Manan Bhasin

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Education

Chitkara University, Rajpura, Punjab — CGPA - 9.27
Bachelor of Engineering, Computer Science — *Oct. 2022 – Present*

KL ARYA DAV Public School, Hisar — 12th - 85.27% | 10th - 91.2%
High School Education — *Jan. 2011 – May. 2022*

Experience

Research Experience | Supervisor & Mentor: Dr. Aashish Kumar — Apr. 2023 – Present
Nanomaterials Research Laboratory, Chitkara University — *Rajpura, Punjab, India*

- Pioneered nanomaterial analysis through advanced image processing techniques, facilitating breakthroughs in structural characterization.
- Developed proficiency in machine learning and deep learning, creating predictive models for real-world nanomaterial challenges.
- Collaborated with interdisciplinary teams, merging computer science and nanotechnology to innovate in nanomaterial synthesis and analysis.
- Authored research papers published in esteemed journals, demonstrating strong academic writing and research dissemination.
- Integrated machine learning into nanomaterial research, enhancing data analysis and pattern recognition tools.
- Applied advanced statistical methods for meaningful insights from complex nanomaterial datasets, improving decision-making.
- Designed deep learning models for predictive nanomaterial property modeling, optimizing material synthesis and characterization.
- Presented research findings at international conferences, contributing to the global discourse on nanomaterial research.
- Actively participated in research group discussions and workshops to stay updated on emerging trends in nanomaterials and computer science.

Projects

Morphological Analysis and Grain Size Distribution of SnO_2 Nanoparticles via Digital Image Processing across Diverse Calcination Temperatures
Authors: Kumar, A., Bhasin, M., Chitkara, M. (2023)
Accepted on 24 October, 2023
Technologies: MATLAB, ImageJ, Origin, Characterization, FE-SEM

- Investigated the behavior of SnO_2 nanoparticles across various calcination temperatures.
- Utilized state-of-the-art Field Emission Scanning Electron Microscopy (FE-SEM) for detailed imaging.
- Developed a color-coding framework to visualize and analyze particle size and distribution.
- Provided valuable insights into nanoparticle morphology, enhancing accuracy in grain identification.
- Explored temperature-induced effects on particle size distribution, highlighting the role of temperature in material properties.

Enhancing Loperamide (LPM) Efficacy through Fractal Analysis: Nanoparticle Characterization and Therapeutic Insights for Diarrhea Management
Authors: Aashish Kumar, Rajni Bala, Manan Bhasin, Malika Gupta (2023)
Under Review

- Fractal analysis plays a crucial role in understanding and improving the characteristics of nanoencapsulated loperamide (LPM).

- This research aims to advance formulations that are more efficient and patient-friendly, addressing challenges related to drug bitterness, solubility, first-pass metabolism, and delayed degradation.
- The technique holds promise in enhancing the management of acute and chronic diarrhea in the adult population.
- The experimental protocol involves the synthesis of LPM nanoparticles, with detailed imaging achieved through scanning electron microscopy (SEM).
- MATLAB software is used for computational analysis, determining the fractal dimension to quantify structural complexity in nanoparticles.

TransGov360
Technologies: Python, NLP, Django, React, HTML/CSS, JavaScript, API, AWS
Participated: 9th October, 2023

- Led a team in the Smart India Hackathon to create a Language Translator Tool that converts English to Hindi for government websites.
- Addressed the challenge of making government services accessible to citizens from diverse linguistic backgrounds.
- Promoted inclusive communication and envisioned widespread adoption of the tool to enhance accessibility and understanding on government websites.

System And Method For Providing Speech Enabled Query
Status: Prototyping in Progress

- Collaborating on the development of a prototype for the patent.
- Progressing towards creating a speech-enabled query system and method.
- Contributing to the innovation and development of this technology.

Technical Skills

Languages: Javascript, Python, C/C++, SQL (Postgres), HTML/CSS, MATLAB, LATEX, Bash
Frameworks: React, Node.js, WordPress, Material-UI, FastAPI, Django
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Libraries: pandas, NumPy, Matplotlib, Seaborn, TensorFlow