Sagar **Joglekar**, Ph.D.

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London, UK

I have over 10 years of experience in applied research, data science, and software engineering. I have built both R&D and product solutions that have produced patents, research papers, and millions in revenue impact. My research is mostly based on developing novel methods for interdisciplinary sciences, using tools from Deep learning, Computer vision, Graphs, and NLP. I am keen on leading impact using a pragmatic combination of data science and ML engineering to solve business problems.

Experience

Senior Machine Learning Scientist, A.I group @ Intercom, London, UK 10/23–Present

As an applied scientist in the A.I. Group, I lead several initiatives, with the intention of product improvements, and developing ideas that change how customer support functions in alignment with newer Generative models (LLMs, multimodal). Key initiatives are

- Improved the retrieval pipeline in the RAG system using finetuning for the Intercom's usecase. This improved the resolution rates by 1.5% and improved several customer metrics
- Enabled Fin (the chatbot) to take external actions using LLM agents flow.
- Finetuning of open-source LLMs to build next gen agents that work collaboratively.

Machine Learning Scientist, Expedia Group, London, UK 07/21–09/23

I led research and development of ML driven products that solve curation, enrichment, and quality problems in image and text data. I was a key member of the Traveller intelligence team, and some of my salient contributions are

- I led the ideation, development, and delivery of property image tagging and curation models, which have cumulatively delivered upwards of 10 million dollars in impact to the bottom line revenue, as measured via A/B tests.
- I have led the development and delivery of ML driven service that moderates user generated reviews. This service saves Expedia upwards of $ 100k annually.
- Led development and delivery into production of a model that created significant uplift in reviews collection from travellers, directly impacting traveller conversion and partner supply quality scoring.
- Led and contributed to several LLM based projects including enriching tags for traveller reviews, and integrating the GPT models into our in-app messenger.

Research Scientist, Nokia Bell Labs, Cambridge, UK 06/19–07/21

I led blue sky research projects, developed scalable prototypes, and mentored others in their research journeys. The role spanned two broad impact areas:

- **External impact** I developed methods and frameworks which could help us quantify social dynamics using large scale data and tools from statistics, Computer vision, Natural language processing, deep learning, and complex networks. This work has been published in over **15 top-tier scientific papers** and has resulted in **two** patents.
- **Internal impact** Designed and built tools for data processing, sensing, and sense-making problems covering a wide range of applications inside Nokia's internal ecosystem. Developed API services and prototypes that wrapped the research models. Mentored interns and junior scientists

Part-time engagements 09/15 - 06/19

While working on my Ph.D. at King's college London, I remained in touch with the industry in different capacities. Some salient engagements are:

- **Research internship, Nokia Bell Labs, Cambrdige, UK, 06/17 - 11/17**: Worked on explainable deep learning models that modelled the perception of intangible attributes like beauty, safety and liveliness of urban environments.
- **Head of Research, Firedrop.ai, London, UK , 06/16 - 06/17** : I led the research and development at Firedrop to understand feasibility of different machine learning algorithms for their product. I developed their aesthetic ranking algorithm and helped develop other key features for their product.
- **Data science consultant, HackMasters, London, UK , 03/16–05/19**: I consulted in the capacity Data science SME on projects that covered areas of data governance, data driven strategy, or prototyping of ML systems. Some of the salient clients were Unilever, Dubai Airports authority, and the UK Home office.

Senior Software Engineer, Citrix Systems (now LogMeIn), Santa Barbara, U.S.A 02/12–09/15

I designed and implemented several proprietary network communications platforms libraries for Android, iOS and the web. Some salient achievements were:

- I designed and implemented a brand new protocol for bandwidth optimized transport of screen-sharing data across HTML5 (web), native, and mobile clients.
- Architected and built a scalable and maintainable communication layer which is now being used across all video conferencing products at Citrix.
- Part of the inventors team for GoToSeeit, which augments the remote assistance product "GotoAssist" with real-time augmented reality annotations and audio.

Research Engineer, Infosys Research Labs, Pune, India 07/08–07/10

The key responsibilities of this role were :

- Research and development of solutions, exploring use of cutting edge computer vision in digital rights management.
- Produce keystone IP for digital convergence and rights management domain.

Technical skills

- **Programming languages:** Python, Java, C++, Javascript
- **Machine Learning frameworks:** LangChain, LLMs, Pytorch, Tensorflow, OpenCV, Scikit-Learn
- **ML Ops Frameworks:** BentoML , Flask , Docker, Nodejs , Django, GCP
- **Data analysis and mining:** Databricks, PySpark, Pandas, Numpy , NetworkX
- **Project management:** Agile , Kanban.

Education

Doctor of Philosophy (Ph.D.), Computer Science, **King's College London, U.K.** 2015–2019
The core principle of my Ph.D. was to quantify signals from human behaviors driven by their subjective perceptions using data and AI, to improve the world around us. The PhD was entirely funded by the King's India Scholarship, which is awarded each year to one person of Indian origin to pursue advanced research.

Master of Science (M.S.), Electrical and Computer Engineering, **U.C. Santa Barbara, U.S.A.** 2010–2012
Double majored in signals processing and distributed networks. My thesis project was to develop HDR video imaging for in-vivo fluorescent bio-microscopy of oscillating biological movements.

Bachelor of Engineering (B.Eng), Electronics Engineering, **University of Pune, India** 2004–2008

Publications & Patents

I have lead or co-authored over 40 scientific publications in top tier peer-reviewed conferences and journals (e.g. The Web Conference, ICWSM, CSCW, Royal Society, Nature, JMIR etc.), and multiple patents

Research Demos

FaceLift :
Beautifying neighbourhoods using crowd sourced signals of urban beauty, deep learning, and generative models. :

Vitality from the Sky
Testing Jane Jacob's vitality theory, at scale, using representations learnt from satellite images. :

Meetcues
Bringing cues of the face-to-face interactions to the online meetings with the help of body and language signals. :

Kairos
Engagements in meetings is not spoken, but expressed in movements. :

Humane-AI
Adding humanity to dialogues in healthcare by discovering crowd's medical-speak from mining social media and open sourced medical data. :

Epidemic Psychology
Dissecting the evolution of responses to the COVID-19 pandemic in the U.S. :

MedDL
Measuring the well-being of the collective population from social media, during COVID times.