Konstantinos Themelis

Senior Data Scientist

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PROFESSIONAL SUMMARY

Senior Data Scientist with a Ph.D. in Statistical Signal Processing and 10+ years of experience spanning high-performance computing, computer vision, and predictive modeling. Expert in bridging the gap between theoretical research and scalable industry solutions (AWS/GCP/Edge). Proven track record of securing **€1M+** in R&D funding and deploying real-time ML pipelines driving measurable efficiency gains (e.g., 9% accuracy boosts, 3% LTV improvement).

TECHNICAL SKILLS

Languages	Python (Expert), C++ (Expert), MATLAB (Expert), R, Scala, SQL
Machine Learning	Deep Learning (PyTorch, TensorFlow, Keras), Reinforcement Learning, Generative Models (GANs, VAEs), Causal Inference
Computer Vision	Object Detection (YOLO, Faster R-CNN, D-FINE), Segmentation (Mask R-CNN, U-Net), Tracking (DeepSORT, ByteTrack), OpenCV, DeepStream SDK
Data & Analytics	Spark, Hadoop, Kafka, Flink, Tableau, Power BI, Plotly, Seaborn
Cloud & MLOps	AWS (EC2, S3, Lambda), GCP (Vertex AI, Cloud Functions), Azure, Docker, Git, Linux, Triton Inference Server
Math Foundations	Bayesian Methods, Time Series Analysis, Dimensionality Reduction (PCA, t-SNE)

EXPERIENCE

Senior Data Scientist
Sep. 2024 – Present

Qualco Group, Athens

- **Edge AI Optimization:** Optimized real-time video stream analysis by implementing the **D-FINE** algorithm on NVIDIA edge devices, achieving a **9% increase in detection accuracy**.
- **Tracking Pipeline:** Engineered a high-performance object tracking system (95% accuracy) utilizing NVIDIA DeepStream SDK and DeepSORT to solve complex occlusion challenges.
- **R&D Leadership:** Developed comprehensive research proposals on computer vision, successfully securing funding from the European Commission.
- **MLOps & Architecture:** Led the deployment of a visual language model pipeline featuring a data ingestion service from edge devices via Apache Flink.
- **Mentorship:** Mentored junior data scientists and interns on best practices in code quality and ML methodology.

Senior Data Scientist
Dec. 2021 – Sep. 2024

Wappier, Athens

- **Predictive Modeling:** Led the development of ML models for Customer Lifetime Value (LTV), A/B testing, causal impact analysis, and recommendation systems.
- **Scalable Engineering:** Scaled a graph-based LTV regression algorithm using **GraphFrames API** on Databricks to process large-scale datasets.
- **Business Impact:** Deployed time series forecasting tools using SDK temporal features, enhancing LTV estimation performance by **3%**.

Postdoctoral Research Associate
May 2017 – Nov. 2021

Commissariat à l'énergie atomique (CEA), Paris-Saclay

- **Project:** ESA Euclid Mission (Dark Universe exploration).
- **Algorithmic Development:** Engineered proximal optimization algorithms to solve inverse problems in astrophysical imaging.

- **Bayesian Inference:** Accelerated model estimation times by implementing variational inference pipelines using **TensorFlow Probability**.
- **Recognition:** Awarded the highly competitive EU Enhanced Eurotalents Marie Sklodowska-Curie Fellowship.

Data Scientist
Sep. 2020 – May 2021

Centre of Planning & Economic Research (KEPE), Athens

- **Customer Segmentation:** Transformed raw survey data into actionable business insights using k-means clustering to identify behavioral growth trends.
- **Strategic Reporting:** Uncovered key patterns within surveyed datasets to inform economic reporting and policy making.

Postdoctoral Research Associate
May 2013 – Mar. 2017

National Observatory of Athens, Athens

- **Grant Writing & Revenue:** Led the technical drafting of Horizon Europe proposals, successfully securing **€1M in funding** across 3 major projects.
- **Signal Processing:** Developed novel variational Bayesian frameworks for remote sensing, improving classification accuracy in noisy satellite imagery.
- **Project Management:** Managed deliverables and technical milestones for multi-national research consortiums.

DevOps Engineer
Nov. 2005 – Dec. 2006

University of Piraeus, Piraeus

- Worked as full-time High Performance Computing Linux cluster administrator and web developer.

PROJECTS

Forecasting of Large-Scale Travelling Disturbances
GitHub: themelis/LSTIDs_forecasting

Research Project,

- Investigated LSTID Forecasting by applying **Temporal Fusion Transformers** to ionospheric time-series data to capture complex temporal dependencies within the signal.

EDUCATION

Ph.D. in Statistical Signal Processing 2012

University of Athens,

Thesis: *Bayesian signal processing techniques for hyperspectral image unmixing.*

Diploma in Computer Engineering and Informatics 2005

University of Patras,

GPA: 8.49/10 – *Awarded Hellenic State Scholarship Foundation Honorary Distinction.*

SELECTED PUBLICATIONS

K. Themelis, et al., "Neural network-based short-term forecast of Large Scale Travelling Ionospheric Disturbance...", *J. Space Weather Space Clim.*, 2025.

J.-L. Starck, K. Themelis, et al., "Weak lensing mass reconstruction using sparsity...", *Astronomy & Astrophysics*, 2021.

P. Giampouras, K. Themelis, et al., "Online sparse and low-rank subspace learning...", *Signal Processing*, 2017.

K. Themelis, et al., "Variational Bayes group sparse time-adaptive parameter estimation...", *IEEE Trans. Signal Proc.*, 2016.

For a complete list of 15+ publications, please visit my Google Scholar profile.