Mehdi Daanoune

Senior R&D Data Science Modeling & Simulation

Grenoble, France
39 years old
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About me

I develop practical solutions from complex data and models, automating routine tasks with dashboards and predictive tools. With experience in both physics and data science, I specialize in deploying ML models and bridging the gap between technical teams and subject matter experts. I value collaboration and impactful knowledge sharing to ensure solutions are both robust and aligned with business needs.

Skills

— **Programmation** : Python (NumPy, Pandas, SciPy etc..)
— **Machine Learning** : scikit-learn, PyTorch, TensorFlow/Keras
— **Modelisation/Simulation** : FDTD / RCWA (Rsoft), Silvaco TCAD, analytical modeling
— **Databases** : SQL, SQLite, DuckDB
— **Dashboards / deployment** : FastAPI, Gradio, PyQt5, Streamlit, Dash
— **Data Visualization** : Matplotlib, Seaborn, Plotly
— **CI/CD & Conteneurisation** : Docker, Dagger

Experience

Mar 2018 – Present **Senior R&D Engineer**, *Aledia*, Grenoble
— Enhanced simulation accuracy with data-driven predictive modeling.
— Pixel design (optics and electronics).
— Developed automated data processing workflows and interactive dashboards.
— Integrated machine learning tools for semiconductor device modeling and optimization.
— Deliver 1–2 popular science presentations annually on photonic crystals, optics, band diagrams, and machine learning.
— Authored 13+ granted patents in photonic devices, semiconductor process optimization, and data-driven modeling.

Jan 2016 – Mar 2018 **Postdoctoral Researcher**, *Laboratoire Hubert Curien*, Saint Etienne
— Optimized algorithms for silicon photonics.
— Generation of large simulation dataset to correlate the model.
— Performed modeling for device performance analysis.
— 2 peer-reviewed publications.

Education

Oct 2011 – Feb 2015 **PhD in Characterization, Analysis and Simulation**, *École Doctorale EEATS, Grenoble INP / IMEP-LAHC*
— Multi-technique characterization
— TCAD modeling (Silvaco Atlas)
— 4 peer-reviewed publications

2010 – 2011 **Master 2 Energy Physics**, *Grenoble INP-UGA*

2009 – 2010 **Master 1 Physics**, *Grenoble Joseph Fourier*

2007 – 2009 **Licence Physics**, *Université de Picardie Jules Verne*

Languages

Français/French (natif), English (fluent professional proficiency)

Personal Interests

— Music : learning electric guitar
— Strategy and logic games (Board games and video games)
— Contemporary Japanese culture