FLORIAN TESTE

Applied AI Engineer

AI Scientist | Ph.D. in Machine Learning

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TesteFlorian

PROFESSIONAL SUMMARY

AI Scientist with a Ph.D. in Machine Learning and over 3 years of experience at the intersection of Generative AI, LLMs, and geospatial intelligence. Led development and deployment of production AI systems used by major GEOINT and agricultural analytics teams. Delivered advanced LLM-based agentic architectures and real-time, multi-modal analytics platforms. Adept at translating cutting-edge research into scalable, user-focused solutions, and driving innovation in multidisciplinary teams.

PROFESSIONAL EXPERIENCE

March 2025 – Present **Senior Machine Learning Scientist** **Promethee Earth Intelligence**

Focus: Leading production AI engineering and research in geospatial intelligence, LLMs, and autonomous agent systems.

Key Achievements:

- **GEOINT AI Platform:** Architected a GEOINT solution leveraging fine-tuned LLMs and AI agents.
- **Agentic Integration:** Integrated retrieval-augmented generation (RAG) and Multi-Channel Protocols (MCP) in production, enabling API-driven, analyst-ready intelligence workflows.
- **Satellite Image Indexing:** Developped and deployed computer vision models for real-time vessel detection/classification from multi-sensor imagery.
- **Data Fusion & Investigation:** Delivered cross-source entity correlation using AI agents, resulting in improved situational awareness for critical operations.
- **LLM Fine-Tuning:** Created domain-specific language models for GEOINT reports, automating thematic summarization and decision support.

`PyTorch, LLM Fine-tuning, AI Agents, RAG, Computer Vision, NLP, MCP Protocol, API, Docker, Kubernetes, CI/CD, FastAPI`

2022 – February 2025 **Data Scientist & Technical Consultant** **Atos**

Directed AI/ML initiatives from research to production, focusing on satellite data and predictive modeling for industry and government clients.

Key Achievements:

- Led a team developing LSTM models for financial forecasting with satellite indicators; improved forecasting accuracy by 140% compared to baseline.
- Designed and shipped an agricultural plot delineation engine based on satellite data Neural Networks.
- Mentored junior scientists and supervised master level students.

`PyTorch, TensorFlow Pandas, NumPy, Rioxarray, Bash, R, Git, Julia`

2022 – February 2025 **Ph.D. Candidate in Applied Mathematics** **University Paris-Saclay**
Dissertation: "Forecasting Agricultural Commodity Prices & Yield from Satellite Data using Machine Learning", MIA-PS Lab, Palaiseau, France.
Supervisors: Dr. David Makowski, Dr. Philippe Ciais
Highlights:

- Built a production ML pipeline for real-time commodity price prediction, handling multi-terabyte satellite streams.
- Developed neural architectures (CNN, LSTM, Transformers) for time-series forecasting from geospatial data.
- Created feature extraction methods based on VAE for crop monitoring.
- Achieved state-of-the-art performance on cross-market prediction tasks (USA, Africa).
- Presented results at leading conferences (EGU), with 4+ peer-reviewed journal publications.

`PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Rioxarray, Bash, R, Git, Julia, Python`

Apr 2021 – Sep 2021 **Deep Learning Scientist (Intern)** **INRAE, TETIS Lab**
Project: Characterization of forests via Sentinel-1/2 and LIDAR fusion.
Impact: Co-authored a high-impact IEEE publication; improved forest attribute estimation (basal area, volume) using neural models.

- Advanced fusion of LiDAR and SAR/Optical data for detailed stand-level mapping.
- Developed a novel deep learning framework for forest attribute estimation.

`TensorFlow, Scikit-learn, Pandas, NumPy, Rioxarray, R, Git, Python`

EDUCATION

2022 – Feb 2025 **Ph.D., Mathematics (AI, Remote Sensing)** **Paris-Saclay University**
Dissertation: "Forecasting Agricultural Commodity Prices & Yield from Satellite Data using Machine Learning".

2020 – 2021 **MSc, Geomatics & Environment (with Honors)** **Aix-Marseille University**
Key project: Automated land-cover change detection pipeline (Python, Sentinel-2, 10M+ pixels).

2019 – 2020 **MSc, Geomatics with Remote Sensing and GIS** **Stockholm University**
Key project: Satellite time-series modeling for snow depth retrieval.

PUBLICATIONS

1. **Teste, F.**, Makowski, D., Ciais, P. (2025). Quantitative Predictions of Crop Yields and Prices from Satellite-Based Machine Learning: Applications to Soybean and Corn. *SSRN Preprint*.
2. **Teste, F.**, Ciais, P., Makowski, D. (2024). Forecasting crop yield and price variations with machine learning from satellite-derived gross primary production maps. *ResearchGate Preprint*.
3. **Teste, F.**, Gangloff, H., Chen, M., Ciais, P., Makowski, D. (2024). Leveraging satellite data with machine and deep learning techniques for corn yield and price forecasting. *IEEE Transactions on Geoscience and Remote Sensing*, 62, 1-16.
4. **Teste, F.**, Makowski, D., Bazzi, H., Ciais, P. (2024). Early Forecasting of Corn Yield and Price Variations Using Satellite Vegetation Products. *Computers and Electronics in Agriculture*, 221, 108962. (Impact Factor: 8.3)
5. Lahssini, K., **Teste, F.**, Dayal, K., Durrieu, S., Ienco, D., Monnet, J.-M. (2022). Combining LiDAR Metrics and Sentinel-2 Imagery to Estimate Basal Area and Wood Volume in Complex Forest Environments via Neural Networks. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 15, 4337-4348.

CONFERENCES & WORKSHOPS

- **April 2024:** Oral presenter, EGU General Assembly (Vienna, Austria).
- **Oct 2023:** Invited speaker, MIA-PS Lab Workshop: Early Forecasting of Corn Yield and Price Variations.

- **Nov 2022:** Featured speaker, CLAND Workshop: Using Satellite Products to Predict Agricultural Commodity Price Changes.

LANGUAGES

English: Fluent (C1)
French: Native
Spanish: Professional (B2)
Swedish: Conversational (B1)

INTERESTS

Boxing (~12 years)
Hiking
Photography

TECHNICAL SKILLS

Programming: Python, R, Julia, Bash
AI/ML: PyTorch, TensorFlow, Transformers
LLMs: Fine-tuning, RAG, Prompt engineering, AI agents
MLOps: Docker, Kubernetes, Git, CI/CD, FastAPI (production)
Geospatial: GDAL, Rioxarray, Optical/SAR/LiDAR imagery