Pratik Gorde

DST-INSPIRE Fellow (SRF)

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Education

2023–Present **PhD, Food Process Engineering**, *National Institute of Technology*, Rourkela, India.
Machine Learning Applications for Techno-Functional Property Predictions of Hyacinth Bean (*Lablab purpureus*) Proteins

2021–2023 : **Master of Technology, Food Engineering & Technology**, *Sant Longowal Institute of Engg.&Tech.*, Punjab, India.
Mass Modelling of Dragon Fruit (*Hylocereus undatus*) Seeds and Oil Extraction using Green Solvents.

CGPA : 9.95/10 (#1 Rank Gold Medal)

2017–2021 : **Bachelor of Technology, Food Technology**, *Mahatma Phule Krishi Vidyapeeth*, MH, India.

CGPA : 8.90/10

Publications

Journal Articles

2026 **Gorde, P. M.**, P. Singha, and S. K. Singh. Characterization of structural, functional, and rheological modifications in the hyacinth bean (lablab purpureus) protein induced by multipin cold plasma treatment. ***Journal of Food Measurement & Characterization***, 2026. DOI: 10.1007/s11694-025-03969-1.

2026 **Gorde, P. M.** and S. K. Singh. Automated postharvest quality assessment of hyacinth bean seeds using yolov5 and multivariate analysis. ***Journal of Stored Products Research***, volume 119, page 103128, 2026. DOI: 10.1016/j.jspr.2026.103128.

2026 **Gorde, P. M.** and C. S. Saini. Comparative analysis of mathematical models and machine learning approaches for predicting dragon fruit seed mass. ***Food Physics***, volume 3, page 100075, 2026. DOI: 10.1016/j.foodp.2025.100075.

2026 S. Loni, **Gorde, P. M.**, P. Singha, and S. K. Singh. Automated millet classification using transfer learning and computer vision. ***Journal of Food Process Engineering***, volume 49, page e70554, 2026. DOI: 10.1111/jfpe.70554.

2025 K. Ware, P. Kashyap, **Gorde, P. M.**, R. Yadav, and V. Sharma. Comparative analysis of rsm and ann-ga based modeling for protein extraction from cotton seed meal: Effect of extraction parameters on amino acid profile and nutritional characteristics. ***Food and Bioproducts Processing***, volume 150, pages 63–77, 2025. DOI: 10.1016/j.fbp.2024.12.016.

2025 **Gorde, P. M.**, P. Singha, and S. K. Singh. Advanced machine learning techniques for hyacinth bean identification using infrared spectroscopy and computer vision. ***Sustainable Food Technology***, 2025.

2025 P. Bajirao Patil, D. Sarkar, K. Poddar, **Gorde, P. M.**, S. K. Singh, and A. Sarkar. Development of a bio-based composite from in situ extracted neem oil, threadlets, and bacillus sp. phns9 synthesized phbv utilizing sugarcane molasses. *Preparative Biochemistry & Biotechnology*, pages 1–16, 2025. DOI: 10.1080/10826068.2025.2585925.

2024 **Gorde, P. M.**, D. R. Dash, S. K. Singh, and P. Singha. Advancements in sustainable food packaging: A comprehensive review on utilization of nanomaterials, machine learning and deep learning. ***Sustainable Chemistry and Pharmacy***, volume 39, page 101619, 2024. DOI: 10.1016/j.scp.2024.101619.

Book Chapters

2025 **Gorde, P. M.**, Das, A., Singha, P., and Singh, S. K., Biofuel from Biomass, In *Royal Society of Chemistry eBooks*, pp. 232–264.

2025 Ravindran, N., Banerjee, S., **Gorde, P. M.**, Singh, S. K., and Singha, P., Computer Interface for Human Mastication Analysis, In *Engineering Innovations in Sensory Science*, CRC Press, pp. 247–283.

2026 Loni, S., **Gorde, P. M.**, and Singh, S. K., Design and modeling of twin-screw extruder, In *Extrusion Cooking for Food and Feed*, pp. 39–59.

In Conference

2026 **Gorde, P. M.**, P. Singha, and S. K. Singh. Integrative multivariate analysis and yolov5-based deep learning for quality evaluation of underutilized hyacinth bean (lablab purpureus) landraces. In *Proceedings of the 6th International Conference on Food Properties*, Bangkok, Thailand, January 2026. Oral presentation, January 28–30, 2026.

2025 **Gorde, P. M.**, G. Kishore Kumar, P. Singha, and S. K. Singh. A unified web platform for predictive modeling and optimization of agri-food systems using ann and ga. In *Proceedings of the 31st Indian Convention of Food Scientists and Technologists (ICFoST)*, Thanjavur, Tamil Nadu, India, December 2025. Poster presentation, December 18–20, 2025.

2025 **Gorde, P. M.**, R. Gadhave, and S. K. Singh. Computer vision based deep learning framework for quality evaluation of legumes. In *International Conference on Emerging Opportunities, Innovations and Challenges in Food Processing, Nutrition and Sustainable Development*, Akola, Maharashtra, India, October 2025. Oral presentation, October 13–16, 2025.

2024 **Gorde, P. M.**, P. Singha, and S. K. Singh. Developing a new, environmentally friendly packaging material from cottonseed protein and cellulose waste. In *5th SEA–AICOSCA Cottonseed Oil and Meal Conference*, Ahmedabad, Gujarat, India, July 2024. Oral presentation (First Prize), July 12–13, 2024.

2024 **Gorde, P. M.**, S. K. Singh, and P. Singha. Development of an open-source web application for optimizing agricultural and food processing operations using machine learning. In *30th ICFoST Conference, Navi Mumbai, India*, 2024. (Best Poster Award).

