

Self-motivated Machine Learning Engineer with 9 years of experience, specialising in driving business-impactful projects. Proficient in planning, deriving data-driven insights, and delivering metric-focused iterative improvements through fast innovation.

Education

IIT Bombay

MTech in Computer Science (ML)

2014 | Mumbai, IN

WB UTech

BTech in Computer Science

2011 | Kalyani, IN

Technical Skills

Languages: C/C++, C#/Java, Python, SQL, Bash, Haskell

Libraries & Tools: MapReduce (Scope), PyTorch, Keras, Huggingface, ONNX, Pandas, Matplotlib, SciPy, NumPy, SkLearn, LangChain, PySpark, Jupyter, Docker, Kubernetes, Tensorboard, WandB, Azure Data Factory, Azure Data Lake Storage, Azure Data Lake Analytics, Distributed FS (Cosmos), Kafka, BLAS, LaPack, Intel MKL, GDB, JDB, Valgrind, Perf, RESTful APIs, OAuth, Git, Conda, Pip

Links

Github: [λy](#)

LinkedIn: [desoumyajit](#)

Honours

10th-Board Exam: State Rank: 1st
Recipient of Chief Minister's **Gold Medal**.

Quarterly Excellence Awards (Q4 2019-2020, Q1 2021-2022)

Publications

- [1] D. J. Sutherland, H. Tung, H. Strathmann, S. De, A. Ramdas, A. J. Smola, and A. Gretton, *Generative models and model criticism via optimized maximum mean discrepancy*, in 5th International Conference on Learning Representations, ICLR 2017, Toulon, France, April 24-26, 2017, Conference Track Proceedings, 2017. [Link](#).

Industry Experience

MICROSOFT | Senior Data & Applied Scientist, Search Advertising R&R

Dec 2018 - Present | Bangalore, IN

Responsible for improving the clickability & quality of Search Ad-Extensions & Dynamic Search Ads (DSA) across EMEA, APAC & LATAM markets.

- Introduced click-prediction (CP) models for extensions & DSA headlines utilising historical signals, contributing **3-6% revenue** across tiers.
- Developed a global feature-store, upgrading on the region-specific design, extending ranking service **from 5 to 100+ markets**.
- Incorporated semantic query-context signals into a Siamese BERT model for CP, resulting in a **+3%ΔAUC improvement over the baseline**.
- Curated an offline selection approach for autogenerated extensions using historical query-context features. Utilised marginalised scores from a semantic CP model, allowing for random exploration. Scaled & globalised this pipeline, **enabling daily ranking of ~10B items**.
- Addressed a combinatorial variant ranking problem by formulating a theoretical approach, conducting large-scale hypothesis testing, defining features, and using DCNv2 model. This resulted in an offline **+4%ΔAUC over the baseline**.
- Designed an E2E personalisation paradigm leveraging long-term and real-time user-interest signals to provide a personalised ranking scheme, making the items more relevant and diverse.

ORACLE | Senior Software Engineer, Cloud Infrastructure

Jul 2014 – Apr 2016, Sep 2016 – Dec 2018 | Bangalore, IN

- Designed & implemented the back-end stack for Marketplace REST API.
- Employed batch-processing & application-layer caching to reduce the response time of heavy API-calls from a **couple of mins to a few secs**.
- Implemented a seamless onboarding workflow of existing SaaS customers to PaaS service offerings within the Tenant Automation framework.

Research Experience

UNIVERSITY COLLEGE LONDON | Research Assistant, Gatsby

May 2016 – Jul 2016 | London, UK

- Devised a cache-friendly algorithm for a class of kernel-based non-parametric tests that **improved the run-time ~300×** over naïve implementation.
- Proposed & implemented a parallel version of this algorithm that beat state-of-the-art competitor algorithms in runtime by a **factor of 10**.
- Co-authored a paper [1] where this method is used in a discriminator for GANs.

Open Source Experience

SHOGUN ML LIBRARY | Core Contributor

2013, 2014, 2016 | Google Summer of Code

2016 Co-mentored in designing Shogun's Linear Algebra library.

2014 Designed & developed a framework for kernel-based hypothesis tests.

Added a family of feature selection algorithms on this framework.

2013 Developed a framework for computing rational approximations of linear-operator functions where exact computation is impractical.

Implemented an estimator for log-det of high-dimensional, sparse matrices arising in the log-likelihood computation of a large Gaussian.