

DR. TEJAS P

Senior Technical Officer (2)

IT Services & Computational Solutions (ITS & CS) Department

CSIR – Central Food Technological Research Institute (CFTRI)

Ministry of Science & Technology, Government of India

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AREAS OF EXPERTISE

- Artificial Intelligence in Food Science:** deep learning models for predicting and optimizing fermentation and enzyme processes; multi-output prediction; AI-guided design of experiments.
- Computer Vision & Spectral Analytics:** CNN, CNN-LSTM and 2D-CNN models for image-based analysis and FT-NIR spectroscopy-based adulteration detection; medical image segmentation (Ph.D.).
- Full-Stack Web Development:** institutional MIS, portals and platforms built on PHP, MySQL and Apache.
- IT Services & Governance:** network access, institutional IT workflows, ISO/EMS & ISO-QMS documentation.

EDUCATIONAL CREDENTIALS

Year	Degree	Institution	Result
2024	Ph.D. (Computer Science & Engineering – Artificial Intelligence)	Sri Jayachamarajendra College of Engineering (SJCE), Mysuru (VTU)	Awarded (March 2024)
2015	M.Tech. (Software Engineering)	Sri Jayachamarajendra College of Engineering, Mysuru	First Class with Distinction
2012	B.E. (Computer Science & Engineering)	Sri Jayachamarajendra College of Engineering, Mysuru	First Class with Distinction

Ph.D. Thesis: “Improved Brain Tumour Detection and Classification Using Deep Learning Approach”

TECHNICAL SKILLS

- AI / Machine Learning:** Python, TensorFlow/Keras, scikit-learn, pandas; deep neural networks, CNN, CNN-LSTM, 2D-CNN; cross-validation, feature engineering, model-guided optimization
- Programming:** C, C++, Java, PHP, Perl, Pro*C, PL/SQL, ASP.NET MVC, OpenGL
- Web Technologies:** HTML, CSS, J2EE, PHP-MySQL-Apache stack, open-source CMS/CRM platforms (SuiteCRM, Moodle, WebCollab)
- Databases:** MySQL, Oracle
- Other:** DBMS, Software Engineering, Computer Networks, Operating Systems

PROFESSIONAL EXPERIENCE

CSIR – Central Food Technological Research Institute (CFTRI), Mysuru

June 2017 – Present

Senior Technical Officer (2) | IT Services & Computational Solutions (ITS & CS) Department

A. AI/ML Contributions to Institute R&D Projects

- AI-Based GABA Production Prediction Model** – Deep learning model to predict γ -aminobutyric acid (GABA) levels from fermentation parameters, used to identify promising fermentation conditions for laboratory validation. Project: “Development of Millet-based Fermented Product for Management of Neurological Disorders” (MLP 0311 – WP4; PI: Dr. N. Vinod Kumar, Scientist-C, TFSAN).
- AI-Based Cellulase Enzyme Activity Prediction** – Deep learning model to predict cellulase activity from pH, incubation time, moisture, inoculum and salt-solution strength (M.Sc. dissertation, co-guide).
- AI-Based Optimization of Amylase Enzyme Activity** – Deep learning model with 5-fold cross-validation and a two-stage AI search strategy to recommend fermentation conditions for focused experimental validation. Project: “Developing Space Food Formulation Using Microbial Enzymes for Enhanced Nutrition and Digestibility” (MLP 323 – WP-2; PI: Dr. Vinod Kumar N, Scientist-C, TFSAN).

