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Akash Saravanan

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Work Experience

- **Graduate Research Assistantship Fellowship (GRAF)** May 2021 - Present
  University of Alberta. Supervisor: Dr. Matthew Guzdial *Edmonton, Canada*
  - **Meta Discovery for Video Game Character Balance**: Developing a reinforcement learning-based system to balance new video game characters through identification and analysis of the competitive meta-game.
  - **Pixel Art Representation**: Developed the Pixel VQ-VAE, a computer vision model for learning pixel art embeddings. Further demonstrated it's effectiveness in image generation & transformation.
  - **Tech Stack**: Python, PyTorch
- **Machine Learning Engineer** Aug 2019 - Nov 2020
  Mad Street Den (Vue.ai) *Chennai, India*
  - **MVP Team**: Developed new machine learning products using natural language processing (NLP) and computer vision (CV). Created an end-to-end proof-of-concept of the company's tagging capabilities on retail items. Developed a general purpose, config-driven framework for creating production-ready classification and NER models that allowed for rapid prototyping.
  - **Tagging Team**: Ideated, developed and deployed models on AWS and GCP. Upgraded existing rule-based classification engines with machine learning algorithms to boost key metrics by 15%. Optimized the codebase to reduce latency by over 40% across the board.
  - **Research & Development Team**: Developed a Sequence-to-Sequence model for automated generation of product descriptions. Created a Named Entity Recognition system to identify key tags in new client catalog data using transformer models.
  - **Tech Stack**: Python, PyTorch, Tensorflow, Keras, AWS, GCP, Javascript
- **Engineering Intern** May 2019 - Aug 2019
  Mad Street Den (Vue.ai) *Chennai, India*
  - **Research & Development Team**: Developed and implemented customized versions of Pointwise Mutual Information (NPMI) and TF-IDF to identify and extract important keywords across different categories and clients over 37 million retail products. Implemented Word2Vec on a catalog of 2 million products.
  - **Tech Stack**: Python, PyTorch, AWS

Education

- **University of Alberta** Jan. 2021 – Dec. 2022 (Expected)
  Master of Science (Thesis) in Computing Science *Edmonton, Canada*
- **Anna University (Sri Venkateswara College of Engineering)** Jun. 2015 – Apr. 2019
  Bachelor of Engineering in Computer Science and Engineering; First Class. *Chennai, India*

Programming Skills

- **Languages & Databases**: Python, MySQL, SQLite, MongoDB, HTML, CSS, Javascript, Markdown, C, C++.
- **Frameworks & Libraries**: PyTorch, Tensorflow, Keras, NumPy, Pandas, scikit-learn, Flask, Django, Bootstrap.
- **Tools & Technlogies**: Git, LaTeX, Amazon Web Services (AWS), Google Cloud Platform (GCP)

Publications

- **Pixel VQ-VAEs for Improved Pixel Art Representation**: Experimental AI in Games (EXAG) 2022.
- **FineDeb: A Debiased Finetuning Approach for Language Models**: Under review (AACL 2022).
- **Natural Language Generation using Generative Adversarial Networks**: Undergraduate Thesis. Intra-Mural Funding Grant (INR 10,000). Anna University, April 2019.
- **Facial Emotion Recognition using Convolutional Neural Networks**: 1st International Symposium on Artificial Intelligence & Computer Vision, 2018.

Selected Projects

- **Homebrew Helper**: Developed & deployed a Discord bot for online role-playing games. (Python, MongoDB)
- **Whatsapp Message Analyzer**: Analyzes WhatsApp group chats and generates interesting statistics. (Python)