Guilherme Ilunga

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Experience

Bumble, UK
Senior Machine Learning Scientist   *June 2025 – Present*

- Designing and leading development of machine learning models for reciprocal recommender systems, using advanced techniques in graph networks, NLP, computer vision, and personalized recommendation algorithms

Amazon Development Centre Scotland, UK
Applied Scientist I & II   *May 2021 – June 2025*

- Led ML initiatives in digital advertising delivering $300M+ annual revenue, developing deep learning recommender systems for user interest, contextual category, and purchase prediction using PyTorch, Spark, LLMs, vector search (HNSW), and AWS at scale

- Designed and built end-to-end evaluation pipelines and experimental frameworks for large-scale A/B testing, establishing comprehensive monitoring systems and automated assessment metrics to measure ML model performance impact

- Contributed to research community growth by mentoring multiple interns, publishing internal technical papers, and organizing educational workshops on ML methodologies and best practices

- Adapted to evolving organizational needs by stepping into a managerial role for 6 months, leading two high-impact projects with combined revenue exceeding $200M and managing a team of 4 scientists

Microsoft Research Cambridge, UK
Research Software Engineer II & AI Resident   *Sep. 2018 – May 2021*

- Contributed to multiple computer vision initiatives using 2D/3D CNNs, including medical image segmentation, hand gesture classification, and holographic storage devices

- Engineered NLP and generative AI solutions including Transformer-based code completion, multimedia-aware smart replies, and GANs/VAEs for 3D mesh generation, using PyTorch and Azure

- Provided technical mentorship to AI Residents and interns across multiple ML domains

Publications

- Barchiesi, D., Eliasdottir, A., Pomorski, P., et. al. (2025). *Inside the predictive AI model that powers Amazon DSP Performance+ & Brand+.* In Amazon Advertising Whitepaper Series.

- Cheriere, N., Chu, J., Brennan, G., et. al. (2025). *Holographic Storage for the Cloud: advances and challenges.* ACM Transactions on Storage, 21(1).

- Barchiesi, D., Deshpande, A., Ilunga, G., et. al. (2025). *Delivering ad relevance without third-party cookies: Advanced AI-powered contextual techniques.* In Amazon Advertising Whitepaper Series.

- Barchiesi, D. and Ilunga, G. (2024). *Delivering ad relevance without third-party cookies: Advanced techniques for modelling audiences in anonymous traffic.* In Amazon Advertising Whitepaper Series.

- Ilunga, G. and Leitão, A. (2018). *Derivative-free Methods for Structural Optimization*. In Education and Research in Computer-Aided Architectural Design in Europe Conference (eCAADe).

- Caetano, I., Ilunga, G., Belém, C., et. al. (2018). *Case studies on the Integration of Algorithmic Design Processes in Traditional Design Workflows*. In International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA).

Education

Instituto Superior Técnico, University of Lisbon, Portugal
Master & Bachelor degrees in Computer Engineering *2013 – 2019*

Technical Skills

- **Programming Languages:** Python (professional), Java (professional), C++ (academic)

- **ML/AI Frameworks:** PyTorch, Spark, LLMs, Transformers, CNNs, ViTs, GANs/VAEs, GNNs

- **Other:** A/B testing, distributed training, approximate nearest neighbours (ANN)