

KARTHICK GUNASEKARAN

#12365 76th Ave NE, Kirkland, 98034

☎ +413-437-3608

✉ karthickprasadg@gmail.com

[LinkedIn](#) | [Google Scholar](#) | [Personal Website](#)

PROFESSIONAL EXPERIENCE

Amazon Artificial General Intelligence (AGI) - Customizations

Senior Applied Scientist

Feb 2021 - PRESENT

- Amazon Nova Customizations Research
 - Led design & launch of an enterprise LLM Reinforcement learning customization platform (Nova customizations) adopted across 13 enterprise programs.
 - Implemented **RLHF** recipes (**PPO / DPO / GRPO**) for multi-turn dialogue; achieved **+6–9 pts** win-rate vs. SFT baselines on blinded evals across 12 benchmarks and **–25–35%** hallucination on grounded QA.
 - **Led large-scale RLHF experiments** spanning preference data strategies, reward-model calibration, and PPO/DPO/GRPO policy updates; at **~0.3–1B tokens/week** and **~100–200M prompts/week**, derived **scaling curves and label-efficiency trade-offs** that informed production defaults and review gates.
 - Collaborated with cross-functional teams to integrate customization capabilities into Amazon Nova, ensuring seamless customer experience and enterprise-grade reliability.
- Continued Pre-training, PPO, RAG & Fine-tuning LLMs for AWS Use cases.
 - Continued pre-training & SFT: Reduced time-to-fine-tune **–25–35%** and infrastructure spend **–20–30%**; on custom AWS eval benchmark, achieved **+6–9 pts** LLM judge win-rate (blinded pairwise), **+5–10 pts** task-success on agent workflows, **–25–40%** unsupported claims, and **+15–25%** citation coverage; recipes adopted as defaults.
 - Designed retrieval, reranking, and citation strategies that **increased citation coverage +15–25%** and **reduced unsupported claims –25–40%** in internal red-team evaluations.

Amazon Inc

MAY 2020 - SEP 2020

SDE, SDE Intern

- Design and Development of the Widget-Builder Framework using Amazon’s Internal Platform to render different widgets on Amazon.com using React and Typescript

Samsung Semiconductor India Research

JUL 2017 - NOV 2018

Machine Learning Engineer

- Design and development of LTE **Physical layer simulator** used for board bring-up .
- Performed **cache optimization** of LTE DSP code: Refactored, removed redundant code, and performed ARM level optimization by using embedded machine models among L1, L2, and L3 cache regions, which led to successful reduction of memory utilization and improvement in cache hit rate.

PUBLICATIONS [338 Citations] [Full List](#)

- **Diverse distributions of self-supervised tasks for meta-learning in NLP** [Link](#)
 - Empirical Methods in Natural Language Processing(EMNLP), 2021
- **Unsupervised Pre-training for Biomedical Question Answering** [Link](#)
 - Working notes of Conference and Labs of the Evaluation Forum, CLEF 2020
- **Towards an Explainable Machine Learning Approach for Selection Criteria**
 - Amazon Machine Learning Conference (AMLC), 2023.
- **Text2Time: Transformer-based article time period predictor** [Link](#)
 - 2023 IEEE 6th International Conference on Pattern Recognition and Artificial Intelligence, August 2023

EDUCATION

- **University of Massachusetts, Amherst**

JAN 2019 - DEC 2020

Manning College of Information and Computer Sciences
Master of Science in Computer Science (3.71/4.00)

Specialization: Machine Learning & NLP

- **Coimbatore Institute of Technology**

July 2013 - MAY 2017

Bachelor of Computer Science and Engineering (8.11/10.0)

TECHNICAL SKILLS

Language: Python, C++, Spark, SQL, Java, React.

Tools and Libraries: PyTorch, vLLM, SgLang, Nvidia Nemo, VeRL, RL Gym, Converse-API, scikit-learn, FAISS, PySpark, HuggingFace, Nltk, Pandas, GIT, AWS, and SpaCy.

AWARDS AND ACHIEVEMENTS

- Best presenter award for Oral presentation of “Utilizing deep learning for automated tuning of database management systems” at CCCAI, 2023.
- Served in program committees in multiple conferences in Machine learning.
- Serving as editor in top journals in Machine Learning.
- Second Prize in BioASQ 8b Biomedical QA Challenge
- I was recognized with **SPOT award** for my contribution to LTE DSP simulator at Samsung.
- I was recognized as “**Employee of the Month**” for my contributions at Samsung.
- Won First prize at hackathon event called “HACKCEPTION” at Amrita University, India
- Won Third prize at hackathon event called “HACKIN” at PSG College of Technology, India.