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Akash Saravanan

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WORK EXPERIENCE

Graduate Research Fellow — May 2021 - Present
University of Alberta — *Edmonton, Canada*
- **Meta Discovery for Game Balance:** Creating a reinforcement learning system to balance game characters.
- **Debiasing Language Models:** Developed a framework, as a team of 3, to debias transformer models (BERT).
- **Pixel Art Representation:** Designed the Pixel VQ-VAE, a computer vision model for learning pixel art embeddings. Further demonstrated its effectiveness in image generation & transformation.
- **Tech Stack:** Python, PyTorch, Tensorflow, Transformers (HuggingFace)

Machine Learning Engineer — Aug 2019 - Nov 2020
Mad Street Den (Vue.ai) — *Chennai, India*
- Trained Transformer models (BERT, XLNet) for classification, entity extraction and language modeling problems.
- Developed an end-to-end general purpose, config-driven framework for rapid prototyping of production-ready classification and named entity recognition models.
- Upgraded existing systems with ML to boost precision by 15% & optimized the codebase to reduce latency by 40%.
- Developed an experimental Sequence-to-Sequence model to generate product descriptions.
- Deployed models on AWS and GCP instances & setup Django APIs to access them.
- **Tech Stack:** Python, PyTorch, Tensorflow, Keras, Transformers (HuggingFace), Django, Javascript, AWS, GCP

Engineering Intern — May 2019 - Aug 2019
Mad Street Den (Vue.ai) — *Chennai, India*
- Extracted keywords from 37 million retail products using a custom algorithm that combined NPMI and TF-IDF.
- Implemented Word2Vec over 2 million retail product descriptions.
- **Tech Stack:** Python, PyTorch, scikit-learn, AWS

Software Development Intern - Python — Nov 2017 - Jan 2018
CPC Diagnostics Pvt. Ltd. — *Chennai, India*
- Automated a paper-based patient management system by compiling data from multiple sources (medical instruments, databases) and mapping it to existing patients.
- Developed a tool to process medical test data, identify anomalies, & generate reports for medical professionals.
- **Tech Stack:** Python, SQLite

EDUCATION

University of Alberta — Jan. 2021 – Dec. 2022 (Expected)
Master of Science (Thesis) in Computing Science; CGPA: 3.75/4.0 — *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, Transformers (HuggingFace), NumPy, Pandas, scikit-learn.
- **Tools & Technologies:** Git, LaTeX, Amazon Web Services (AWS), Google Cloud Platform (GCP)

PUBLICATIONS

- **Pixel VQ-VAEs for Improved Pixel Art Representation:** First author. EXAG 2022.
- **FineDeb: A Debiased Finetuning Approach for Language Models:** Co-first author. Under review.
- **Natural Language Generation using GANs:** Undergraduate Thesis. Intra-Mural Funding Grant (INR 10,000).
- **Facial Emotion Recognition using Convolutional Neural Networks:** First author. AICV 2018.

SELECTED PROJECTS

- **Homebrew Helper:** Developed & deployed a Discord bot for online role-playing games. (Python, MongoDB)