4. **AI-Driven Multi-Output Prediction of Synergistic Enzyme Treatments in Ragi Flour** – Ensemble model predicting antioxidant (DPPH, ABTS, TPC, flavonoids) and reducing-sugar outcomes of amylase–protease–lipase–phytase combinations, with priority-weighted ranking of enzyme combinations (MLP 323 – WP-2).
5. **AI-Based Seed Germination Analysis System** (ongoing) – Time-lapse image acquisition with a CNN-LSTM architecture for germination scoring, disease classification and growth-stage prediction. Project: “Design and Development of AI-Based Indigenous Germination Equipment Used for Enhancing Nutritional Quality and Germination Rate” (MLP-0325, WP-2; PI: Mr. Ramesh, Scientist-C, Grain Science & Technology).
6. **AI/ML-Based Smart Fumigation System** (ongoing) – AI/ML technical guidance covering model conceptualization, sensor-integration planning and intelligent monitoring modules for protection of stored cereals and pulses (PI: Dr. Sandeep N. Mudliar, Scientist-G, Food Protectants & Infestation Control).
7. **AI-Based Adulteration Detection in Commercial Whey Powder** – Deep learning classification of pure and adulterated whey powder from FT-NIR spectroscopy data (M.Sc. dissertation, co-guide).
8. **Deep Learning Classification of Adulterated Skimmed Milk Powder** – 2D-CNN model to distinguish pure and adulterated skimmed milk powder from FT-NIR spectroscopy data (M.Sc. dissertation, co-guide).
9. **AI-Based Sensory Quality Prediction Model** – Multimodal deep learning model combining product images (MobileNetV2) with formulation data to predict sensory attributes of chocolate flavoured idli, deployed as a web application (M.Sc. dissertation, co-guide).
10. **AI-Based Microbial Metabolic Production Prediction Platform** – Machine learning models built in Python and in the no-code tool Orange on a literature-mined dataset of α -amylase production by *Bacillus* spp. in submerged fermentation, compiled from over 50 published studies (summer internship, guide).

B. Software / Web Applications Developed

1. **AgriLink** (2025–26) – Mobile-optimized web application connecting farmers directly with food-processing industries and traders, with structured listings, photo upload and a privacy-preserving inquiry and contact-reveal workflow. Developed under project CSP024002 (“Development of Fruit Incorporated Herbal Beverage”, Mr. Gahire Anant Chintamani, Scientist-C, Department of Fruit & Vegetable Technology); submitted to the Process Development and Research Utilization Committee (PDRUC) as a transferable technology.
2. **MSMECorner** (ongoing) – Revamp of SMECorner into an enhanced MSME technology-awareness and interaction platform; technical SPOC for development, testing and implementation.
3. **SMECorner** (2017) – Online platform connecting SMEs, entrepreneurs and start-ups with CSIR-CFTRI experts for guidance on food technology and processing. Recognized by CSIR and featured in CSIR News, December 2017.
4. **Retiree Management Information System (RMIS)** (2023–24) – Web application to manage retiree and dependent information with role-based access and PDF report generation.
5. **Digital Gate Pass System** (2021–22) – Online system for raising gate passes for returnable and non-returnable materials, with IN/OUT time tracking across staff, Stores and Security.
6. **CSIR-CFTRI Platinum Jubilee Blog** (2021–22) – Team member in developing the blog showcasing CSIR-CFTRI’s 75-year journey.
7. **ChemShare** (2020–21) – Resource-sharing platform for chemicals, standards and consumables among staff and students.
8. **SuiteCRM** (2020–21) – Configuration of an open-source Customer Relationship Management application.
9. **Rajbhasha Portal** (2019–20) – Hindi document management system for circulars/OMs, publications, daily words, suvichar and photo gallery.
10. **Conference Websites** – 7th Bioprocessing India Conference (BPI 2019), with abstract submission, registration, online payment and mass-mailing; and the symposium “Innovation and Sustainable Library Services in the Digital Era” (February 2020).
11. **IT Services Portal** (2018–19) – Work-order tracking system with time tracking, dashboard, e-mail notifications, reports and attachments; feedback process simplified under QMS ISO 9001:2015 (2025–26).
12. **Health Card Management Information System** (2018–19) – Management of employee/pensioner dependent information and generation of credit-reference reports for hospital services.
13. **Book4Meet** (2017–18) – Single-window booking system for the institute’s meeting halls and common facilities, extended with an “Allotted to” feature for assigning ITS & CS support staff (2023–24).
14. **Online Knowledge Management System** (2017–18); customization of **WebCollab** and **Moodle** for project management and knowledge base (2018–19).

