



Alexander Schilling

Worms, Germany • mail@alexanderschilling.de • +49 162 429 7183
alexanderschilling.de • github.com/schillingalex



Summary

Machine learning researcher and software engineer with over 10 years of development experience across scientific computing, mobile applications, web systems, and data-intensive research. PhD candidate working on proton therapy range verification using Python, PyTorch, Monte Carlo simulation, and detector data. Experienced university lecturer and technical team lead.

Work Experience

PHD CANDIDATE | APRIL 2021-PRESENT

University of Applied Sciences Worms, Germany & RPTU University Kaiserslautern-Landau, Germany

- ▶ Conduct research on in-situ proton therapy range verification using machine learning with [Python](#), [scikit-learn](#), and [PyTorch](#).
- ▶ Develop an extensive [GATE/Geant4](#)-based Monte Carlo simulation framework for particle therapy and proton computed tomography.
- ▶ Apply [data science and analytics](#) techniques to extract insights and drive decision-making, including advanced [data visualization](#).
- ▶ Teach the foundations of machine learning in lectures and practical exercises.

SOFTWARE DEVELOPER | JUNE 2019-MARCH 2021

TST IT Management GmbH, Worms, Germany

- ▶ Developed Windows-based scanner software with [C# .NET Compact Framework](#).
- ▶ Designed and developed an Android-based scanner software with [C# and Xamarin](#).
- ▶ Developed an [SQL Server](#) backend for a warehouse management system with [T-SQL](#).
- ▶ Supervised interns and onboarded new developers.

TECHNICAL CONSULTANT | FEBRUARY 2017-MAY 2019

Bright Solutions GmbH, Darmstadt, Germany

- ▶ Implemented applications from supplied concepts and designs for [iOS with Swift](#).
- ▶ Developed websites with [PHP and Drupal](#).
- ▶ Advised customers on technical requirements and implementation decisions.

LEAD DEVELOPER AND CTO | MAY 2015-APRIL 2017

SpaceBoard, Le Kremlin-Bicêtre, France

- ▶ Led development of the platform using [PHP and Symfony](#).
- ▶ Defined technical architecture and made key technology decisions.
- ▶ Recruited and onboarded developers.

SOFTWARE DEVELOPER | DECEMBER 2012-MARCH 2015

deVision coding GmbH, Offenbach, Germany

- ▶ Developed concepts for iOS applications.
- ▶ Implemented iOS applications using [Objective-C and Swift](#).
- ▶ Presented project results and technical solutions to customers.

Education

TECHNICAL UNIVERSITY OF DARMSTADT, GERMANY | APRIL 2016-MAY 2019

Master of Science, [Internet- and Web-based Systems](#)

TECHNICAL UNIVERSITY OF DARMSTADT, GERMANY | OCTOBER 2012-MARCH 2016

Bachelor of Science, [Computer Science](#)

Teaching Experience

LECTURE WEEK NEXT GENERATION PARTICLE DETECTORS, 2024, UNIVERSITY OF BERGEN, NORWAY

- 5-day workshop, [hands-on machine learning for physics applications](#)

IGRAM LECTURE WEEK, 2023, UNIVERSITY OF BERGEN, NORWAY

- 5-day workshop, [machine learning and clean code for physicists](#)

LECTURE MACHINE LEARNING, UNIVERSITY OF APPLIED SCIENCES WORMS, GERMANY

- 4 semesters of lectures and practical exercises, 6 ECTS, [foundations of machine learning](#)

Publications

A. Schilling et al., [Modeling charge collection in silicon pixel detectors for proton therapy applications](#). Biomedical Physics & Engineering Express 11, 2025, DOI: [10/p4gn](#)

A. Schilling et al., [Uncertainty-aware Spot Rejection Rate as Quality Metric for Proton Therapy Using a Digital Tracking Calorimeter](#). Physics in Medicine & Biology 68, 2023, DOI: [10/k29s](#)

A. Schilling et al., [Evaluation of a Digital Tracking Calorimeter for In-Situ Range Verification during Particle Therapy](#). IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), Milan, Italy, 2022, DOI: [10/mjcx](#)

Skills

Machine Learning & Data	Python, PyTorch, scikit-learn, pandas, NumPy, data visualization
Scientific Computing	C/C++, GATE/Geant4, Monte Carlo simulation
Software Development	C#/.NET, SQL Server, T-SQL, PHP, Swift
Practices	Git, Docker, CI/CD, testing, clean code, Scrum
AI-assisted Work	LLM-assisted coding, agentic workflows, MCP integrations

Languages

GERMAN	Native
ENGLISH	Fluent (Cambridge Certificate in Advanced English)