YAIR REICHMAN

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Data Scientist | ML & DL | Data & Automation Engineer | Computational Materials & Simulation

PROFESSIONAL SUMMARY

Applied engineer and data scientist with 4 years of industrial R&D experience and a **Technion M.Sc.** in computational materials engineering. I build **physics-based models** and **numerical simulations** of multidisciplinary systems, analyze process data, apply **machine learning**, and develop software used on production lines. Training in chemistry and scientific research helps me understand the processes behind the numbers.

EXPERIENCE

H_2Pro | A Renewable-Energy Startup

Oct 2022 – Present

Data & Automation Engineer

Jan 2024 – Present

- **Software & automation:** built internal **Python software** for an electrolyzer manufacturing line (multithreaded PyQt desktop apps for monitoring and data acquisition, a database-to-PLC data-loading service, and a full-stack **manufacturing execution system**).
- **Agentic development:** designed an **AI-assisted engineering workflow** (Claude Code, Codex) with codebase-expert agents for feature planning and issue diagnosis, and automated regression reviews before merges; used daily across these systems.
- **Data & analytics:** built traceability schemas, **SQL/Python data pipelines** (including PLC-to-SQL Server ingestion), and Dash/PyQt **dashboards** for KPI analysis across R&D & Ops, with data-quality checks on production data.
- **Applied ML & GenAI:** built a **deep-learning PoC** (dataset assembly, model training, evaluation) to screen candidate alloys for electrode materials, and an in-house **GenAI prototype** that converts free-text questions into SQL and visualizations.
- **Optimization:** built and delivered to Operations a **decision-support tool** that finds the optimal operating sequence for a target function under pre-configured constraints (mixed-integer nonlinear optimization, GEKKO).

Simulation Engineer

Oct 2022 – Jan 2024

- Built **physics-based models** of electrolyzer behavior (electrochemical, hydraulic, thermal, mass/energy balances) in MATLAB and Simulink/Simscape, and a **kinetic Monte Carlo** simulation of an anode-material phase transition.
- **Validated simulations** against experimental measurements and tuned model parameters to study system sensitivities and operating constraints.

Technion | M.Sc Researcher

Oct 2020 – Oct 2022

- Studied charge transport across lattice-mismatched semiconductor heterointerfaces using **quantum-mechanical materials modeling** (VASP) and a custom **Python numerical simulation** (split-step FFT wave-packet propagation).
- Derived relationships linking interface-potential shape to electron transmission, without full device-scale simulation.

EDUCATION

Technion | M.Sc., Computational Materials Engineering & Science

Oct 2020 – Oct 2022

- Thesis: *Charge Transport Dynamics across Lattice-Mismatched Interfaces in Binary Semiconductor Heterostructures.* Supervisor: Prof. Maytal Caspary Toroker.
- First-author publication: Reichman, Y. & Caspary Toroker, M., *A Numeric Approach for Investigating Electron Dynamics in Zinc-Blende Semiconductor Heterostructures,* Advanced Theory and Simulations (Wiley-VCH), 2023. DOI: 10.1002/adts.202300155.

Technion | B.Sc., Chemistry & Materials Engineering

Oct 2017 – Oct 2020

- KLA-Tencor scholarship for academic excellence
- Dean's list academic excellence
- GPA: 87

CERTIFICATIONS

Nebius Academy Israel (formerly YData) | Data Science Program

Oct 2024 – Aug 2025

- Intensive program covering statistics, classical ML and pipelines, deep learning (vision + NLP), and GenAI; capstone: a reproducible PyTorch pipeline benchmarking deep-learning and gradient-boosting models for materials-property prediction (small-dataset benchmark study).

SKILLS

- Programming/Data: Python (NumPy, Pandas, SciPy, scikit-learn), SQL (SQL Server, Azure SQL), MATLAB, Excel (incl. VBA)
- ML/Deep Learning: ML pipelines, PyTorch, XGBoost/LightGBM, feature engineering, model evaluation & benchmarking; computer vision, NLP; GenAI (prompt engineering)
- Modeling/Simulation: Simulink/Simscape, quantum-mechanical materials modeling (DFT, VASP, pymatgen), numerical simulation, Monte Carlo, model calibration, mathematical optimization (MINLP, GEKKO)
- AI-Assisted Development: Claude Code, Codex, agentic workflows
- Software/Tools: PyQt, Plotly Dash/Streamlit, Grafana, Git/GitHub, GitHub Actions CI/CD, Azure (App Service, SQL), PyInstaller

LANGUAGES

Hebrew – Native speaker

English – Excellent