

# KANISHK YADAV

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## EDUCATION

**Birla Institute of Technology and Science, Pilani**  
B.E. Computer Science & M.Sc. Chemistry | CGPA: **8.63/10**

*Hyderabad, India*  
Aug 2019 – Jul 2024

**Relevant Coursework:** Machine Learning, Computer Vision, Natural Language Processing, Linear Algebra, Probability & Statistics, Data Structures & Algorithms, Operating Systems, Networks, Database Systems, Object-Oriented Programming

## RESEARCH EXPERIENCE

**Nanyang Technological University** *Singapore*  
Undergraduate Researcher | Advisor: Prof. Chng Eng Siong [Code] [Thesis] Jan 2024 – Jul 2024

- Achieved 87% accuracy and a **33% improvement in F1-score for speaker counting** on the DIHARD III dataset by engineering a sequential fine-tuning pipeline using WavLM to resolve class imbalance
- Benchmarked performance-latency trade-offs in Pyannote **Voice Activity Detection** for real-time streaming applications

**University of Toronto** *Toronto, Canada*  
Mitacs Globalink Scholar | Advisor: Prof. Oleksandr Voznyy [Code] [Thesis] [Publication] Jul 2023 – Dec 2023

- Architected an ML testbed for **band gap prediction** to capture materials properties from discrete atomic encodings
- Designed **shared-weight Siamese-like models** with permutation invariance, eliminating positional bias outliers
- Validated robustness in extreme low-data (1% train split) regimes by scaling from 5-atom to complex 60-atom tasks

## WORK EXPERIENCE

**Walmart Global Tech** *Bengaluru, India*  
Software Development Engineer II | Sam's Club Aug 2024 – Present

- Engineered high-throughput ingestion pipelines for tracking updates, processing 500,000+ daily events across 18,000+ zip codes
- Replaced cron-based polling with event-driven **webhooks** for real-time tracking of >95% of Walmart's traffic
- Modernized the global shipment tracking lifecycle, transitioning systems from **monolith to scalable microservices**
- Spearheaded **cloud cost-optimization** in Azure and Kafka resources across 11 teams, delivering \$2M in annual savings

**Walmart Global Tech** *Bengaluru, India*  
Software Engineer Intern | Sam's Club May 2023 – Jul 2023

- Engineered an **automated NLP pipeline** using TF-IDF and Support Vector Machines (OvR) to map carrier milestones, reducing mapping errors by 85% and eliminating manual workflows
- Designed a web interface for Sam's Club to visualize global shipment lifecycles by querying records from Azure Cosmos

**Bharat Electronics Limited** *Bengaluru, India*  
Deep Learning Intern [Report] May 2021 – Jul 2021

- Trained **YOLOv5** for Indian Coast Guard to automate surveillance of **7,500 km** of coastline, achieving **0.86 mAP@0.5**
- Deployed to detect 9 maritime classes, with **4x faster convergence** through tuning; analyzed OOD gaps in field tests

## PUBLICATIONS

Wang Z, Davis A, Dutta R, **Yadav K**, Neporozhnii I, Voznyy O. *How the Discreteness of the Periodic Table Undermines Machine Learning Predictions.* ChemRxiv. 2025; doi:10.26434/chemrxiv-2025-vj4fk (Under Review at **Digital Discovery**)

## AWARDS & CERTIFICATIONS

- **Mitacs Globalink Scholarship:** Awarded **9,200 CAD** for funded research at UofT; selected from a pool of **17,000+** applicants globally for strong research potential
- **Bravo Award, Walmart:** Received organization-wide recognition for delivering critical **architectural improvements**
- **Winter School on Deep Learning, 2024:** Selected for an 8-week workshop at the **Indian Statistical Institute** covering advanced topics in GenAI and LLMs; attended seminars by Sanjeev Arora, Sergey Levine, and Ruslan Salakhutdinov

## SELECTED PROJECTS

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<b>ErrorCortex: RAG-Powered Error Intelligence</b> <a href="#">[Code]</a>	Oct 2024 – Present
• Architected an <b>agentic SDK</b> to intercept and offload runtime exceptions via RabbitMQ for <b>RAG</b> -based reasoning	
• Synthesized code patches using Llama-3 grounded by heuristic context; enforced syntactic validity via <b>AST</b>	
• Engineered a <b>self-improving feedback loop</b> , re-indexing validated fixes into <b>ChromaDB</b> to refine future predictions	
<b>Conversational AI Chatbot</b>   <i>Chubb Insurance</i> <a href="#">[Report]</a>	Jan 2023 – Jun 2023
• Developed a chatbot handling both FAQ and transactional queries by building and querying a <b>Neo4j Knowledge Graph</b>	
• Engineered <b>few-shot</b> intent classification using <b>SetFit</b> and <b>SBERT</b> semantic fallback for high accuracy with limited data	
• Presented the solution design and proof-of-concept demo to Mohan Narayanaswamy, <b>CEO of Chubb India</b>	
<b>Part-Of-Speech Tagger for Hindi-English Code-Mixed Data</b>   <i>NLP Course Project</i> <a href="#">[Code]</a>	Oct 2022 – Dec 2022
• Developed a hybrid POS tagger for code-mixed tweets by integrating <b>NLTK</b> with an in-house <b>Hidden Markov Model</b>	
• Implemented the <b>Viterbi</b> algorithm and <b>Bigram</b> probability models <b>from scratch</b> to decode optimal tag sequences	
• Built a preprocessing pipeline to clean noisy social media text and normalize mixed scripts via <b>Indic transliteration</b>	

## TECHNICAL SKILLS & INTERESTS

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**Languages:** Python, Java, C++, C, SQL, **LaTeX**

**Machine Learning:** PyTorch, TensorFlow, LangChain, OpenCV, NumPy, Pandas, W&B

**Systems & Cloud:** Docker, Kubernetes, Kafka, Elasticsearch, Azure Cosmos DB, Splunk, Grafana, Prometheus, Git, Swagger, Postman

**Research Interests:** Intelligent Large-scale Systems, Applied Machine Learning, Natural Language Processing

## LEADERSHIP & VOLUNTEERING

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<b>Team Leader</b> , <i>Alumni Mentorship Program, BITSAA International</i>	Aug 2024 – Present
Launched a platform connecting 300+ alumni mentors with undergraduate mentees to facilitate career guidance and professional development	
<b>Student-Faculty Committee</b> , <i>Department of Chemistry, BITS Pilani</i>	Jan 2021 – Jul 2022
One of 4 faculty-chosen representatives to liaison between students and faculty, streamlining the transition to online instruction during the COVID-19 pandemic	
<b>Head</b> , <i>Department of Photography, BITS Pilani</i>	Jun 2021 – Jun 2022
Managed a 60-member team of professional photographers for campus-wide event media coverage, from technical conferences and seminars to cultural festivals	