Mansi Goel

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Education

Indraprastha Institute of Information Technology Delhi (IIIT-Delhi), India *Aug 2020 - Present*
PhD Research Scholar *CGPA: 9.86/10.0*
Areas of Interest: Natural Language Processing, Data Science, Large Language Models
Advisor: Prof. Ganesh Bagler

Jaypee Institute of Information Technology, Noida, India *2015 - 2020*
BTech-MTech Computer Science and Engineering *CGPA: 8.0/10.0*
MTech Thesis: Nature-Inspired Path Optimization for Online Social Network

Publications

Peer-reviewed Journals

ToxinPredictor: Computational Models To Predict the Toxicity of Molecules
Mansi Goel, A. Amawate, A. Singh and G. Bagler *2024*
Chemosphere, Elsevier, https://doi.org/10.1016/j.chemosphere.2024.143900

FlavorDB2: An Updated Database of Flavor Molecules
Mansi Goel, N. Grover, D. Batra, N. Garg, R. Tuwani, A. Sethupathy, and G. Bagler *2024*
Journal of Food Science, Wiley, https://doi.org/10.1111/1750-3841.17298

Cultural Context Shapes The Carbon Footprints Of Recipes
Mansi Goel, V. Nathavani, S. Dharaiya, V. Kothadia, S. Srivastava, and G. Bagler *2024*
International Journal of Gastronomy and Food Science, Elsevier, https://doi.org/10.1016/j.ijgfs.2024.101017

Computational gastronomy: capturing culinary creativity by making food computable
G. Bagler and **Mansi Goel** *2024*
npj Systems Biology and Applications, Nature, https://doi.org/10.1038/s41540-024-00399-5

Machine Learning Models To Predict Sweetness Of Molecules
Mansi Goel, A. Sharma, A. Chilwal, S. Kumari, A. Kumar, and G. Bagler *2023*
Computers in Biology and Medicine, Elsevier, https://doi.org/10.1016/j.compbiomed.2022.106441

Computational Gastronomy: A Data Science Approach To Food
Mansi Goel and G. Bagler *2022*
Journal of Biosciences, Springer, https://doi.org/10.1007/s12038-021-00248-1

Conferences

Deep Learning Based Named Entity Recognition Models for Recipes
Mansi Goel, A. Agrawal, S. Agrawal, J. Kapuriya, A. Vamshi, R. Gupta, S. Rastogi, Niharika, and G. Bagler *2024*
Proceedings of International Conf. on Computational Linguistic, Language Resource and Evaluation (LREC-COLING)
https://aclanthology.org/2024.lrec-main.406.pdf

Dish Detection in Indian Food Platters: A Computational Framework for Diet Management
Mansi Goel, S. Dargar, S. Ghatak, N. Verma, P. Chauhan, A. Gupta, N. Vishnumolakala, H. Amuru, *2023*
E. Gambhir, R. Chhajed, M. Jain, A. Jain, S. Garg and G. Bagler
8th IEEE International Conference on Computer Vision and Image Processing (CVIP)
https://doi.org/10.1007/978-3-031-58181-6_20

Ratatouille: A Tool For Novel Recipe Generation
Mansi Goel, P. Chakraborty, V. Ponnaganti, M. Khan, S. Tatipamala, A. Saini, and G. Bagler *2022*
IEEE 38th International Conference on Data Engineering Workshops (ICDEW)
10.1109/ICDEW55742.2022.00022

Object Detection in Indian Food Platters using Transfer Learning with YOLOv4
Mansi Goel, D. Pandey, P. Parmar, G. Toshniwal, V. Agrawal, S. Dhiman, L. Gupta, and G. Bagler *2022*
IEEE 38th International Conference on Data Engineering Workshops (ICDEW) ***Best Paper Award***
10.1109/ICDEW55742.2022.00021

Under Review

A framework for recipe data structure with applications for culinary and nutritional insights
Mansi Goel, S. Bhagat, S. Srivastava, M. Patel, H. Parikh, S. Mehroliya and G. Bagler *2024*
Scientific Reports

RecipeOnt: A Comprehensive Recipe Ontology for Culinary Knowledge Integration
Mansi Goel, D. Sammi, D. Chaudhary and G. Bagler *2025*
15th International Conference on Formal Ontology in Information Systems (FOIS)

