

## EDUCATION

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- **University of Alberta** Jan. 2021 – Dec. 2023 (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*

## WORK EXPERIENCE

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- **Graduate Research Assistantship Fellowship (GRAF)** May 2021 - Present  
*Supervisor: Dr. Matthew Guzdial, University of Alberta* *Edmonton, Canada*
  - **Meta Discovery for Video Game Character Balance:** Working on a reinforcement learning (RL) 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 powerful model for learning pixel art embeddings.
- **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.
  - **VueTag 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.
  - **Tools & Technologies:** 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.
  - **Tools & Technologies:** Python, PyTorch, AWS

## PROGRAMMING SKILLS

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- **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 & Technologies:** Git, LaTeX, Amazon Web Services (AWS), Google Cloud Platform (GCP)

## PUBLICATIONS

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- **Pixel VQ-VAEs for Improved Pixel Art Representation:** Akash Saravanan & Matthew Guzdial. Submitted to AIIDE 2022.
- **FineDeb: A Debiased Finetuning Approach for Language Models:** Akash Saravanan, Dhruv Mullick, Habibur Rahman, & Nidhi Hegde. Submitted to EMNLP 2022.
- **Natural Language Generation using Generative Adversarial Networks:** Akash Saravanan, Akhil Menon, & Gurudutt Perichetla. Undergraduate Thesis, Anna University. Intra-Mural Funding Grant (Rs. 10,000). April 2019.
- **Facial Emotion Recognition using Convolutional Neural Networks:** Akash Saravanan, Gurudutt Perichetla, & Dr. K. S. Gayathri. 1st International Symposium on Artificial Intelligence & Computer Vision, September 2018.

## SELECTED PROJECTS

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- **Homebrew Helper:** Developed & deployed a Discord bot for online role-playing games. (Python, MongoDB)
- **pH7:** Created a custom dataset & trained a CNN to achieve 87% accuracy for identifying food as part of our Smart India Hackathon 2019 project. Also developed the back-end & database. (Python, Keras, Flask, Scrapy, SQLite)
- **Whatsapp Message Analyzer:** Analyzes WhatsApp group chats and generates interesting statistics. (Python)