TOON WEYENS

EU · +31 615 09 80 82 · WEYENST@GMAIL.COM

I connect people to ideas, to solutions and to each other to help them solve their problems.

Contact me for top quality complex customer-facing data science and engineering GTM work

▼ My story started with the study of energy engineering in multiple countries. This taught me how to act like an engineer.

Afterwards, I took a deep dive into the physics of nuclear fusion, the most promising source of energy for the future. This taught me how to think like a scientist. It also resulted in a Ph.D. degree, and a postdoctoral Monaco Fellowship to perform research at the outstanding ITER Organization.

To satisfy my inner mathematician, without losing sight of what drives me, I finally redirected my career towards Data Science and Artificial Intelligence. This taught me how to integrate, communicate and operate like a project manager.

I now enjoy applying my cross-domain knowledge and competencies at DataRobot that we are building into world's leading AI company.

Values:	Meaningful work | meaningful relationships | radical truth and transparency | explore and overcome weaknesses | ownership | excellence
Abilities:	Curiosity | empathic and communicative | scientific and analytical | multicultural | proactive

Nationality:	Belgian
Date of birth:	1987

EXPERIENCE

Oct '21 - Current **Customer Facing Data Scientist**

DataRobot

- I connect prospective enterprise Data Science customers to the DataRobot platform so they can achieve their goals. The focus is on the enabling technology within the framework of business relevance.
- My responsibilities include
  - Drive incremental revenue through creation and maintenance of technical and business relationships with large **complex sales opportunities**
  - Identify client business issues and connect them to technical capabilities of the DataRobot platform as well as partnership opportunities through **consultative approach**

    - Manage **communication and internal cooperation** of DataRobot resources to drive team success
    - Deliver unequivocal **proof of the value** of DataRobot through guided PoVs directly connected to higher level business outcomes
    - Serve as **trusted partner** for Data Science journeys our customers are going through
- DataRobot is the AI Cloud leader, delivering a unified platform for all users, all data types, and all environments to accelerate delivery of AI to production for every organization. DataRobot enables organizations to leverage the transformational power of AI by delivering the world's only AI Cloud platform combined with an AI-native strategic success team to help customers rapidly turn data into value. DataRobot is trusted by global customers across industries and verticals, including a third of the Fortune 50, delivering over a trillion predictions for leading companies around the world.

Jan '19 - Aug '21 **Industrial Data Science Consultant**

MathWorks

- Use technical credibility to assist industry and research institutes with broad adoption of MathWorks products, work in team to connect to relevant groups in their and our organizations
- Responsibilities:
    - **Deep engagements**: Collaborate with strategic enterprise customers to design and subsequently coordinate creation of modern server-based Data Science & engineering platforms with browser-based access and predefined connectivity to data streams & CI/CD pipelines
    - **Technical advisor**: Guide MathWorks customers and connect internal and external resources
    - **Internal expertise**: Provide colleagues with expertise and tutoring in newer areas
    - **MathWorks product champion**: public speaking, organization of industry or product-specific seminars, webinars and workshops (e.g. our 4 part Series on Deep Learning with MATLAB)
- Areas of expertise: Data Science, Internet of Things, Parallel and Cloud Computing (AWS & Kubernetes certified), High-Performance Computing, Enterprise Integration, Mathematical and Computational Physics

Jan '17 - Dec '18 **Postdoctoral Monaco Fellow**

ITER Organization

- Produced multiple first-author publications in quality peer-reviewed journals
- Responsible for investigation of 3-D effects on Edge-Localized Modes (ELM) stability
- Located at multi-billion dollar ITER project, one of world's biggest scientific projects
- Using numerical code PB3D, developed as part of my Ph.D. project (see below)

EDUCATION

Jan '12 - Dec '16 **Ph.D.**

Universidad Carlos III de Madrid · Eindhoven University of Technology · ITER Organization

- Produced multiple first-author publications in quality peer-reviewed journals
- Designed research project to improve understanding of *high-n* instabilities

- Important class of instabilities in toroidal magnetic confinement devices for nuclear fusion
- Developed dedicated mathematical theory [Weyens et al, 2014, P.o.P, 21, 4]
- Designed optimized numerical code, PB3D [Weyens et al, 2017, J.c.P, 330]
- Used modern Fortran, High-Performance Parallel Computing (HPC) techniques

Sep '10 - Aug '12 **Master of Science - Nuclear Fusion Science & Technology**

Ghent University · Universidad Carlos III de Madrid · Université de Lorraine

- European program in the Erasmus Mundus framework.
- Fusion Engineering & Fusion Science
- Focus on culture and language

Graduated top 5%

Sep '08 - Aug '10 **Master of Science - Energy Engineering**

University of Leuven · Technische Universität Berlin (exchange)

- Multidisciplinary curriculum
- Strong ties to industry
- (Thermo-)Mechanical & Electrical engineering
- Focus on economical aspects of energy
- Personal experience: exchange in TU Berlin for first half of curriculum

Graduated top 15%

December '18 **Online Course - Computability, Complexity & Algorithms**

*Udacity advanced, by Georgia Institute of Technology

- Languages, countability & Turing Machines
- Complexity: P & NP
- Algorithms: dynamic programming, FFT, maximum flow

October '18 **Online Course - Bayesian Methods for Machine Learning** (part of Advanced Machine Learning)

