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Akash Saravanan

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Work Experience

- **Machine Learning Scientist** — Dec 2023 - Present
  Applied Research Intern — Jan 2023 - Dec 2023
  Georgian Partners — *Edmonton, Canada*
  - Led 10 applied AI projects, supported 6 more & held advisory roles on a further 8 projects across 20 companies.
  - Solved problems on entity extraction, question answering, summarization & classification using LLMs (OpenAI, Mistral, LLaMa) via techniques like RAG (vector & hybrid search, reranking), prompting, & fine-tuning.
  - Developed solutions to problems on slides understanding, graph classification, graph analytics, lead scoring and insurance premium predictions using a mixture of computer vision, graph ML, & traditional ML.
  - Created & led 3 iterations of the GenAI Bootcamp involving 80+ companies, 450+ participants, 50+ projects (10+ in-production). Developed technical content & led sessions on RAG, Alignment (RLHF), & prompt engineering.
  - Owned the Multimodal Toolkit (500+ stars). Resolved 35+ issues, added new features & tests

- **Graduate Research Fellow** — May 2021 - Dec 2022
  University of Alberta — *Edmonton, Canada*
  - Research on AI for video games (computer vision, reinforcement learning) and debiasing language models (NLP).

- **Machine Learning Engineer** — Aug 2019 - Nov 2020
  Mad Street Den (Vue.ai) — *Chennai, India*
  - Developed & deployed solutions for 10+ classification & entity extraction problems using BERT & XLNet.
  - Created a machine learning model to extract keywords from 37+ million retail products.
  - Boosted precision of a rule-based classification system by 15% using ML & reduced codebase latency by 40%.
  - Implemented Word2Vec across a dataset of 2+ million retail product descriptions.

Skills

- **Languages & Databases:** Python, Relational Databases (MySQL, SQLite), Document Databases (MongoDB), Key-Value Databases (Redis), Vector Databases (LanceDB, QDrant, Chroma), Markdown

- **Machine Learning:** PyTorch, LangChain, LlamaIndex, Transformers, Tensorflow, Keras, NumPy, Pandas, scikit-learn

- **Tools & Technologies:** Git, Docker, AWS (Sagemaker, EC2, S3, Redis) GCP (VertexAI, Compute Engine), LaTeX

Education

- **University of Alberta** — Jan. 2021 – Dec. 2022
  Master of Science (Thesis) in Computing Science; CGPA: 3.75/4.0 — *Edmonton, Canada*
  - **Thesis:** Visualizing Characters and Evaluating their Balance in Competitive Video Games.

- **Anna University (Sri Venkateswara College of Engineering)** — Jun. 2015 – Apr. 2019
  Bachelor of Engineering in Computer Science and Engineering; First Class. — *Chennai, India*
  - **Thesis:** Natural Language Generation using Generative Adversarial Networks (Awarded grant of INR 10,000)

Publications

- **A Framework for Predicting the Impact of Game Balance Changes through Meta Discovery:** First author. IEEE Transactions on Games.

- **FineDeb: A Debiasing Framework for Language Models:** Co-first author. AI4SG Workshop, AAAI 2023.

- **Pixel VQ-VAEs for Improved Pixel Art Representation:** First author. EXAG Workshop, AIIDE 2022.

- **Facial Emotion Recognition using Convolutional Neural Networks:** First author. AICV 2018.

Projects & Open Source

- **Homebrew Helper:** Developed & deployed a Discord bot with database connectivity for online role-playing games.
- [**Open Source**] **poke-env:** Identified & fixed several bugs, added example code.