2024 S. Loni, **Gorde, P. M.**, P. Singha, and S. K. Singh. Development of automated millet classification system using computer vision and machine learning. In *30th ICFoST Conference, Navi Mumbai, India*, 2024.

2023 **Gorde, P. M.** and Saini C.S. Computation of dragon fruit *(Hylocereus undatus)* seeds for moisture dependent engineering attributes for equipment design. In *29th ICFoST Conference, Trivandrum, Kerala, India*, 2023.

2020 **Gorde, P. M.** *Ficus Racemosa*: Golden mean of food nutrition and nutraceutical properties by nutra-tea. In *3rd National Conference on Sustainable Agriculture Development for Food Security and Nutrition, MIT-ADT, Pune, MH, India*, 2020.

2018 **Gorde, P. M.** MRI Techniques in Food Processing. In *State Level Conference on Opportunities in Food Processing Industries, AFSTI, Pune Chapter, India*, 2018.

Research Experience

National Institute of Technology, Rourkela, India

2023–Present ***Machine Learning Applications for Techno-Functional Property Predictions of Hyacinth Bean (Lablab Purpureus) Proteins***.
Integrative Investigations on Hyacinth Bean (*(Lablab purpureus L.)*): From Classification to Utilization through Machine Learning Approach.

Supervisor : **Dr. Sushil K. Singh**, *Asst. Professor, Department of Food Process Engineering*, National Institute of Technology, Rourkela (*Profile Link*)

Sant Longowal Institute of Engg. & Technology, Punjab, India

2021–2023 ***Mass Modelling of Dragon Fruit (Hylocereus undatus) Seeds and Oil Extraction using Green Solvents.***.

Supervisor: **Prof. Charanjiv Singh Saini**, *Professor, Department of Food Engineering & Technology, SLIET, Punjab, India* (*Profile Link*)

Fellowships & Awards

2023 –Present ***DST-INSPIRE Fellowship*** of Department of Science and Technology(DST), Government of India, as a PhD Research scholar in National Institute of Technology rourkela.

2024 Recipient of ***AFST(I)-Springer Nature India Travel Grant*** award to attend a International conference ***30th ICFoST, Dec-2024*** in New Mumbai, India.

2023 Recipient of ***Dr. Jiwan Singh Sidhu Gold Medal Award*** for securing First rank in M.Tech ***SLIET, Punjab, India***

Academic Achievements & Recognitions

Feb 2026 **Best Research Scholar Award** at the **7th Global Agri Conference (Agri Meet-2026)**, held at the Mahatma Gandhi State Institute of Public Administration, Chandigarh, India, February 20–21, 2026.

Jan 2026 **Best Research Paper Award** at the **6th International Conference on Food Properties**, for the oral presentation titled "Integrative Multivariate Analysis and YOLOv5-Based Deep Learning for Quality Evaluation of Underutilized Hyacinth Bean (Lablab purpureus) Landraces," Bangkok, Thailand, January 28–30, 2026.

Oct 2025 **Best Poster Award** for the presentation titled "Computer Vision Based Deep Learning Framework for Quality Evaluation of Legumes" at the **International Conference on Emerging Opportunities, Innovations and Challenges in Food Processing, Nutrition and Sustainable Development**, Akola, Maharashtra, India, October 13–16, 2025.

Dec 2024 **Best Poster Award** at the **30th ICFoST – 30th Indian Convention of Food Scientists & Technologists (ICFoST-2024)**, for Development of an Open-Source web application for optimizing agricultural and food processing operations using machine learning, Navi Mumbai, India.

July 2024 **First Prize for Best Research Approach** for the project titled *"Developing a new, environmentally friendly packaging material from cottonseed protein and cellulose waste."* This competition was organized by the Solvent Extraction Association of India (SEA) and the All India Cottonseed Crushers Association (AICOSCA) at Ahmedabad, Gujarat, from July 12-13, 2024.

Professional Involvement

Jan 2025–Present **Board of Studies (BoS), Student Representative**, for Department of Food Engineering and Technology, Sant Longowal Institute of Engineering and Technology (SLIET), Punjab, India to contribute to academic and research advancements in the department.

Technical Skills

Equipments	Computer Vision system, Multipin Cold Plasma, Probe Ultrasonicator, Spray dryer, Freeze Dryer
Instruments	Zetasizer-Malvern Panalytical, Texture Analyzer-Stable Micro Systems, UV-Vis Spectrophotometer
Softwares	MATLAB® 2024b, Design-Expert® v13, IBM SPSS®, OriginLab® 2020-Pro, Minitab®, MS Office
Programming	Python, MATLAB

Professional Memberships

2024-Present **Associate Member of Institution of Engineers, India**, *AM3126445*.

2023-Present **Member of Association of Food Scientists & Technologists,India**, *AFSTI/SM/2024/652*.

Trainings & Workshops

July 2022 Attended a 7-day workshop on ***"Handling perishable Agro/food produces - Equipment handling, analytical techniques, modelling and scale-up studies"*** at CSIR-NIIST, Kerala.

Nov. 2019 Participated in ***"Hi-Tech Analytical Instrumentation for Agri. and Food Product Quality Analysis"*** at IIFPT, Thanjavur, Tamil Nadu. (Cert. No-IIFPT/FSQTL/SNO#19/11/117).

Sept. 2019 Successfully completed ***"Awareness Training on ISO 22000:2018 and HACCP (Hazard Analysis and Critical Control Point)"*** at SCFT, Maldad.

Aug. 2019 Certified in ***"Manufacturing (Level-1 - Food Safety Supervisor FSSAI)"*** at SCFT, Maldad. (Cert.No.-BMA10300000017).

Jan. 2019 Completed training on ***"International Food Safety System & HACCP Application"*** at SVDCFT, Amravati. (Cert. No. - MQAC/TRC/FSM/211).

Referees

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