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SACHIN KALSI, *problem solver*

Experienced **Data Science Architect** with extensive hands-on expertise in **Machine Learning, Deep Learning (NLP), Generative AI,** and Software Engineering. Recognized for leading and guiding high-performance teams, driving consistent outstanding achievements.

EMPLOYMENT

DRAUP Inc. (Oct 2018- present), **Data Science Architect**

- ❖ **Led 12-member Data Science team** in selecting the right cutting-edge Machine Learning/Deep Learning technologies.
- ❖ Collaborated effectively with cross-functional teams (product, big data, research) to address internal, product, and client challenges through Machine Learning.
- ❖ **Deployed 15+ ML/DL/LLM models in production** (AWS ECS) at scale and leveraged Apache Spark and GPUs to tackle large-scale business challenges (AWS EMR).
- ❖ Guided and mentored mid and senior data scientists while spearheading the adoption of state-of-the-art ML/DL/LLM models.
- ❖ Led the design and development of multiple **RAG (Retrieval Augmented Generation)** applications at scale, harnessing the power of vector databases, Llamaindex, Langchain, and state-of-the-art LLM models.

CALIENT Technologies Inc.,(Oct 2017 - Sep 2018), **Software Engineer - Machine Learning**

- ● Built Machine Learning models to categorise network device error logs into multiple categories (**word2vec + logistic regression**) and implemented an alarm system using **Java** for quick response.

COGOPORT, (Feb 2017 - Sep 2017), **Software Developer**

- ● Designed and Developed Bid Request System including **data analytics pipeline** and API development using **Ruby on Rails**.

TECHNICHE e-commerce solutions, (Apr 2015 - Feb 2017), **Full Stack Developer**

- Proficiently designed and developed multiple **e-commerce websites** using **Node JS (MEAN stack)**, encompassing essential features such as user authentication, authorization, shopping cart functionality, and comprehensive order management

Hewlett-Packard(HP), (Aug 2013 - Dec 2014), **Technical Consultant**

- Developed **Java** applications for internal use, utilizing extensive SQL expertise for banking project

PROJECTS

- ❖ **LLM-Powered News Engine:** An optimized system, similar to *Google News*, powered by multiple in-house language models, designed to efficiently process and cluster company-specific news content at scale.
  - ➢ Trained "NEWSoBERTa," **a RoBERTa-based language model** on 550M tokens, achieving a 60% perplexity reduction for MLM tasks and applying it to classification, NER, and semantic embedding.
  - ➢ Developed an **in-house clustering algorithm** using the same model, eliminating data duplication, and supporting multiple use cases, including trend recommendations.
  - ➢ Led a team in training **Mistral-7b with LORA** technology for extracting relationships from diverse news articles.

- ❖ **Scaling Profile Recommendations (~400M profiles):** Implemented a semantic **similarity search system (91% accurate)** using multiple language models and leveraged the Milvus vector database.
  - ➢ Utilized multiple language models to embed each profile and harnessed the Milvus vector database to enable large-scale semantic searches & t**rained a BERT-based SBERT model** to efficiently match job titles to predefined roles, addressing a critical company legacy issue.

- ❖ **Advanced NLP-Based Automated Responsibility Extraction and Contextualization System:** Led and actively participated in automating job responsibility extraction and paraphrasing for professionals.
  - ➢ Developed and implemented multiple machine learning models to analyze job postings, and developed **a Seq2Seq BART model** for large-scale responsibility paraphrasing, **eliminating complete manual dependency**
  - ➢ Utilized data-driven ranking and paraphrasing to enhance profile context, significantly improving the accuracy of work experience representation for millions of profiles.

- ❖ **Automated Information Retrieval (IR) System for Domain-Specific URLs**
  - ➢ Designed and implemented a machine learning system utilizing **XGBoost and Random Forest** algorithms
  - ➢ Engineered multiple Machine Learning tools for **effective annotation** of training data, including the creation of an [HTML Tag Annotator](#)

Skills, Languages & Technologies

- **Python, Apache Spark, PyTorch, TensorFlow, HuggingFace 🤗, Scikit-Learn, Keras, Spacy**, **BetterTransformer,**
- Traditional ML algorithms & Deep learning algorithms like **LSTMs**, **Transformers (BERT, BART, RoBERTa, GPT)**, etc
- AWS ecosystem: EMR, Sagemaker, ECS, S3, EC2.

Honors & Awards

1. **Super Squad - Draup,** Mar 2023: Led the Machine Learning team to win the Super Squad award, highlighting exceptional collective collaborative achievements.
2. **Employee of the Quarter - Draup**, Oct 2020

EDUCATION

Bachelor of Engineering (B.E.) in Computer Science (2009 - 2013) - VTU