

AI professional with over a decade of experience developing and scaling large-scale information-retrieval and generative AI solutions, adept at guiding lean teams to deliver transformative, revenue-generating products and executing at high velocity. Demonstrated success in shaping AI strategy, aligning technical vision with business objectives, and fostering cross-functional collaboration to achieve sustained growth and team development.

## Work Experience:

### [Needl.ai](#), Bangalore

Apr 2023-Present

#### VP, Head of AI (Promoted from Director)

Leading AI strategy, team building, and cross-functional collaboration to drive Needl.ai's vision of creating AI-powered workflows that help customers stay informed and improve decision-making.

- **Team Leadership & Growth:** Expanded the AI team from 2 to 7 high-caliber engineers and researchers. Oversaw the end-to-end development of cost-effective AI solutions for search, large-scale QA (over 10TB of data), and agentic (automated) workflow automation.
- **Strategic AI Roadmapping:** Defined and executed the AI roadmap in partnership with executive leadership, product, and sales teams. Enabled strategic partnerships with Microsoft/PwC/BCG and others, aligning technical initiatives with long-term business goals.
- **Client-Centric Innovation:** Developed modular, customizable AI frameworks ("Lego blocks") frameworks for diverse customer use cases like question answering, alerting, and advanced document synthesis. Delivered agentic workflows to generate actionable insights from complex, unstructured documents.
- **Flagship Project – AskNeedl (Patent Pending):** Led creation of a QA system achieving 85% precision, surpassing OpenAI's performance on document question answering over complex financial documents (55 vs. 31 wins for AskNeedl solution). Document QA can handle 2500+ pages large PDF, Currently joint #1 on long doc QA [Kensho S&B benchmark](#).
- **Industry-Specific Solutions:** Implemented generative AI for alerting workflows in energy trading and other verticals, fostering trust and accelerating AI adoption in data-intensive sectors.
- **Technical Depth:** Personally developed information retrieval solutions for SOTA [Long Document Question-Answering](#), fine tuning small LMs/ Bi-encoders/ Cross Encoders, parallel LLM inference with shared GPU over torch-serve/ vLLM, complex PDF parsing and retrieval, Agentic GenAI solutions for complex questions answering over Large Corpus, customized agentic solutions for Agentic Process Automation, Research Report Generation, and alerting. Personally optimizing llama models using structured generation, test time scaling and fine tuning to enhance query understanding capabilities.

#### Professional development, Break

Oct 2022-Mar 2023

Took a career break, utilized to deepen expertise in deep learning and generative AI and working on personal projects related to diffusion models. Built tutorials to demonstrate key ideas of diffusion models with 2D datasets and on EMINST dataset for Masters and PhD students. [View my work here](#). 60+ stars on [Github](#). Starrers include PhD students working in this area.

### Walmart Labs, Bangalore

Apr 2020-Sep 2022

#### Senior Manager, Data Science, Workstream Lead, Walmart Search Marketplace

Managed a 5-member AI team delivering data-driven insights for 100K sellers and 60M products on Walmart's marketplace.

- **AI-Powered Recommendations:** Implemented content recommenders (NLP & transformers) adopted by 7K sellers across 400K products, significantly improving product discoverability.

- **Assortment Gap Analysis:** Leveraged semantic search embeddings to identify product gaps, enabling \$20M incremental sales.
- **Search Conversion Optimization:** Drove multi-objective ranking improvements, increasing search conversion by 61 basis points.
- **Technical Depth:** Introduced semantic search ranking (Bi-Encoders), graph-based embeddings, spam identification, and taxonomy matching with transformer-based methods.

## **Sensara Technologies, Bangalore**

**Jun 2019-Apr 2020**

### **Staff Data Scientist, Lead Content Personalization**

Created a real-time personalization platform for consumer entertainment experiences.

- **Recommendation Frameworks:** Deployed user/content embeddings and knowledge graph models to power Sensara's "+You Page" for Xiaomi and Airtel.
- **Scalable Infrastructure:** Handled 1M events/hour, serving 300K+ users with personalized content recommendations.

## **Walmart Labs, Bangalore**

**Aug 2013-May 2019**

### **Staff Data Scientist, Walmart Search**

Lead and key contributor on Walmart Grocery, Sam's Club, and Walmart.com Search ranking teams.

- **Grocery Search:** Improved product relevance using CNN models for intent and attribute understanding, boosting grocery conversions.
- **SamsClub Search Personalization:** Developed Bayesian models for reorder-based personalization, increasing conversion rates by 1%.
- Led a team to optimize search ranking via clickstream data, resulting in a +1.9% increase in user orders.

**Other Work:** XGBoost Re-Ranking for Grocery, Related Searches via Markov models, Spell Correction, Typeahead Systems, Merchandising Modules for Walmart.com.

## **Microsoft Research, Bangalore**

**Jan 2013-March 2013**

### **Intern**

Worked on portfolio algorithmic selection with the Software Verification team, contributing to research that advanced model checker selection methodologies.

## **EDUCATION & ACHIEVEMENTS:**

### **Masters in Engineering (ME), Computer Science, Indian Institute of Science**

**Aug 2011-Jul 2013**

- CGPA of **6.8/8**. Top 10 percentile at IISc.
- **AIR 8** (100 percentile) among 136K in **GATE 2011 Computer Science Exam**.

### **Selected Publications & Patents:**

1. [Multi-Objective Learning](#): Explored label aggregation for e-commerce learning to rank, contributing to improved relevance and ranking models.
2. [MUX](#): Co-authored a paper on algorithm selection for software model checkers (**40 citations**).
3. [MintHint](#): Developed automated repair hints for software engineering (**120 citations**).

4. [Diffusion Models](#): Created a tutorial on diffusion models with over **60+ stars** on GitHub.
5. Patent Pending: Enhanced Question Answering and Summarization over Long doc QA [Kensho S&B benchmark](#).