KANISHK YADAV

✉ kanishkyadav1010@gmail.com | 🔗 kanishk-yadav-1010ky | ⚙ GitHub | 🌐 ky1452.github.io

EDUCATION

Birla Institute of Technology and Science, Pilani   *Hyderabad, India*
B.E. Computer Science & M.Sc. Chemistry | CGPA: 8.63/10   Aug 2019 – Jul 2024

Relevant Coursework: Data Structures & Algorithms, Design & Analysis of Algorithms, Operating Systems, Computer Networks, Database Systems, Object Oriented Programming, Machine Learning, Computer Vision, Natural Language Processing, Linear Algebra, Probability & Statistics, Differential Equations

Research Interests : Intelligence in Large-scale Systems, Machine Learning, and Natural Language Processing

RESEARCH EXPERIENCE

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

- Improved **speaker counting** in overlapped speech by **26%** using WavLM on LibriSpeech and DIHARD III datasets
- Engineered sequential fine-tuning to address class imbalance, achieving **87%** accuracy on the challenging DIHARD III
- Analyzed performance-latency trade-offs in Pyannote's **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

- Contributed to ML for **bandgap prediction** by developing testbed models to learn properties from **discretized data**
- Designed Siamese-like **shared-weight** networks with **permutation invariance**, eliminating **positional bias** outliers
- **Scaled** from **2-atom to 60-atom** task, proving robustness and generalizability in **extreme low-data** (**1%** train) regimes

WORK EXPERIENCE

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

- Owned and led Big & Bulky carrier integration for **LG** resulting in delivery expansion to **18,000+** zipcodes
- **Modernized** critical order lifecycle for **global shipment tracking** from monolith to **microservices** architecture
- Led **cloud cost-optimization** in Azure and Kafka resources across 11 teams resulting in annual **savings** of **$1M**
- Implemented **webhooks** for real-time **FedEx** order tracking, contributing to **$36M** Gross Merchandise Volume

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

- Reduced man-hours by developing a **NLP pipeline** to automate the carrier status-milestone mapping process
- Leveraged classical models: **SVM (83%)**, MLP (74%) and MultinomialNB (61%) using **TF-IDF** vectorization
- Designed a web application to **simplify global shipment tracking analysis**, enabling easy data access from Azure

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

- Trained **YOLOv5** to detect 9 maritime classes with **0.86 mAP@0.5** and achieved **4x faster convergence** through tuning
- Deployed for **Indian Coast Guard** to automate monitoring of **7500 km coastline** and flagged gaps through 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

Contributions : Designed, implemented, and tested multiple deep learning architectures from scratch which served as the primary experimental proof for the publication's thesis

AWARDS

Mitacs Globalink Research Scholarship: Awarded **$9200 CAD** for research at UofT, among **17,000+** applicants

Bravo Award, Walmart Global Tech: Recognized for exceptional performance beyond designated role and expectations

Winter School on Deep Learning: Attended seminars by Sanjeev Arora, Sergey Levine, Ruslan Salakhutinov, Bernt Schiele, and Survit Sra as part of the selective 8-week intensive workshop at Indian Statistical Institute

SELECTED PROJECTS

Conversational AI Chatbot | **Chubb Insurance** [Report]   Jan 2023 - Jun 2023
- Developed a chatbot handling both FAQ and transactional queries by building and querying a **Neo4j Knowledge Graph**
- Engineered **few-shot** intent classification using **SetFit** and **SBERT** semantic fallback for high accuracy with limited data
- Presented the chatbot architecture and Neo4j backend demo to the **CEO of Chubb India**

Accelerating Materials Discovery for High Energy Li/Na-ion Batteries via Machine Learning   Aug 2022 - Dec 2022
- Led the project, aiming to address the instability of ion-rich cathode materials for high energy Na-ion batteries
- Designed a predictive ML-approach for in-silico material screening using data-mining and supervised learning

POS Tagger for Hindi-English Code-Mixed Data | **NLP Course Project** [Code]   Nov 2022 - Dec 2022
- Developed a POS tagger tailored for English-Hindi code-mixed data, addressing a complex linguistic hurdle
- Integrated **NLTK for English** and a trained **HMM for Hindi** into a unified language-specific POS tagging

TECHNICAL SKILLS

Languages: Java, C++, Python, C, SQL, LaTeX
Libraries: OpenCV, PyTorch, TensorFlow, LangChain, NumPy, Pandas, Matplotlib, Seaborn, W&B
Tools: K8s, Postman, Splunk, OpenObserve, Azure Cosmos, Azure Databricks, Git, Swagger, Keras API, Apache Kafka

POSITIONS OF RESPONSIBILITY & VOLUNTEERING

Team Leader, *Alumni Mentorship Program, BITSAA International*   Aug 2024 - Present
Launched initiatives including a mentorship platform with over 300+ alumni mentors, enhancing career guidance for undergrads

Student-Faculty Committee, *Department of Chemistry, BITS Pilani*   Jun 2021 - Jun 2022
Part of the selected committee of 4 students tasked with maintaining relations between students and faculty during the Covid-19 pandemic, which resulted in an online mode of instruction

Head, *Department of Photography, BITS Pilani*   Jun 2021 - Jun 2022
Led a team of 60 professional photographers to cover wide range of events on campus, from tech conferences and seminars to campus festivals

Secretary, *Alchemy – The Chemistry Association, BITS Pilani*   Jun 2021 - Jun 2022
Led 30 members to oversee yearlong events such as guest seminars, weekly editorials. Started a Spotify podcast on campus to allow undergrads to learn from the experiences of alumni