

# Amanda Dsouza

Staff Applied Research Scientist

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I am an Applied Research Scientist at Snorkel AI, working on Reward Modeling and Large Language Model evaluation. Prior to Snorkel, I was a Staff Data Scientist at Jasper.ai, where I built and fine tuned LLMs on Jasper data, worked closely with Product to integrate AI and led the evaluation of most of Jasper's LLM partnerships. I led the Text team at Fractal.ai, working on natural language processing and text mining, for industry, and applied research.

I have 7+ years of experience in NLP/ML. In my previous positions, I managed a number of IT (C#, Java) projects on site for Fortune 500 companies in the US and Europe.

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## EDUCATION

### Georgia Institute of Technology

MS Computer Science – Machine Learning

### Padre Conceicao College of Engineering

Bachelor, Computer Engineering

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## EXPERIENCE

### Snorkel AI (Remote - Seattle, US)

#### Staff Applied Research Scientist, *October 2023 - Present*

Research on LLM evaluations and reward models.

Accomplishments:

- Implemented a framework for evaluating (long context) LLMs in the enterprise, ran experiments on several recent long context models identifying failure modes and comparing with RAG, implemented an approach to mitigate known performance degradation due to positional bias, and (in-progress) drafted up a technical blog and workshop paper.

- Worked on design partnerships with leading tech companies on projects to generate synthetic data, and use Snorkel Flow to programmatically curate high-quality datasets for fine-tuning.
- Currently leading research on reward modeling for enterprise alignment, researching different architectures for multi-dimensional reward signals, and programmatically building build reward models.

## **Jasper.ai (Remote - Seattle, US)**

### **Staff Data Scientist, Jan 2023 - July 2023**

Built and fine-tuned large language models for various Jasper use cases, led the AI solution work on Product teams, led evaluation of Jasper's LLM partnerships.

Accomplishments:

- Built and trained/tuned LLMs on Jasper data.
- Led AI solution development for Jasper Brand Voice, to create personalized content, by designing retrieval with vector databases (Pinecone), and chaining LLM requests for enabling tone and detailed style guides (for mid-sized clients) with high recall. This led to a 3-4x increase in customer retention over generic content.
- Designed solutions for Jasper Chat and Templates, trading off token size (chat history, background information) with accuracy, and used different prompt engineering frameworks (ReACT, CoT).
- Led and standardized Jasper's partner models evaluation process. Created an LM evaluation harness to evaluate LLMs on marketing content use-cases, with custom metrics to support it.

## **Georgia Institute of Technology**

### **Independent Researcher (Graduate Studies), Jan 2021 - Dec 2022**

Accomplishments:

- Evaluated prompt-based methods for generation of deep cognitive questions, and testing out a similarity based technique for auto-generating deep questions.
- Developed an Imitation Learning project, extending Generative Adversarial Imitation Learning, with Vector Quantization, on IssacGym, and other RL environments.
- Created a survey of generalization experiment design in RL, and related fields.

## **Fractal.ai (Bangalore, India)**

### **Lead Data Scientist, July 2016 - Dec 2020**

Led teams in Text Mining / NLP and ML projects for large companies in Retail, Financial Services, FMCG. Supported new and existing client proposals, and presented Fractal's text capabilities to C-level executives of various clients. Responsible for the research and development of Fractal's Text Analytics IP solution, and led applied research sessions in the NLP practice.

#### Accomplishments:

- Designed and implemented a classification system for automating the tagging of customer's call intent in a customer service center, for a large retail client. Using historical voice (audio recordings) data and text (emails, chat), built ML models to predict tags in Dutch language.
- Developed a news events trigger engine for a large financial institution to enable its relationship managers (RM's) to better understand their customers.
- Designed and implemented an end-to-end Information Retrieval system for a health & wellness company, for providing the backbone for search, question-answering systems. The engine recommended products based on user queries, including long form questions, and provided supporting wellness/health information for the question.
- Built a multi-lingual aspect-based sentiment analysis solution for customer reviews of a consumer products company.
- Built a trend trigger system on corporate financial (time-series) data, and devised methods to automatically detect seasonality in data.
- Presented Fractal's capabilities on real time text analytics at Microsoft's vendor conference in Redmond WA, and on text mining case studies at Data Hack Summit 2017, Bangalore. Conducted a workshop for a large retail client on Artificial Intelligence.

#### **Infosys Limited**

##### **Technology Lead, May 2005 - June 2016**

Data scientist for Infosys's Machine Learning Center of Excellence, responsible for implementing data mining and statistical machine learning solutions to various business problems. My previous roles were Technology Lead and Software Developer.

#### Accomplishments:

- Worked on various supervised learning problems such as classification models for detecting driver patterns based on only GPS route data, for usage in insurance models, predictive analytics of client's site planning data for master data automation (with over 95% accuracy for most output parameters), and sentiment analysis for Infosys's Voice of Customer product.
- Provided solution architectures for several IT projects and RFPs. I have managed several IT projects over the years, in Agile, Waterfall and Iterative methodologies. I was the on-site coordinator for Boeing, with a 15-member offshore development team. I was the business analyst and scrum master for a 10- member development team for Toyota Motor Europe.

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#### **SKILLS/TECH**

Python, Pytorch, Hugging Face, Scikit-Learn, Numpy, Pandas, OpenAI Gym, IsaacGymEnvs, Stable Baselines3, Weights & Biases, Tensorboard. Training models on Cloud (AWS/Google Vertex/GCP/Azure).