Applications currently in use are maintained and upgraded on an ongoing basis (user and access management, database backup and restoration, new features).

C. Technical Support & Services

- **Web Access (Wi-Fi & LAN):** creation, extension and deactivation of web-access IDs; troubleshooting network issues for staff and students.
- **Institute Work Orders:** internet connectivity, Microsoft Office, Kavach e-mail, printer drivers and antivirus installation and troubleshooting.
- **Video Conferencing:** technical support for 250+ online meetings, Ph.D. viva voce and AcSIR oral examinations (2020–2026) via Cisco VC, Microsoft Teams, Webex, GoToMeeting and Skype.
- **CFTRI Blog:** uploaded 1,150+ contents (circulars, OM, abstracts, photo gallery) since 2017; prepared 79 Retiree Profiles (2020–2026); implemented quiz and secure non-downloadable PDF viewing features.
- **ID Card Management:** designed ID card templates for all staff and student categories and a Visitor ID card; migrated the ID card system to new software and hardware; printed 2,300+ ID cards (2018–2026).
- **Biometric Attendance:** biometric registration and weekly validation of AEBAS devices.
- **E-Procurement Support:** e-tender administration support to the Administration Department.

D. Quality Systems & Institutional Documentation

- Team member in preparing and revising ISO/EMS documentation: Environmental Aspect Manual, Environmental Management Manual, Environmental Procedure Manual, Environmental Legislative Register, Onsite Emergency Plan and Operational Control Procedures.
- Team member in preparing and refining Standard Operating Procedures under ISO-Quality Management System (ISO-QMS).
- Member of the team preparing the “75 Years of R&D at CSIR-CFTRI” book and the Employee Directory for the 75 Years’ Journey of CSIR-CFTRI.

Maharaja Institute of Technology (MIT), Mysuru

July 2015 – June 2017

Assistant Professor | Department of Computer Science & Engineering

- Taught Object-Oriented Programming with C++, Java, Software Testing, Storage Area Networks, DBMS, Computer Graphics & Visualization and Advances in Computer Networks (M.Tech.), with associated laboratories.
- Guided 33 mini B.E. projects, 3 final-year B.E. projects and 1 M.Tech. mini project; conducted placement training.
- Designed and developed websites for the International Conference on Cognition and Recognition (ICCR 2016) and the International Conference on Signal and Image Processing (ICSIP 2017).

Intel

July 2014 – June 2015

Graduate Technical Intern | Wireless Platform Research and Development (WPRD) – Project “Trace Replay Simulation System (TReSS) for LTE 4G”: developed a Perl program to convert byte streams to SWIFT test cases and C APIs for SWIFT.

Tata Consultancy Services

Sept 2012 – Sept 2013

Assistant System Engineer Trainee | Project “Automation System for Retail” (C++, Pro*C, MySQL, UNIX): database and interface design, coding, testing, quality assurance and code reviews.

TEACHING & STUDENT GUIDANCE

- Teaching “**Artificial Intelligence (AI) & Internet of Things (IoT)**” to 1st-semester M.Sc. students (since 2021–22).
- Teaching “**AFB: Agri-food Business Management and Intellectual Property**” to 4th-semester M.Sc. students (since 2022–23).
- Taught “**AI and its Applications in Sensory Science**” to AcSIR Ph.D. students.
- **Co-Guide**, M.Sc. dissertation “Development of Chocolate Flavoured Idli and prediction of sensory quality using Artificial Intelligence” – Ms. Yadlapalli Haritha (Guide: Smt. Amudha Senthil, Scientist-F, TFSAN; 2026).
- **Co-Guide**, M.Sc. dissertation “Optimization for Cellulase Using ANN Model and Application in Food Industry” (Guide: Dr. N. Vinod Kumar, Scientist-C, TFSAN).
- **Co-Guide**, M.Sc. dissertation “Quality Evaluation and Aflatoxin M1 Estimation in Commercial Whey Powder” – Ms. Swathi K. (Guide: Dr. Govindaraju K., PTO, FS&AQCL).

