Pie de Boer
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Homepage

Skills

Programming Languages

- </> Python
- </> Java
- </> MATLAB
- </> C++
- </> SQL
- </> R
- </> Clojure
- </> Prolog
- </> Bash
- </> HTML/CSS

Frameworks & Libraries

- **Python**: TensorFlow, PyTorch, Scikit-Learn Notebook, MatplotLib, Seaborn, Scipy, Librosa, TQDM
- **Java**: Gradle, Maven, Deep4j, JavaSound API, TarsosDSP, LibGDX, RestAPI, Swing, AWT, JavaFX, Spring
- **MATLAB**: DSP System Toolbox, Signal Processing, Statistics and Machine Learning Toolbox, Deep Learning Toolbox, YALMIP
- **C++**: Arduino, OpenCV
- **SQL**: MySQL, SQLAlchemy, JDBC
- **Web Ontology**: OWL, Protege

Tools & Technologies

- Google Cloud (with Headless UNIX)
- Version Control: Git, GitHub
- MS Office: PowerPoint, Excel, Word
- Reporting: LaTeX
- Command Line Tools: Micro, Homebrew

Operating Systems

- Linux (Headless/WSL)
- macOS
- Windows 10

Knowledge & Expertise

Mathematics

- Discrete Mathematics: Logic, Graph Theory, Discrete Structures
- Calculus, Linear Algebra, Mathematical Modelling
- (Non) Linear Optimization
- Numerical Mathematics (ODEs)

Computer Science

- Data Structures and Algorithms
- Theoretical Computer Science (Complexity, Turing Machines)
- Software Engineering (Design Patterns, Scrum, Agile)
- Quantum Computing

Machine Learning & AI

- Machine Learning (and Deep Learning)
- Recommender Systems
- Data Analysis
- Statistical Analysis (A/B Testing, ANOVA)

Signal Processing

- Image and Video Processing (Face Recognition, Face Detection, Filters, Motion Recognition)
- Audio Processing (Filters, FFT, Speaker ID, Speech Recognition)

Programming & Development

- Game Engine Programming (Agents AI, Physics)
- Object-Oriented Programming
- Human-Computer Interaction (Figma)

Technology & Systems

- Computer Security
- Cloud Computing
- Databases
- Robotics (PID Control, CPG Control)
- Semantic Web and Knowledge Representation

Science

- Physics (Mechanics, Electromagnetism, Quantum)
- Chemistry (Physical, Organic, Inorganic, Analytical)

Experience

Rabobank — 2023 - 2024

- Portfolio Optimization using Quantum Hardware.
- Implemented Non-Linear Programming solution (MLP) using D-Wave API (Python).
- Improved run-times and provided optimized solutions for the client.

Mathematics Tutor — 2019 - 2023

- Tutored students in Algebra, Geometry, (Pre) Calculus, and Statistics.
- Specialized in preparing final exam students for academic success.

Music Producer and DJ — 2012 - Present

- Performed alongside artists like Lukas & Steve, Dam Swindle, and Mendel.
- Played at events such as Pride 2023 (Amsterdam), HOTLINE (Maastricht), and Park City Live (Heerlen).

Education

Data Science and Artificial Intelligence

Maastricht University, Maastricht — 2021 - 2024
Completed (180 ECTS)

- Thesis: *Conditional Diffusion Models for ECG Signal Denoising* (8.5/10.0)
- Developed a state-of-the-art approach to denoise ECG signals.
- Trained models using Google Cloud and PyTorch.
- Achieved better performance than traditional signal processing methods found in MATLAB.

GPA: 8.28/10.0

Chemistry

Utrecht University, Utrecht — 2016 - 2017
Completed first year (60 ECTS)

VWO - Atheneum

Bonnefantencollege HAVO/VWO, Maastricht — 2009 - 2016
Profile: Nature & Technology and Nature & Health

Languages

- Dutch (Native)
- English (C1)
- German (B2)