

Georges Dupret

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EXECUTIVE SUMMARY

Experienced research and data scientist with extensive expertise in machine learning (statistical modeling, decision trees, LLM, DNN, etc.), statistics (AB experiments, Causality, testing, etc.). Proven ability to initiate and lead complex projects, combined with strong analytical skills in mathematics and a high level of professional programming proficiency.

PROFESSIONAL EXPERIENCE

Spotify, Boston, Massachusetts, USA

November 2021 – Present

Principal Scientist

- Developed innovative model-free methods to support strategic decision-making from historical data. It is being increasingly used at the highest level of the company.
- Advocated for using Large Language Models (LLMs) to evaluate music playlist quality prior to launch, ensuring high standards in production.
- Heterogeneous Treatment Effect studies on A/B experiments typically lead to results that are unstable and hard to interpret. We developed methods to make them actionable.

Apple, Cupertino, California, USA

September 2017 – November 2021

Principal Scientist in Maps Organization working on Ranking, Machine Learning and Data Analysis.

- Developed methods to evaluate feature importance using Shapley values when learning from preference judgment.
- Initiated embedding utilization for ranking within the organization.
- Enhanced features and data structures to capitalize on implicit map user feedback.

Fullpower, Santa Cruz, California, USA

August 2016 – September 2017

Data Science and Machine Learning Director

Fullpower is the technology leader for IoT Cloud-Connected Digital Sports, Sleep Monitoring, Smart Home and Connected Objects, powered by AI, Machine Learning and Data Science.

- Led transition from rule-based systems to machine learning in sleep monitoring solutions.
- Organized data collection and label generation in collaboration with sleep specialists, while overseeing the machine learning pipeline development.

AliveCor, San Francisco, California, USA

December 2014 – May 2016

Principal Scientist

- Developed advanced algorithms for automated analysis and diagnosis of heart conditions using AliveCor's FDA-approved electrocardiogram device.
- Reorganized the entire codebase in C++ to prioritize testing and reproducibility, ensuring compliance with FDA standards.

- Created tools using R Shiny for efficient triaging of misdiagnosed ECG cases.
- Engineered specialized algorithms for signal filtering, beat classification, and pathology detection.
- Defined priorities and set the agenda for the Science Team in collaboration with Project Managers to align with organizational goals.

Yahoo! Labs, Sunnyvale, California, USA

October 2008 – December 2014

Senior Scientist, Machine Learned Ranking Group

- Developed and optimized Web and Vertical Search ranking algorithms utilizing click-through data analysis, leading to new interpretations that enhanced search engine results globally. This work earned a Best Paper Award at WSDM2010.
- Innovated user engagement metrics across Yahoo properties, balancing revenue generation with improved user experience through localized and global metrics.
- Designed computationally efficient methods for query recommendations, improving the relevance and efficiency of search results.
- Advanced the ranking algorithm's sensitivity to document recency, boosting the freshness and relevance of search outputs.

Yahoo! Research Latin America, Santiago, Chile

March 2006 – October 2008

Researcher

- Developed novel evaluation metrics for structured documents using principled user model assumptions.
- Managed and supervised multiple dissertations and master's theses, contributing to academic and professional advancements in the field of web research.

Center for Web Research, Universidad de Chile, Santiago, Chile

March 2004 – March 2006

Research in Information Retrieval and Text Mining:

- Pioneered statistical models for the explicit modeling of user click behavior within search engine log data, laying foundational work in understanding search engine interactions.
- Conducted advanced Principal Component Analysis to optimize document representation dimensionality within concept space, enhancing text mining capabilities.
- Taught graduate courses including Experimental Design and Analysis, Statistics for Engineers, Data Mining of web click-through data, and Information Retrieval, contributing to the academic growth of engineering students.

IBM, Zürich Research Laboratory, Switzerland

January 2001 – March 2003

Research Staff Member.

Research and application in Information Retrieval and Text Mining:

- Applied machine learning techniques to high-dimensional spaces, focusing on the extraction and automatic clustering of issues within Quality Assurance reports for various IBM external projects.
- Developed an innovative method to determine the optimal number of singular values in Latent Semantic Analysis, applied to corpus visualization and query formulation.

IBM, Tokyo Research Institute, Tokyo, Japan

1998 – 2000

Internship.

- Identified optimal data storage methods and implemented them using C++, enhancing data retrieval efficiency for large databases.

- Automated thesaurus construction and keyword clustering processes, and devised novel Singular Value Decomposition approximations using Artificial Neural Networks.

EDUCATION

Ph.D., Policy and Planning Sciences, Tsukuba University

Thesis - ‘Constrained Architecture Neural Network and its Application to Data Analysis.’

Master Degree, Policy and Planning Sciences, Tsukuba University

Dissertation - ‘Density of Population Analysis Using Artificial Neural Networks.’

Engineer in Applied Mathematics, - Economics Oriented, Catholic University of Louvain, Belgium

Dissertation - ‘Central Place Theory and Multipurpose Trips.’ at Technical University of Lisbon.

LANGUAGES

Fluent in French, English, Spanish, and Portuguese; proficient in daily German and Japanese conversation.

SELECTED PUBLICATIONS

For a comprehensive list, visit my Google Scholar page (more than two thousand citations).

Publication [1] is a formal statistical model of user behavior on a SERP applied to metrics. Publication [2] won best paper award¹ and [3] an Honorable Mention at the SIGIR Test of Time Awards². Absence Time [4] shows how survival analysis can solve complex problem in estimating user satisfaction. Finally, Publication [5] is a novel data driven method to take decision applicable when AB testing is not feasible.

- [1] G. Dupret and B. Piwowarski, “A user behavior model for average precision and its generalization to graded judgments,” in *Proceedings of the 33rd international ACM SIGIR conference on research and development in information retrieval*, pp. 531–538, 2010.
- [2] G. Dupret and C. Liao, “A model to estimate intrinsic document relevance from the clickthrough logs of a web search engine,” in *Proceedings of the third ACM international conference on Web search and data mining*, pp. 181–190, 2010.
- [3] G. E. Dupret and B. Piwowarski, “A user browsing model to predict search engine click data from past observations,” in *Proceedings of the 31st annual international ACM SIGIR conference on Research and development in information retrieval*, pp. 331–338, 2008.
- [4] G. Dupret and M. Lalmas, “Absence time and user engagement: evaluating ranking functions,” in *Proceedings of the sixth ACM international conference on Web search and data mining*, pp. 173–182, 2013.
- [5] G. Dupret, K. Sozinov, C. B. Gonzalez, Z. Zacks, A. Yuan, B. Carterette, M. Mai, S. Bansal, G. L. L. Lien, A. Gatash, *et al.*, “Fortune: Running offline scenarios to estimate impact on business metrics,” *arXiv preprint arXiv:2403.00133*, 2025. accepted to KDD (ADS) 2025.

¹<http://www.wsdm-conference.org/2010/>

²<https://sigir.org/awards/test-of-time-awards/>