- **Co-Guide**, M.Sc. dissertation “Quality Evaluation and Aflatoxin M1 Estimation in Commercial Skimmed Milk Powder” – Ms. Lavanya D. (Guide: Dr. Amrutha Kala A.L., PTO, FS&AQCL).
- **Guide**, summer internship “Development of an AI-Based Platform for Prediction of Microbial Metabolic Production” – Ms. Neha K and Ms. Sanjana P, 3rd-year B.Sc. (Biotechnology) (July–August 2026).

PUBLICATIONS

Research Papers

1. “Integrating Artificial Intelligence with Non-Destructive Experimental Methods for Effective Food Analysis: A Case Study on Spices.” **Journal of Food Science and Technology**. Co-authored with Bhavana B. K., Neha Tanwar, Sandeep Narayan Mudliar and Sukumar Debnath.
2. P. Tejas, S. K. Padma (2022). “A Hybrid Segmentation Technique for Brain Tumor Detection in MRI Images.” **Second International Conference on Image Processing and Capsule Networks (ICIPCN)**.
3. P. Tejas, S. K. Padma (2021). “A Novel Hybrid Approach to Detect Brain Tumor in MRI Images.” **Turkish Journal of Computer and Mathematics Education (TURCOMAT)**.

Conference Presentations

1. **Oral presentation**: “AI-Driven Optimization for Enhanced 4-Aminobutyric Acid Production Using Probiotic *Enterococcus durans*,” National Conference FIFATF-2025, SLIET, Longowal, Punjab (abstract published in the Book of Abstracts).
2. **Poster**: Tejas P., Srividhya C. S., Suresh P. S. N., Manilal P. “Enabling Entrepreneurship Platform from CSIR-CFTRI for SMEs: New Initiatives,” 8th International Food Convention (IFCON 2018), 12–15 December 2018, CSIR-CFTRI, Mysuru.

PATENTS (PUBLISHED APPLICATIONS)

1. “A Device for Self-Recognition of Veins and Insertion of Intravenous Cannula Procedure,” Application No. 201941043568 A.
2. “An Authenticated Modem Device with In-Built Data Usage Analytic,” Application No. 201641045189 A.
3. “Foot Comforter Shoe,” Application No. 201641025279 A.

INVITED LECTURES & TECHNICAL REVIEW

- Faculty, Short-Term Course “Analytical Techniques for Spices,” CSIR-CFTRI (9–13 June 2025) – lecture on “AI/ML and Computational Approaches for Spice Quality Assessment.”
- Invited talk, “AI and its Applications in the Food Industry,” Maharaja Institute of Technology, Thandavapura, Mysuru (11 January 2024).
- Technical talk, “Project Development with IT Standards (MVC & Tiered Architecture),” IEEE Student Chapter, Maharaja Institute of Technology, Mysuru.
- Internal technical review of an AI/ML research manuscript on machine learning for chicken meat quality evaluation using curcumin-loaded methylcellulose intelligent films (2025–26).

