GIULIANO TUZZI

2nd March 1992 – 13 Hanger Lane W5 3HH London
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PROFESSIONAL PROFILE:

Engineer-turned-ML practitioner with a PhD in Mechanical Engineering and experience in high-integrity aerospace systems (Rolls-Royce, Airbus). I recently completed a Data Science program at Cambridge University, with a focus on Deep Learning, LLMs, and agentic architectures for reasoning and evaluation. Recent work includes LLM-based evaluation pipelines, retrieval-augmented Q&A, and structured prompt orchestration (e.g., multi-agent supervision for the Bank of England).

I bring a disciplined, analytical mindset, strong communication skills, and a practical engineering approach to machine learning and AI, focused on building reliable and innovative solutions for complex real-world challenges.

WORK EXPERIENCE AND EDUCATION

NOV 2024 – JUL 2025 CAREER ACCELERATOR IN DATA SCIENCE AND MACHINE LEARNING
At University of Cambridge Institute of Continuing Education

Portfolio Projects included:
- Anomaly Detection for **Fraud Detection**
- Customer segmentation using **clustering** techniques, including K-Means
- **Credit default prediction** using deep learning (neural networks) and decision trees
- **Time series** forecasting applied to sales data
- **NLP** analysis of reviews, including topic modelling, sentiment analysis and **few-shot** learning
- Generative AI: LLM configuration, tuning, and Retrieval-Augmented Generation (RAG) pipelines
- Developed an LLM-based evaluation framework (**OpenAI**, Claude) and supporting data pipelines to assess and improve data-driven recommendations for risk analysis from earnings call transcripts (**Bank of England** project)

2022-2024 AIRCRAFT LOADS ENGINEER AT AIRBUS UK

My duties included:
- Computation, analysis and delivery of **Aircraft Gust loads** within different programmes
- Comparison and benchmarking of Hyperworks and in-house tools for the computation of **Aircraft Ground loads**
- Participation in some **Research and Technology** activities

2020 – 2022 STRESS ENGINEER AT ROLLS ROYCE DEFENCE AEROSPACE

My duties involved:
- Carrying out **Numerical Analyses** of turbine components, interpreting results and writing technical reports
- Supervision of interns and light project management duties
- Customer Focus in the form of creating Strategy and Mechanical Criteria Documents, Export Control and Intellectual Property Management

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2017 – 2021	**PHD IN MECHANICAL ENGINEERING**	
	At	Imperial College London (Rolls Royce UTC)
	Research topic:	Vibration Transmission in Aircraft Engines
	Sponsor:	Rolls Royce plc

My project involved:
- Extensive use of FEM analysis with commercial and self-developed code
- Test rig design
- Experimental validation of the models (which included signal processing set-up and modal characterization of the components)

2011 – 2017	**BSC AND MSC IN MECHANICAL ENGINEERING**	
	At	Politecnico di Milano, Milan
	Score:	110/110
	Thesis on:	Morphing Profiles for active control on helicopter blades (IFASD 2017)

SIDE PROJECTS:
- Developed a prototype tool to generate 3D CAD drawings from natural language prompts using **OpenAI** and **FreeCAD** APIs, exploring language-to-geometry interfaces and multimodal AI workflows
- Built and deployed a **credit default risk prediction** pipeline (XGBoost and Keras) trained on a J.P. Morgan open dataset; served it via FastAPI and containerised with Docker

TECHNICAL SKILLS
- **Python** (Numpy, Pandas, Scikit-learn, Matplotlib, Seaborn)
- **Machine Learning:** Data Pipelines, Clustering, Neural Networks, Decision Trees, Time Series Forecasting
- **AI Frameworks**: TensorFlow, PyTorch, HuggingFace Transformers, OpenAI API, LangChain
- **LLM/NLP**: Prompt Engineering, Fine-tuning, few-shot learning, RAG pipelines
- **ML Infra:** Google Colab Pro, Jupyter Notebooks
- **SQL**: PostGreSQL
- Microsoft Office, including **advanced Excel** and VBA
- Proficient user of **Matlab** (Optimization, Control and Symbolic calculus toolboxes included)
- **Engineering Tools**: Abaqus (incl. Python scripting), Hyperworks, SolidWorks, Siemens NX

LANGUAGES:
- **Italian:** Native Speaker
- **English:** Full Professional Proficiency
- **German & Spanish:** Basic Knowledge

SOFT SKILLS:
- **Strong communication skills**, evidenced by numerous scientific publications, reports and presentations at international conferences
- **Good team worker,** evidenced by several team projects, both during the PhD and my industry career
- **Leadership,** evidenced by supervision of interns and pursuit of process improvements within the team (automation, Python scripting)
- **British-Italian Dual Citizen**