



# LUKE SCHUMACHER

AI Researcher, Data Engineer | ML Pipelines & Advanced Analytics

## PROFESSIONAL PROFILE

I am a Data Engineer and AI Specialist with a strong international background spanning the Middle East, Europe, and Asia. I hold a bachelor's degree in CMD & IT and am completing a master's in AI for Sustainable Societies through the prestigious Erasmus Mundus program, with academic experiences in Tallinn, Porto, and Tampere. My expertise lies in designing scalable data pipelines for machine learning, deploying predictive models in production environments, and translating complex analytical findings into business impact. I combine deep proficiency in the Python/PySpark data stack with cloud-native engineering practices and hands-on MLOps experience. I thrive in cross-functional, high-performance teams and bring the technical rigour, client-facing communication skills, and relentless curiosity required to solve the hardest data problems at scale.

## WORK EXPERIENCE

**Working Student – DS & ML Engineering** **Oct 2023 – Present**  
*Siemens Healthineers* Germany (Remote)

Architecting and maintaining end-to-end data pipelines (Python, SQL, PySpark) that power predictive digital twin models for a global client base. Ensuring data quality, transforming operational data at scale, and deploying ML models within containerized environments using CI/CD best practices. Presenting analytical findings and strategic recommendations to senior management. Coordinating across data science, engineering, and business stakeholders in agile Scrum teams. Won **First Place at the ITT Summit** for innovative solution design.

**AI Research Intern – Master's Thesis** **Dec 2024 – Present**  
*Illigo, Deutsche Telekom & Siemens Healthineers* Remote from Estonia

Conducting master's thesis on **Autonomous Protocols, Neurosymbolic Reliability, and Hierarchical Governance in Critical Infrastructure MAS**. Building distributed multi-agent systems in Python with generative AI components. Designing reproducible experiment pipelines and evaluating frameworks for robust autonomous decision-making. Defense planned May 2026.

**Data Science & ML Engineering Intern** **Jan 2022 – Oct 2023**  
*Infoteam Software AG* Germany

Built and deployed ML-powered data pipelines for industrial clients, transforming raw production data into predictive models for process optimization and quality control. Applied clean code principles, conducted code reviews, and contributed to architectural decisions within agile teams. Translated business requirements into scalable, reproducible technical solutions.

**Cloud Infrastructure Intern** **Jan 2021 – Jan 2022**  
*Zero & One – AWS Partner* UAE

Deployed and managed scalable AWS cloud services (EC2, S3, Lambda) for diverse client projects. Built automated CI/CD pipelines and infrastructure-as-code solutions using Terraform. Earned **AWS Cloud Practitioner Certification**, validating cloud-native engineering fundamentals.

## CONTACT

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🌐 [luke-schumacher.github.io/Portfolio](https://luke-schumacher.github.io/Portfolio)  
🐙 [github.com/luke-schumacher](https://github.com/luke-schumacher)  
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## LANGUAGES

English Native/C2  
German Native  
French A2 - Conversational

## CORE SKILLS

### Data Engineering

Python • PySpark • SQL • Pandas • NumPy • Airflow

### ML & Analytics

TensorFlow • PyTorch • Scikit-learn • XGBoost • Predictive Modeling • Matplotlib

### Cloud Platforms

AWS (Certified) • Azure • GCP • Databricks • Cloud-native Architecture

### DevOps & MLOps

Docker • Kubernetes • CI/CD • MLflow • Weights & Biases • Terraform

### Generative AI

LangChain • Transformers • Multi-Agent Systems • Neurosymbolic AI • LLM Applications

### Software Engineering

Java • C# • JavaScript • Git • OOP • Clean Code

### Collaboration

Agile/Scrum • Stakeholder Mgmt • Technical Presentations • JIRA • Cross-functional Teams

