Nageeta Kumari

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Summary

Data scientist with a Master's degree in Mathematics **(MVA)**, experienced in problem solving and modeling, hands-on experience with large scale distributed data. Passionate about applied research and looking for a full-time position in a multicultural company in France.

Work Experience

DataDog - Data Science Intern April 2024 - present

- Conducted research on **root cause analysis** methods for distributed microservices **trace data**, evaluated strengths and limitations.
- Proposed an unbiased sampling strategy for data collection and written corresponding SQL queries.
- Developed **inference models** to root cause detection at more granular resource level against APM alerts.
- Designed an unbiased evaluation framework for their AccuPath model, achieving **95%** recall and **88%** precision.
- Strengthened teamwork, communication skills, Causal AI and Bayesian Model knowledge.

INRAE - Reserach Intern May 2024 - July 2024

- Worked on harmonizing and analyzing **INCA2** and **INCA3** dietary survey datasets for unified classification and ontology enhancement.
- Translated nomenclature, mapped datasets to FOODEX2, enriched consumer ontology, and built a knowledge base using Python RDFLib.
- Gained expertise in data harmonization, ontology development, **semantic technologies**, and handling large-scale consumption datasets.

Sound M and DLLC - Software Engineer Aug 2022 - Aug 2023

- Built secure and user-friendly chat functionality for individual and group communication using React.js and **Python Fast API**.
- Created APIs for profile management and authentication, collaborated on front-end design using **Node.js**.
- Strengthened skills in Software Engineering and deployment through API design, API integration and **AWS deployments**.

Projects

RelevAI-Reviewer Link to Github

Developed an AI-powered **benchmark** system with team, that evaluates the relevance of survey papers to a given **"call-for-papers"** prompt, using a novel dataset of **25,164** prompt–paper instances. Leveraged both traditional models (e.g., SVM with sentence embeddings) and fine-tuned **BERT** with thermometer label encoding outperforming other baselines. The project demonstrates scalable, high-accuracy relevance ranking and establishes an open benchmark to spur further research

Research on Chain of tables Link to github

Researched table-based question answering methods, comparing Chain-of-Table and ReAcTable approaches. Conducted experiments on the WikiTQ dataset, analyzing code implementations and testing **contrastive and few-shot prompt** strategies to evaluate performance.

Composed Image Retrieval with Enhanced Pooling Strategies Link to report

Evaluated CoVR-BLIP-2 model for composed image retrieval, adapting it to the CIRR dataset. Conducted experiments with alternative pooling methods (mean, max, MLP-based weighted, and **attention pooling**), demonstrating that attention pooling improved **Recall@1** by **3%** over the baseline. Run experiments on Google Cloud VM, gaining experience in vision-language models and contrastive learning.

Evaluating Compositional Understanding in Vision-Language Models Link to report

Replicated and extended results from the paper When and Why Vision-Language Models Behave like Bags-of-Words using the ARO benchmark (Visual Genome Relation & Attributes datasets). Assessed newer autoregressive models (Qwen2.5-VL-3B-Instruct) against contrastive models **(CLIP, BLIP, NegCLIP)**, showing **Qwen2.5's** superior performance in capturing word order, relations, and attributes. Designed experiments to filter unrealistic captions, separate "easy" and "hard" cases, and quantify the impact of image conditioning, achieving up to **16%** accuracy improvement on VGA tasks.

Education

2024 - 2025	MVA (Mathématiques, Vision, Apprentissage) at **ÉNS Paris-Saclay**	(GPA: 16/20)
2023 - 2024	Master Data science at **Université Paris-Saclay**	(GPA: 15.5/20)
2018- 2022	Bachlor's Computer science at **Sukkur IBA University**	(GPA: 3.68/4)

Publications

Nageeta Kumari, Paulo Henrique Couto and Quang Phuoc Ho (2024). "RelevAI-Reviewer: A Benchmark on AI Reviewers for Survey Paper Relevance". In: *Some Journal* 99.20. URL: https://arxiv.org/abs/2406.10294.

Technical Skills

Programming & ML:	Python (hugging face, PyTorch, scikit-learn, Seaborn, SciPy, DoWhy)
Databases:	SQL, MongoDB
APIs:	REST API
Cloud:	Google Cloud Engine, AWS deployments
AI/ML Models:	Large Language Models, Transformers, Generative Models (VAE, GAN, and variants), Graph-based modeling
Version Control:	Git and GitLab

Soft Skills

Clear Technical Communication	Teamwork
Daily Organization	Adaptability

Languages

English	professional working proficient
French	Beginner