , D V Ashoka, Ajay Prakash B V (2019). "Smart Agro-Ecological Zoning for Crop Suggestion and Prediction using Machine Learning: An Comprehensive Review." *International Conference on Artificial Intelligence and Data Engineering 2019*. Springer.
- R Vineeth, Rithish R, Sai Varma D V S N, Ajay Prakash B V (2019). "Smart Health Care ChatBot for Prognosis of Treatments and Disease Diagnosis using Machine Learning." *International Conference on Recent Innovative Trends in Computer Science and Applications*.
- Hoysala, Sanjay K; Santhosh, KS; Srihari, DR; Chandra, Suhith Shekar; Prakash, BV Ajay (2019). "Recognition and Classification of Leaf Disease in Potato Plants." *Journal of Data Mining and Management*, 4: 25-29.
- BV, Ajay Prakash (2019). "Recognition and Classification of Leaf Disease in Potato Plants." .
- BV, Ajay Prakash (2019). "I3 Bot: Empowering Small and Medium Scale Enterprises with Machine Learning." *International Journal of Scientific and Research Publications (IJSRP)*.

- Ajay Prakash, BV; Ashoka, DV; Manjunath Aradya, VN (2017). "Exploration of Machine Learning Techniques for Defect Classification." Computing and Network Sustainability: Proceedings of IRSCNS 2016: 145-153. Springer Singapore Singapore.
- B. V. Ajay Prakash, S. Suhas, V. Vismaya Kalyan, Manoj Katti, C. Naveena (2017). "A Comprehensive Review on Traffic Prediction for Intelligent Transport System." International Conference on Recent Advances in Electronics and Communication Technology, IEEE: 138-143.
- Soundarya, M; Suraj, K; Adarsh, K; Prakash, BV Ajay (2017). "HSS: Health supporting system using smart intelligence." 2017 3rd International Conference on Applied and Theoretical Computing and Communication Technology (iCATccT): 161-165. IEEE.
- Suhas, S; Kalyan, V Vismaya; Katti, Manoj; Prakash, BV Ajay; Naveena, C (2017). "A comprehensive review on traffic prediction for intelligent transport system." 2017 International Conference on Recent Advances in Electronics and Communication Technology (ICRAECT): 138-143. IEEE.
- B. V. Ajay Prakash, D. V. Ashoka, V. N. Manjunath Aradhya (2016). "A Novel Framework for Integrating Data Mining Techniques to Software Development Phases." Information Systems Design and Intelligent Applications, 434: 485-493. Springer India.
- Prakash, BV Ajay; Ashoka, DV; Aradhya, VN Manjunath; Naveena, C (2016). "Exploration of neural network models for defect detection and classification." International Journal of Convergence Computing, 2: 220-234. Inderscience Publishers (IEL).
- Prakash, V Ajay; Ashoka, DV; Aradya, VN Manjunath (2015). "Application of data mining techniques for defect detection and classification." Proceedings of the 3rd International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA) 2014: Volume 1: 387-395. Springer International Publishing Cham.
- Bilurkar, Namrata; Prakash, Ajay (2015). "GRNN and PNN Models for Cancer Prognosis and Prediction." Computational Systems for Health & Sustainability: 17-18.
- Prakash, Ajay; Ashoka, BV; Manjunath, DV; VN, Aradhya (2015). "Estimating Software Development Effort using Neural Network Models." International Journal of Advanced Research in Computer Science and Software Engineering, 5.
- B V Ajay Prakash, D. V Ashoka, V N Manjunath Aradhya (2015). "An Exploration of PNN and GRNN Models For Efficient Software Development Effort Estimation." Journal of Information Technology Review, 6: 55-61.
- Prakash, BV; Ajay, DV; Ashoka, Manjunath Aradhya VN (2015). "An exploration of PNN and GRNN models For efficient software development effort estimation." .
- Aradhya, B V Ajay Prakash and D V Ashoka and V N Manjunath (2014). "Integrated Approach for Source Code Optimization and Analysis using Data Mining Techniques." International Conference on Applied Information and Communications.
- B V Ajay Prakash, D V Ashoka (2014). "Influence of agile methodologies in software development: A case study." International Conference on Recent Trends in Engineering and Technology: 34-38.
- Prakash, BA; Ashoka, DV; Aradhya, VN Manjunath (2013). "An evaluation of neural networks approaches used for software effort estimation." Proc. of Int. Conf. on Multimedia Processing, Communication and Info. Tech., MPCIT: 292-296.
- Prakash, BV Ajay; Ashoka, DV; Aradhya, VN Manjunath (2012). "Application of data mining techniques for software reuse process." Procedia Technology, 4: 384-389. Elsevier.
- Mahantesh, K; Zaman, Noor; Kalam, Akhtar; Prakash, BV Ajay; Arora, Tajinder; Singh, Jyoti Prakash; Kumar, Satyendra; Mittal, Poornima; Pal, Rajarshi; Sangwan, Dhiraj (). "ICRAECT 2017." .