# CERTIFICATES & AWARDS

**AWS Certified Cloud Practitioner**  
*Amazon Web Services*

**ITT Summit – Siemens Healthineers**  
*First Place – Innovative Solution Design*

# KEY HIGHLIGHTS

- Production ML pipelines (Python, PySpark, SQL)
- Cloud-native deployment (AWS, Azure, Docker, K8s)
- GenAI research (Multi-Agent Systems, LLMs)
- Native German & English; 3 continents, 5 countries

# EDUCATION

**Master of Science – AI for Sustainable Societies**    **Aug 2024 - Present**  
*University of Tallinn, Lusófona and Tampere*    Tallinn, Porto, Tampere

Prestigious Erasmus Mundus program focusing on applying AI techniques to sustainable development and societal challenges. **Current focus:** Master’s thesis on Autonomous Protocols and Neurosymbolic Reliability in Multi-Agent Systems for critical infrastructure, in collaboration with Deutsche Telekom/Illigo and Siemens Healthineers. Expected defense: May 2026.

**Bachelor – Communication & Multimedia Design**    **Aug 2019 - Aug 2024**  
*Hanze University of Applied Sciences*    Groningen, Netherlands

Specialization in interactive design, user experience, and digital technologies with focus on human-computer interaction and data-driven design solutions.

**Minor – Artificial Intelligence & Machine Learning**    **Feb - Sep 2022**  
*Hanyang University*    Seoul, South Korea

**Top 5% of class** in Machine Learning and AI+X: Introduction to Data Science courses. Completed final research project applying machine learning to understand patterns of stock market fluctuations across different industries.

# PROFESSIONAL COMPETENCIES

- Data Engineering:** Scalable pipeline design • Data quality assurance • ETL/ELT workflows • Distributed computing • Cloud architecture • MLOps
- Impact & Communication:** Client-facing presentations • Stakeholder management • Translating technical complexity for non-technical audiences • Advisory mindset
- Leadership:** Scrum planning • Sprint facilitation • Team coordination • Mentoring • Project ownership • Competition winner
- Growth Mindset:** Resilience • Continuous learning • Intellectual curiosity • High-performance culture • Adaptability across 3 continents

# REFERENCES

**Georg Goertler** – Project Manager, Siemens Healthineers  
✉ [georg.goertler@siemens-healthineers.com](mailto:georg.goertler@siemens-healthineers.com)

“Available for a personal reference regarding: My contributions as a working student, data engineering and ML project delivery, cross-functional collaboration, and performance within the Siemens Healthineers team.”

**Dr. Stefano Signoriello** – Lead Data Scientist, Infoteam Software AG  
✉ [Stefano.Signoriello@infoteam.de](mailto:Stefano.Signoriello@infoteam.de) • [www.linkedin.com/in/dr-stefano-signoriello](https://www.linkedin.com/in/dr-stefano-signoriello)

“Reference regarding: My technical contributions to R&D and critical data infrastructure. Can attest to my rigorous engineering standards, expertise in complex data pipelines, and ability to handle high-stakes technical challenges with outstanding precision and endurance.”

**Iolanda Vehlo** – Assistant Professor, Universidade Lusófona  
✉ [iolandavelho@gmail.com](mailto:iolandavelho@gmail.com) • [www.linkedin.com/in/iolanda-velho-9a594a46](https://www.linkedin.com/in/iolanda-velho-9a594a46)

“Luke is one of my most outstanding students... clearly placing him among the top-tier Master’s students. Luke’s strong interest, combined with his solid programming skills, has contributed significantly to the success of his academic path. [He has] proven to be an outstanding student, delivering projects of a very high level.”

**Casey Bennett** – Associate Professor, Hanyang University & DePaul University  
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“Luke finished among the top 5% of students in both my Machine Learning and Data Science courses. He stood out for his creative contributions to classroom discussions, often relating abstract concepts to everyday life experiences. Luke demonstrated strong technical skills, excellent leadership in group projects, and has consistently gone above and beyond expectations. I believe he represents immense potential as a future data science professional.”