

# UDAY KARAN KAPUR

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## Education

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### Université de Montréal - MILA

Montreal, Quebec, Canada

Master of Science in Computer Science, 4.15/4.30 GPA

Sep 2023 - Present

- **Selected Coursework:** Fundamentals of Machine Learning (A+), Data Science (A), Representation Learning (Winter 2024), Advanced Projects in Machine Learning (Winter 2024), Links between Vision and Language (Winter 2024)

### Vellore Institute of Technology

Chennai, Tamil Nadu, India

Bachelors of Technology in Computer Science and Engineering, 8.65/10.0 GPA

Jul 2016 - Sep 2020

- **Selected Coursework:** Natural Language Processing, Machine Learning, Applied Linear Algebra, Statistics, Databases, Parallel and Distributed Computing, High Performance Computing, Data Structures & Algorithms

## Experience

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### Peritus.ai

New Delhi, India (Remote)

Software Engineer

Jun 2021 - Jun 2023

- Built a full-featured analytics dashboard using React, TypeScript, Next.js, HTML, and CSS. The interactive and user-friendly interface allows efficient visualization, interaction, and analysis of community data.
- Assumed responsibility for the authentication service, implementing robust security features with Java Spring Boot and Kotlin. Additionally, played a role in optimizing NGINX to enhance system performance and security.
- Demonstrated effective leadership and management skills while working with a diverse, globally distributed team across various timezones and nationalities, ensuring smooth collaboration and coordination.

### ZS Associates

New Delhi, India

Business Technology Analyst

Jan 2020 - May 2021

- Designed and managed an ETL system on Amazon RDS, utilizing Apache Airflow for data pipeline orchestration. Wrote automation scripts in Python and Shell, and effectively handled data with SQL, leading to significant improvements in team data operations.
- Meticulously maintained documented data pipelines, ETL processes, system configurations, and actively engaged with client-side stakeholders to gather requirements for enhancements, provide ongoing work status updates, and conduct root cause analysis for defects. This commitment to documentation ensured transparency and served as a dependable reference throughout project lifecycles.

## Personal Projects

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### Flickr8k Image Captioning | [Blog](#)

- Implementation of Merge Encoder-Decoder architecture using VGG16 as image feature extractor and LSTM as text generator to generate natural language captions for images. Model performance was evaluated using BLEU and the following scores were achieved: BLEU-1: 0.452, BLEU-2: 0.234, BLEU-3: 0.146, BLEU-4: 0.062.

### Text Summarization using BART, T5 and PEGASUS | [Blog](#)

- Fine-tuned state-of-the-art models including BART, T5, and PEGASUS on the SAMSum dataset to generate summaries for conversations. Evaluated the quality of the summaries using ROUGE metrics, with PEGASUS leading in ROUGE-L F1 scores (0.43), followed closely by BART (0.40) and T5 (0.38).

### Custom Block Chain Based Cyber Physical System for Solid Waste Management | [Paper](#)

- Proposed a cyber-physical system that kept the records of the use of the trash bins in a particular locality and ensured they had an additional blockchain-based verification system that guaranteed proper working even in the absence of stakeholders. The system involved multiple components such as databases, embedded systems and an Android app interface. We published our project in Procedia Computer Science journal, 2019.

## Technical Skills

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**Languages:** Python, C++, Java, Kotlin, Typescript, Shell, SQL, HTML5, CSS

**Technologies/Frameworks:** React.js, Java Spring Boot, Apache Airflow, TensorFlow, Keras

**Developer Tools:** Git, Docker