SUBHANKAR SWAIN — 25CS92P08

COMPUTER SCIENCE AND ENGINEERING

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EDUCATION

YEAR	DEGREE/EXAM	INSTITUTE	CGPA/MARKS
(2026-Present)	Doctor of Philosophy	Indian Institute of Technology, Kharagpur	N/A
2024	Bachelor of Technology	Biju Patnaik University of Technology, Rourkela, Odisha	8.48/10
2020	Higher Secondary	Adyant Higher Secondary School, Bhubaneswar, Odisha	87.33%
2018	High School	Saraswati Sishu Vidya Mandir, Puri, Odisha	85%

PUBLICATIONS / PREPRINTS

SEE, EXPLAIN, AND INTERVENE: A FEW-SHOT MULTIMODAL AGENT FRAMEWORK FOR HATEFUL MEME MODERATION [preprint], January 2026

- Few-shot classification results using GPT-4O attains macro-F1 scores of 80.25% and 89.07% on FHM and MAMI datasets respectively, by far outperforming all the existing baselines.
- GPT-4O outperforms HatReD by generating more appropriate explanations for the FHM and MAMI datasets (Semantic Similarity of 0.679 and 0.654 respectively).
- INTERNVL-3 and Pixtral outperform theMemeSense framework in terms of intervention generation on FHM and MAMI datasets respectively (Semantic Similarity scores of 0.777 and 0.849 respectively).
- GPT-4O is the most coherent model when generating both, explanation and intervention. Also, across these two tasks the basic textual properties like token count, ttr, and perplexityare more consistent for GPT-4o compared to INTERNVL-3 and PIXTRAL.

INTERNSHIPS / EXPERIENCES

JUNIOR RESEARCH FELLOW (SERB, INDIA SPONSERED) — IIT, KHARAGPUR — ONSITE **JUL 2024 - PRESENT**

- Working on multiple research projects in the area of multimodal hateful content moderation.
- Collaborating with international research groups from the University of Hamburg and Technical University of Munich.

GUEST RESEARCHER — UNIVERSITY OF HAMBURG, GERMANY — ONSITE **MAY 2026 - JUL 2026**

- Working on a research projects, which incorporates hate subjectivity and social media platform reporting policies, where hateful content predominantly appears. .
- We introduce a benchmark multilingual and cross-modal dataset SHARP to systematically analyse moderation behaviours.

AI SOFTWARE ENGINEER INTERN — ABHINAYA LIMITED, UNITED KINGDOM — REMOTE **SEP 2025 - NOV 2025**

- Worked on transformer-based deep learning models for cardiovascular disease prediction and analysis.
- Built end-to-end frameworks for data preprocessing, fine-tuning, and evaluation.
- Achieved improved performance, obtaining up to 10% higher accuracy compared to baseline models.

MACHINE LEARNING INTERN — NIROG SCAN BY Y3X, BHUBANESWAR — HYBRID **MAY 2024 - MAR 2025**

- Developed machine learning models for ECG data classification and cardiovascular risk analysis.
- Conducted ground surveys and performed exploratory data analysis to understand data distribution and quality.
- Applied feature engineering and model optimisation techniques to improve classification performance.
- Achieved a significant improvement in macro F1-score (+7.5%) over baseline models.

PROJECTS

TRANSFORMER FROM SCRATCH **OCT 2025**

- Implemented a Transformer architecture from scratch in PyTorch, including multi-head self-attention, positional encoding, and encoder-decoder components.
- Developed the full training pipeline, including data preprocessing, tokenisation, and batching mechanisms.
- Performed pretraining of the model on large-scale text data to learn contextual representations.

IJEPA FROM SCRATCH **MARCH 2026**

- Implemented the I-JEPA (Image Joint Embedding Predictive Architecture) model from scratch in PyTorch, including context and target encoders.
- Designed the training pipeline for self-supervised learning using masked image regions and predictive representation learning.
- Performed pretraining on image datasets to learn semantic representations without explicit labels.

AWARDS AND ACHIEVEMENTS

- Achieved a top 6% rank among 75k candidates in GATE(GRADUATE APTITUDE TEST IN ENGINEERING) 2023(CS) during the third year of my B.Tech.
- Qualified GATE(GRADUATE APTITUDE TEST IN ENGINEERING) 2024 in both CS & DA.
- Qualified TCS NATIONAL QUALIFIER TEST (NQT) 2024.
- Ranked among the top 2 at the State-Level Science Exhibition(Conducted by Shikshya Vikash Samiti Odisha) in 2017.

CONFERENCES

- Reviewer, IEEE INDICON 2024.
- Awarded a travel grant to attend INDOML(INDIAN SYMPOSIUM ON MACHINE LEARNING) 2024, held at BITS Goa.
- Awarded a travel grant to attend INDOML(INDIAN SYMPOSIUM ON MACHINE LEARNING) 2025, held at BITS Hyderabad, where I presented a poster.

SKILLS AND EXPERTISE

PROGRAMMING LANGUAGES: JAVA, Python, SQL

FRAMEWORKS & TOOLS: Numpy, Pandas, PyTorch, BeautifulSoup, NLTK, Tensorflow

DEVELOPER TOOLS: Git, GitHub, Linux, Jira, Slack