COMMITTEES & EVENT ORGANISATION

- Co-Convener, Website & IT Support Committee and member, Registration Committee – 7th Bioprocessing India Conference (BPI 2019), CSIR-CFTRI, 14–16 December 2019; designed the conference logo and certificates.
- IT Coordinator, Vaibhav Summit 2020 (October 2020).
- Registration and E-poster Committees – International Virtual Conference “Emerging Trends in Food Protectants and Infestation Control,” 24–25 February 2021.
- Session management and technical support – DST TEDP Programme, CSIR-CFTRI, 25 February – 30 March 2021.
- Coordinator, “Digital Signature & Public Key Infrastructure Awareness Program,” 31 August 2021.
- Souvenir Committee – 29th Indian Convention of Food Scientists & Technologists (ICFoST), 5–6 January 2023.
- Audio-visual, Poster and AI Committees – CSIR-CFTRI One Week One Lab (OWOL), 3–7 July 2023.
- Venue & Hall Arrangement Committee – National Quiz Contest on Food Security Mission (NQC-FSM), 16 October 2023.

- Registration and Souvenir Committees – AFST(I) 9th International Food Convention (IFCoN), 7–10 December 2023.
- Bilingual (Hindi–English) CFTRI posters – Regional Official Language Conference and Award Ceremony (South & South-West Regions), Mysuru, January 2025.
- Nominated Member, Swachhata Hi Seva Campaign (2024 and 2025); Committee Member, Swachhata Pakhwada and Swachhata Action Plan (SAP-2025).
- External Examiner, AISSE (Class X) Artificial Intelligence practical examinations, 2020–21 to 2025–26.
- Committee member for 100% Physical Verification of Stores; Expert Committee for scrutiny of books (up to 1960) for ITS & CS; PIR/DIR verification for departments.

TRAINING, WORKSHOPS & CONFERENCES ATTENDED

- Training Programme on “IT Policies and Guidelines,” CSIR-HRDC, Ghaziabad, 11–13 February 2026.
- Jan AI Summit, Mysuru (Official India AI Pre-Summit Event), MYRA School of Business, 31 January 2026.
- National Level Workshop on “Data Analytics and Learning (NWDAL-2019)” – AI, Machine Learning and Deep Learning, University of Mysore, 18–20 November 2019.
- Second National Level Workshop on “Data Analytics and Learning (DAL) – Advanced Topics,” JSS Science and Technology University, Mysuru, 29–31 August 2019.
- Training Programme on “Managerial Effectiveness for Technical Officers,” CSIR-HRDC, Ghaziabad, 29–31 May 2019.
- AWS Innovate Online Conference 2019 – Machine Learning & AI Edition, 14 February 2019.
- Training and Re-orientation Programme on E-Procurement/E-Tendering, CSIR-CFTRI, October 2018.
- 5th International Conference on “Cognition & Recognition (ICCR-2016),” MIT Mysore, 30–31 December 2016.
- Special lecture “How to do a Good Ph.D.?” , Second International Conference on Cognitive Computing & Information Processing (CCIP 2016), SJCE Mysuru, 10 August 2016.
- Workshop on “Big Data and Hadoop,” MIT Mysore, 15–16 March 2016.
- Workshop on “Android App Development,” SJCE Mysuru, 27–28 September 2014.

MEMBERSHIP OF PROFESSIONAL SOCIETIES

- Member, Institution of Engineers (India) [IEI].
- Life Member, Association of Food Scientists & Technologists (India) [AFST(I)].
- Life Member, Computer Society of India (CSI).
- Member, Advisory Board, Department of Computer Science & Engineering, Maharaja Institute of Technology, Mysuru (since July 2018).
- Member, Institute of Electrical and Electronics Engineers (IEEE) – Student / Young Professional membership (until December 2022).

ACHIEVEMENTS & RECOGNITION

- Appreciation for developing the “Rajbhasha Portal” for managing Hindi documents, CSIR Foundation Day, CSIR-CFTRI.
- SMECorner platform recognized by CSIR and featured in CSIR News, December 2017.
- Qualified UGC-NET for Assistant Professor (2015), KSET (2014) and GATE (2014).
- First Rank, “Mathematica – 2005: 6th International Examination of Mathematics Talent Search for School-going Children.”