## TECHNICAL EXPERTISE

### Deep Learning Frameworks & Tools

- PyTorch, TensorFlow, Keras - extensive experience in model implementation, training, and evaluation
- Scikit-learn, NLTK, OpenCV, NumPy, Pandas, Matplotlib for data processing and analysis
- Jupyter Notebook, Google Colab Pro, Anaconda for research experimentation

### Model Architectures & Methods

- Transformers, CNNs (ResNet, VGG, EfficientNet), LSTMs, Siamese networks, attention mechanisms
- Transfer learning, hybrid ensemble methods, spiking neural networks
- Explainable AI (SHAP, LIME), model interpretability techniques

### Research Domains

- Natural Language Processing, Computer Vision, Text Mining
- Deep Learning, Machine Learning, Statistical Modeling
- Applied ML Systems, Data Science, Knowledge Engineering

### Programming & Development

- Python (primary), Java, C, C++, C#
- Data structures, algorithms, software engineering principles
- SQL, Oracle, MySQL for data management and analysis

## EDUCATION

### Doctor of Philosophy (PhD) in Computer Science

Visvesvaraya Technological University, Karnataka, India | 2018

- **Thesis:** "Integration of Data Mining Techniques in Agile Methodologies"
- Focus: Machine learning, neural networks, software engineering optimization

### Master of Technology (M.Tech) in Engineering Management

Visvesvaraya Technological University | SJCE, Mysore | 2008 | First Class (69.4 percent)

### Bachelor of Engineering (B.E) in Information Science & Engineering

Visvesvaraya Technological University | Vidya Vikas Institute, Mysore | 2005 | First Class (64 percent)

## RESEARCH GRANTS & FUNDING

- **AICTE-RPS Grant (2025):** ₹34,00,000 for "AI-Based Smart Arm for Quality Assurance in Industry Applications" - Principal Investigator
- **AICTE Idea Lab Grant (2024):** ₹30,00,000 to establish AI/ML Idea Lab - Research coordinator
- **VGST Research Grant (2019):** ₹5,00,000 for "Intelligent Plant Disease Supervision Using Deep Learning" - Principal Investigator

## ADDITIONAL QUALIFICATIONS

- Completed advanced training in Generative AI, Large Language Models (LLM), and Transformer architectures (E&ICT Academy, IIT Guwahati, 2025)
- NPTEL certification in Leveraging Generative AI for Programming (IISc Bengaluru, 2024)
- SpringBoot-OpenAI Integration workshop (Encora, 2024)
- WIPRO Java Certified Faculty (88% score)
- Machine Learning and Data Science certifications (LinkedIn Learning, Great Learning)

## PROFESSIONAL COMPETENCIES

- **Research Excellence:** Experimental design, hypothesis testing, statistical analysis, benchmark development
- **Technical Communication:** Extensive experience in paper-quality technical writing, peer review, and presenting research at international conferences
- **Collaboration:** Cross-functional team leadership, mentoring junior researchers, industry-academia partnerships
- **Remote Work:** Proven ability to work asynchronously across distributed teams and time zones
- **Problem Solving:** Curiosity-driven approach to tackling hard, ambiguous problems in AI/ML research