Tsvetan R. Yordanov

Research & Technology Engineer - AI In Medicine • Biostatistics • DevOps
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PROFILE

Research Engineer with 7+ years of experience spanning clinical research, machine learning (ML), and scalable software solutions. Proven track record translating business needs into production-ready systems. Experience with sensitive data in regulated environments, quality registries, natural language processing (NLP), and predictive performance validation. Hands-on engineering across cloud platforms, data pipelines and software ecosystems. Motivated by applying research-driven innovation to improve clinical and business outcomes.

CORE SKILLS

AI & Machine Learning	Deep learning (transformers , autoencoders, RNNs, CNNs, GNNs), LLM pipeline design & prompt engineering, NLP on clinical text, multimodal models, federated learning, recommender systems (PyTorch, TensorFlow, Hugging Face, scikit-learn, cuda, SLURM),
Data Science & Biostatistics	Predictive modelling, temporal & geographic validation, multicenter analysis, causality, subgroup discovery, clustering. Clinical trial data standards (CDISC SDTM/ADaM awareness)
Languages & Tools	Python (primary), R, Java, C++ , SQL, SAS (exposure), RESTful APIs. Familiar with clinical SAS-based workflows
Engineering & Cloud	Docker, Kubernetes, CI/CD (Jenkins, GitHub Actions). Azure, AWS. PostgreSQL, Oracle, MongoDB, PowerBI, ELK stack, Kafka, Git, SVN, NginX, Grandle, Maven, Apache Tomcat
Regulated Environments	GxP-aware development, FDA/PMDA compliance, 21 CFR Part 11 awareness, validated computing environments, cybersecurity (OWASP, penetration testing, server hardening)
Collaboration	Multidisciplinary teams (clinicians, statisticians, engineers, managers). Research-to-production translation. Agile & Six Sigma in academic and regulated settings

PROFESSIONAL EXPERIENCE

Research Engineer
Autumn 2025 – Present

Department of General Practice, Amsterdam UMC

- Hybrid role combining applied clinical AI research with infrastructure engineering for primary care data systems.
- Designing and maintaining reproducible ML pipelines for patient risk modelling on large-scale multimodal datasets.

PhD Researcher — Machine Learning in Cardiovascular Disease
Oct 2021 – Jan 2026

Amsterdam UMC / University of Amsterdam

- Developed and validated ML models for cardiovascular risk prediction, patient phenotyping, and clinical code completion using EHR, registry, and primary care data.
- Designed federated learning pipelines for privacy-preserving multi-centre model training — enabling cross-institutional collaboration without sharing patient data.
- Built NLP and deep learning systems for clinical text mining and multimodal modelling (structured + unstructured, static + longitudinal data).

- Published seven peer-reviewed papers (on six of which was first author) including oral presentations at AIME and MIE conferences .

Software Engineer (part-time, concurrent with PhD) Oct 2021 – May 2022
Amsterdam UMC

- Delivered a physician-facing clinical decision support web portal integrating for treatment planning.

DevOps Engineer Nov 2018 – Aug 2019
Flowable – Mimacom

- Built and maintained cloud-native ETL pipelines and microservices infrastructure supporting enterprise workflow automation across distributed systems.

Technology Analyst Sep 2015 – Nov 2018
JPMorgan Chase & Co.

- Delivered backend systems for Asset Management, Investment Banking, and firmwide forecasting under strict regulatory and data governance constraints.
- Partook in cybersecurity and IoT projects; mentored junior analysts.

DevOps Engineer — Clinical Trial Automation May 2013 – Aug 2015
Formedix

- Developed automation software for clinical trial registration and regulatory submission, compliant with FDA (21 CFR Part 11) and PMDA standards. Worked with CDISC-aligned data structures (ODM, define.xml).

Built and maintained CI/CD infrastructure (Docker, Jenkins) supporting validated software releases.

EDUCATION

PhD, Medical Informatics 2021 – 2026
Amsterdam UMC / University of Amsterdam

Thesis: Machine Learning in Cardiovascular Disease: Modelling, Prediction, and Phenotyping. Defence scheduled June 2026.

MSc, Medical Informatics (Grade: 8.56/10) 2019 – 2021
University of Amsterdam

Thesis: Performance of a Multicenter TAVI Mortality Prediction Model.

BSc, Computing Science (Grade: A3 ≈ 4.0 GPA) 2011 – 2015
University of Glasgow

SELECTED PUBLICATIONS

- **Federated learning for cardiovascular risk prediction.** Frontiers in Cardiovascular Medicine, 2024. doi:10.3389/fcvm.2024.1399138
- **Deep learning for clinical code completion in ICU patients.** Oral presentation, AIME 2023. doi:10.1007/978-3-031-34344-5_8
- **Medication recommender systems.** Oral presentation, MIE 2025. doi:10.3233/shti250621
- **Geographic validation of prediction models for minimally invasive heart surgery.** J Clinical Epidemiology, 2023. doi:10.1016/j.jclinepi.2023.02.021
- **Sex differences and temporal trends after TAVI — nationwide registry study (featured).** Netherlands Heart J, 2026. doi:10.1007/s12471-025-02006-6