Jens E. d'Hondt

Postdoctoral Scientist – Barcelona Supercomputing Center

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PROFESSIONAL SUMMARY

Experienced data professional with expertise in developing and implementing scalable data solutions, combining research innovation with practical engineering experience. Track record of managing complex technical projects and collaborating with diverse stakeholders across academic and industry settings. Experience in architecting and deploying large-scale data infrastructure, with particular focus on distributed computing and cloud technologies. Strong communication skills demonstrated through client engagements, technical presentations, and teaching.

EDUCATION

PhD - Artificial Intelligence — Eindhoven University of Technology (TU/e)
Nov 2021 – Dec 2025 — Location: Eindhoven, the Netherlands

MSc - Data Science and Artificial Intelligence — Eindhoven University of Technology (TU/e)
Sep 2019 – Oct 2021 — GPA: 9.1/10 (Cum Laude), Thesis: 9.5/10

BSc - Industrial Engineering — Eindhoven University of Technology (TU/e)
Sep 2016 – Sep 2019 — GPA: 8.5/10 (Cum Laude), Thesis: 9.5/10

WORK EXPERIENCE

Postdoctoral Scientist — Barcelona Supercomputing Center (BSC)
Nov 2025 – Present — Location: Barcelona (ESP)

- Developing ML-models for super-resolution downscaling of atmospheric composition data, to improve air quality forecasting.
- Monitoring and optimizing performance of deployed models on HPC infrastructure.

PhD Candidate — Eindhoven University of Technology (TU/e)
Nov 2021 – Nov 2025 (4 years) — Location: Eindhoven (NL)

- Developing algorithms for large-scale similarity search, focusing on scalability.
- Leading research in time series analysis, resulting in multiple top-tier publications (VLDB, SIGMOD).
- Technical lead in EU-funded project, designing ML pipelines for remote sensing at TB-scale.

Data Science Intern — BMW Group
Jul 2020 – Dec 2020 (6 months) — Location: Munich (GER)

- Lead migration of a legacy Data Warehouse from On-premise to AWS using Spark and Bash scripting.
- Designed data infrastructure to process approximately 150 TB/day, improving part anomaly-detection using AWS Glue, Lambda and DynamoDB.
- Re-engineered the data-storage and retrieval strategy of dashboards to improve scalability to handle approximately 1 TB of data.

Software Engineer - Freelance
Dec 2019 – Nov 2021 (2 years) — Location: Eindhoven (NL)

- Creation and implementation of data-driven applications, performing statistical analyses for clients leveraging Angular, Python, Spark, and Kafka.

TECHNICAL SKILLS

Programming Languages: Python, Java, SQL, Scala
Big Data & Cloud: AWS, Apache Spark, Apache Kafka, Docker, Kubernetes
Web Development: Angular, Flask, FastAPI
Tools & Platforms: Git, MLOps, MLflow, Weights & Biases, SLURM

LANGUAGES

Fluent: English, Dutch
Intermediate: Spanish, French, German

PROJECTS

1. Distributed LLM Training Framework
Experimented with distributed LLM training on university's HPC cluster using 8 A100 GPUs. Implemented mixed-precision training and gradient checkpointing for memory efficiency. Successfully fine-tuned a 7B parameter model for domain-specific tasks using PyTorch, DeepSpeed, SLURM, and Weights & Biases.

2. ML-based Field Delineation
Developed a machine learning-based field delineation system for remote sensing data. Automatically detects and delineates agricultural fields from satellite imagery. Results published in peer-reviewed conference proceedings.

3. Motivational Messaging Bot
Designed and integrated end-to-end continuous-learning pipeline for iOS and Android. Automatically creates personalized messages and learns from retention-rates. Published research findings in 2019.

4. Driving Behavior Grading System
Built streaming service for real-time grading of driving behavior. Processes structured and unstructured data including car acceleration, speed, traffic, and weather information. Implemented using Apache Kafka and Python.

PUBLICATIONS

[1] d'Hondt, J.E. (2025) Generative Correlation Manifolds: Generating Synthetic Data with Preserved Higher-Order Correlations. arXiv (Preprint).
[2] d'Hondt, J.E., Papapetrou, O., & Palpanas, T. (2025) MS-Index: Fast Subsequence Search for Multivariate Time Series under Euclidean Distance. **VLDB 2026** (In press).
[3] d'Hondt, J.E., Paparrizos, J., & Papapetrou, O. (2025) A Structured Study of Multivariate Time-Series Distance Measures. **SIGMOD, 2025**.
[4] Pelok, B & d'Hondt, J.E. (2025). MULISSE: Variable-Length Similarity Search for Multivariate Time Series. **ICDEW, 2025**.
[5] Paparrizos, J., et al. (2024). A Survey on Time-Series Distance Measures. arXiv:2412.20574.
[6] Papapetrou, O. & d'Hondt, J.E. (2024) Multivariate Similarity Search - A Call for a New Breed of Similarity Search Algorithms. **ICDE, 2024**.
[7] d'Hondt, J.E. & Papapetrou, O. (2024). Beyond the Dimensions: A Structured Evaluation of Multivariate Time Series Distance Measures. **ICDEW, 2024**.
[8] Jörges, C., d'Hondt, J. E., & Chatzigeorgakidis, G. (2023) Leaf area index time series imputation for early yield prediction. **BIDS 2023**.
[9] d'Hondt, J.E., Minartz, K., & Papapetrou, O. (2023). Efficient detection of multivariate correlations with different correlation measures. **VLDB Journal, 2023**.
[10] Minartz, K., d'Hondt, J.E., & Papapetrou, O. (2022). Multivariate correlation discovery in static and streaming data. **VLDB, 2022**.
[11] d'Hondt, J.E., Nuijten, R., & Van Gorp, P. (2019). Evaluation of computer-tailored motivational messaging in a health promotion context. **Lecture Notes in Artificial Intelligence 2019**.

PROFESSIONAL ACTIVITIES

Academic Service:

- Publication chair for the workshop on Multivariate Time Series Analysis (MulTISA) at ICDE 2024 and 2025
- Co-lecturer for the course "Big Data Management"
- Supervisor to 8 master students
- Reviewer for MulTISA 2024, 2025, and the Data Mining and Knowledge Discovery journal

Leadership Experience:

- Founder - Dpasse Student Recruitment, Eindhoven, 2018-2020
- Acquisition leader - University Racing Eindhoven (Formula-Student Team)
- Student Consultant - Rabobank, Netherlands-Asia Honours Summer School, 2019

Additional Training:

- Summer School - Harbin Institute of Technology, Shenzhen, 2019
- Boston Consulting Group 7-day Business course, Berlin, 2018

REFERENCES

Dr. Hervé Petetin
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