

Kunwar Pankaj Siddharth

Curriculum Vitae

School of Computer Science

UPES, Dehradun

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Research Profile

My research evaluates Large Language Models (LLMs) and generative AI systems for caste-based bias. The primary objective is to evaluate whether these systems produce discriminatory outputs, and to develop annotated datasets and benchmark tools that make such evaluation rigorous. This work is directly motivated by an article from *Nilesh Christopher*, where he demonstrates GPT-5 produces caste stereotypes. The research will explore prompt-based evaluation and quantitative bias metrics for measuring caste-related harms in generative AI models. The objective is to examine and reshape technological development by identifying its blind spots and preventing harm to vulnerable communities.

Research Skills

Technical: Python, R, PyTorch, TensorFlow, Keras, OpenCV, NumPy, Pandas, NLTK, and Matplotlib.

AI Systems and Data: Machine learning pipelines; supervised learning (CNN, KNN, SVM); representation learning; model fine-tuning; model evaluation, error analysis, and benchmarking; dataset construction and data pipeline design; image-based and multi-modal learning; transformers and BERT-based NLP pipelines; bias identification in datasets and model outputs.

Interdisciplinary & Professional Skills: Literary theory, Academic writing, Interdisciplinary Analysis, Technical Leadership, Mentorship, and Independent Research.

Research Training, Certifications & Academic Distinctions

2025 **Artificial Intelligence: Ethics & Societal Challenges**, Coursera (Lund University).

Analyzed ethical dimensions of AI systems, including algorithmic bias, surveillance, privacy, and democratic impact. ([Verified Credential](#))

2013 **Feature Extraction: Road Network Identification from Satellite Imagery**, MNNIT Allahabad.

Developed an automated segmentation system for traffic region identification.

2014–2016 **GATE Scholarship (Government of India)** — Fully funded M.Tech awarded through national competitive examination.

Relevant Academic and Research Experiences

Assistant Professor | UPES | Dehradun | India

November, 2024–Present Taught courses on applied AI/ML, NLP, Python Programming, and data analytics, regularly handling two classes per semester, each with an average enrollment of approximately 60 students. Equipped students with hands-on, industry-relevant skills in data pipeline construction and predictive model deployment for cutting-edge applications in healthcare, social media, and education.

Assistant Professor | Parul University | Vadodra | India

April, 2024– Taught Design Analysis of Algorithms and NLP courses, regularly handling two classes per semester, October, each with an average enrollment of approximately 65 students. Mentored undergraduates through the 2024 end-to-end development of functional chatbots for their final year projects, successfully translating algorithm theory into tangible AI applications.

Data Scientist | Sortit AI | London | UK

April, 2022 – Served as lead developer, reporting directly to the CEO and overseeing core technical decision-making October, for the company. Led the design and development of a comprehensive floor plan image dataset and 2022 implemented CNN-based classification models to identify architectural elements, enabling automated cost estimation from single floor plans..

Computer Researcher (Holographer) | Basingstoke | UK

February,2021 – December,2021 Core member of a four-person holography research team, reporting directly to the Chief Scientist. Contributed to the development of secure holographic master plates for international clients, including Microsoft and national currencies. Engineered novel image processing techniques to improve production quality and anti-counterfeiting measures.

Software Engineer/Chief Developer | Sketchbytes Research Labs | India

June,2016 – August,2019 Reporting directly to the CEO, led the face detection and biometric authentication division. Implemented CNN models for medical image analysis, optimizing architectures for disease detection, bone fracture detection, and body region segmentation. Led the face detection and biometric authentication division of the company.

Teaching Assistantship | NIT Durgapur | India

August,2015 – May,2016 **Digital Image Processing Lab & C Programming Lab:** Assisted faculty in conducting laboratory sessions, guiding undergraduate students through complex concepts and practical implementations.

Education

- 2019–2021 **Master of Arts, Creative Writing**, *University of Portsmouth*, Portsmouth, UK.
Dissertation | **Defiance of Lotus**
Composed original free-form poetry and critical studies of exploring themes of nature, the pastoral, identity, hardships, and resistance.
- 2014–2016 **MTech, Computer Science & Engineering**, *National Institute of Technology*, Durgapur.
Dissertation | **Heterogeneous Face Identification by Fusion of Local Descriptors**
Developed a computer vision model that integrates MB-LBP and MLBP feature descriptors to enhance cross-modal face recognition performance. This work included problem definition, dataset preparation, model design, and systematic evaluation through benchmarking.
- 2010–2014 **BTech, Computer Science & Technology**, *UIET, CSJM University*, Kanpur.
Dissertation | **Automatic Detection of Ribs, Blood Vessels, and Cancerous Nodules from an Anterior-posterior X-ray Radiograph**
Developed a diagnostic image processing pipeline that began with data cleaning and enhancement. Subsequent stages used Canny edge detection and adaptive thresholding to segment ribs and vascular structures, which facilitated the targeted identification of cancerous nodules.

Publications

In Conference Proceedings

- 2017 **Kunwar Pankaj Siddharth, and Dakshina Ranjan Kisku**, Heterogeneous Face Identification by Fusion of Local Descriptors, *IEEE 7th International Computing Conference, IACC 2017*.

Awards

- 2012 **1st Position**, C Quiz (Programming), Ignitia — Pranveer Institute of Technology, Kanpur.
2011 **3rd Position**, Pikkon (Photography), Techmart — UIET Kanpur.