Mining Culinary Patterns to Differentiate Global Cuisines using Deep Learning Models
Mansi Goel, R. Ramachandran, A. Tibrewal, S. Gupta, G. Panda, S. Agrawal, R. Sinha and G. Bagler *2025*
Engineering Applications of Artificial Intelligence

UmamiPredict: A unified Machine Learning Model
Mansi Goel, P. Singh, D. Garg, A. Bhargav and G. Bagler *2025*
Journal of Food Engineering

BIO-NER: A Deep Learning Approach for Named Entity Recognition in Recipes
S. Lakra, R. Oberoi, **Mansi Goel**, R. Singh, A. Roy, S. Jha, R. Singh and G. Bagler *2025*
29th Conference on Computational Natural Language Learning (CoNLL)**(co-first author)**

AllerStack- Computational Stack Model To Predict the Allergenicity of Proteins
H. Sharma, **Mansi Goel**, D. Sahu, M. Sayed, P. Mangla, P. Shekhawat, S. Yadav, and G. Bagler *2024*
BBA Advances

Experience

Visiting Researcher, National Institute of Informatics, Japan *October 2024 - March 2025*

Domain: Creation of Multilingual Recipe Ontology and Knowledge Graph

- Developed a structured multilingual recipe ontology to represent culinary knowledge across English, Hindi, and Japanese languages.
- Designed and implemented a knowledge graph to integrate recipe data, ingredient relationships, nutritional information, and recipe plan.
- Worked with RDF, OWL, and SPARQL to model and query the knowledge graph.

Teaching Assistant, IIIT-Delhi, India *Aug 2021 - December 2024*

Courses: Computational Gastronomy (4 semesters: Monsoon 21, Monsoon 22, Monsoon 23, Monsoon 24), Analysis of Design and Algorithms (1 semester: Winter 23), Network Science (3 semesters: Winter 21, Winter 22, Winter 24)

Key Responsibilities

- Prepared and delivered lectures, tutorials, and other teaching materials.
- Graded assignments and provided constructive feedback to students.
- Conducted tutorials and discussion sessions, fostering active learning.
- Mentored students on research projects related to the course topics.

Achievements

- Presented "Deep Learning Based Named Entity Recognition Models for Recipes," at LREC COLING, Turin, Italy (2024).
- Won the **Best Paper Award** at the 38th IEEE International Conference on Data Engineering Workshops (DECOR2022) for the paper "Object Detection in Indian Food Platters using Transfer Learning with YOLOv4", Malaysia (Virtual).
- Delivered a talk on "Can a Computer Think like a Chef?" at the Symposium on Computational Gastronomy, IIIT-Delhi, India (2022).
- Presented "Dish Detection in Indian Food Platters: A Computational Framework for Diet Management," at the 8th IEEE International Conference on Computer Vision and Image Processing (CVIP), IIT-Jammu, India (2023).
- Presented "Ratatouille: A Tool for Novel Recipe Generation" at the 38th IEEE International Conference on Data Engineering Workshops (DECOR2022), Malaysia (Virtual).
- Represented Foodoscope Technologies Private Limited as Tech Lead at the Symposium on Computational Gastronomy, IIIT-Delhi, India (2023).
- Presented research posters at the Research Innovation and Incubation Showcase (RIISE) organized by IIIT-Delhi, India (2022).
- Qualified Graduate Aptitude Test in Engineering (GATE) in Computer Science and Engineering (2020).

Skills

Programming Languages: Python, LaTeX, HTML/CSS, C/C++

Data Science and Machine Learning: pandas, NumPy, Scikit-learn, Machine Learning, Deep Learning, Text Mining, Natural Language Processing, Generative Algorithms, and Knowledge Graphs

Natural Language Processing: NLTK, SpaCy, and Transformers

Data Visualization and Analysis: Networkx, Matplotlib, Data Mining, Web Scraping, Gephi, Cytoscape, Orange, Neo4j, SPARQL, and OWL

Web Development: HTML/CSS, React, MongoDB, Flask

Other Technical Skills:Image Processing, and Computer Vision