Coursera advanced, by Higher School of Economics Moscow

- Expectation-Maximization (EM) algorithm
- Variational Inference & Latent Dirichlet Allocation
- Markov chain Monte Carlo
- Variational Autoencoder
- Gaussian processes & Bayesian optimization
- PyMC3, GPy, GPyOpt

Graduated with honors

certificate: link

May '18 **Online Specialization - Deep Learning**

Coursera intermediate, by Andrew Ng

- Deep learning foundations by master educator Andrew Ng
- Convolutional neural networks
- Sequence models: RNN, (Bi)LSTM, GRU
- Optimizers: Stochastic, Adam, AdaMax
- Overfitting: dropout, BatchNorm
- TensorFlow & Keras

certificate: link

May '14 **Summer School - 23rd Summer School on Parallel Computing**

CINECA, Casalecchio Di Reno

- 10 day intense graduate HPC course
- Modern parallel computing systems for computation
- HPC introduction, parallel architectures, MPI & OpenMP
- Profilers & debuggers

PROJECTS

Jan '13 - Current **PB3D**

Peeling-**B**allooning in **3**-**D**

- Part of doctoral research project
- Modern Fortran code capable of efficiently analyzing peeling-ballooning stability of toroidal magnetic confinement devices
- Essential for stable containment nuclear fusion
- Freely available and well-documented

for experts:

- Mathematical minimization of functional, leading to generalized eigenvalue equation
- *high-n* instabilities easily excited by extreme temperature and pressure gradients from plasma (150 million °C) to the cold reactor walls (−260.8 °C)
- General 3-D configurations, perturbed plasma edge [Weyens et al, 2017, J.c.P, 330]
- Postdoctoral research: investigate 3-D effects
  - resonant magnetic perturbations for ELM control (RMP)
  - toroidal field coil (TF) ripple

website: PB3D.github.io

source: GitHub

Feb '18 - Current **Pylgrim**

Elementary Shortest Path Problem with or without Resource Constraint

- Python & C++ implementations of promising algorithms for Elementary Shortest Path Problem (ESPP)
- From recent publications, to benchmark and learn - currently:
  - [Di Puglia Pugliese et all, 2016, Comput Optim Appl, 63]
  - [Boland et all, 2006, Oper Res Lett]
- problem is NP-hard, so efficient solution is interesting mathematical and computational problem

website: GitHub

Jan '18 - Current **Kraemer**

High-frequency crypto automated arbitrage trader

- Co-creator
- Collaborative Python-based project drawing from multiple areas of expertise
- Based on computational sciences & mathematical and physical knowledge
- Supported by state-of-the-art cryptocurrency financial modelling & deep learning strategies

Oct '18

Facial Composits: Finding the Suspect

Capstone project for Bayesian Methods for Machine Learning

- Helps you with getting face of suspect in crime by generating faces
- Employed variational autoencoder in Keras and TensorFlow to generate face images
- Combined with Gaussian Process Optimization through GpyOpt
- Interacts with you through simple binary *yes*/*no* questions
- Optimized program to require minimal amount of interaction

SKILLS

Languages

English	★★★★★
Dutch	★★★★★
Spanish	★★★★★
French	★★★★☆
German	★★★★☆
Portuguese	★★★☆☆
Italian	★★☆☆☆

Communication

- **Audience Focused Presentation** · TU/e doctoral training course
- **Write to the Top** · Julia Bindmans' course on customer-oriented writing skills
- **Insight Selling** · Michael David Harris' story-telling approach to selling

Computer

- **Linux** · used as preferred operating system
- **vim** · used as preferred editor
- **html, CSS** · used for this curriculum vitae (with markdown → Pandoc)
- **git** · standard tool for collaborative version control
- **AWS** · solution architect associate certified (Associate), **Azure** · some experience
- **K8S** · certified Kubernetes Application developer (CKAD)
- **Domino Data Lab** · experience with enterprise MLOps platform
- **ParaView, VisIt** · used as 3-D visualization tools, combined with HDF5 and XDMF
- **HDF5 with XDMF** · used as performant parallel data model for HPC simulations, both for storage and for visualization
- **Apache Hadoop, Spark** · in process of educating myself on de-facto Big Data though still limited practical experience in the form of explorative projects
- **SurfSara** · example of multiple HPC Science Gateways I worked with for scientific research
- **Microsoft Office** & relatives · enterprise collaboration tools
- **SalesForce** · used for Customer Relationship Management (CRM)

Programming

- **MATLAB** · used as powerful toolset for engineers and scientists with full workflow experience, with expertise in Parallel and Cloud Computing, Continuous Integration & Version Control, Deployment, WebApps, ...
- **Fortran** · used as de-facto language for Nuclear Fusion HPC application, such as PB3D
- **Python** · used for side projects, through numpy, scipy, pandas, cython, aioprocessing, ...
- **R** · used for ad-hoc data analysis
- **C++** · used for side projects, especially useful paired with the BOOST library
- **Java** · limited experience, used during studies
- **TensorFlow**, **Keras** · used for education in Deep Learning

- **PyMC3**, **GPy**, **GPyOpt** · used for Bayesian Machine Learning
- **MPI**, **OpenMP** · used extensively for parallelization with HPC work
- **PBS Torque**, **SLURM** · job managers used for cluster computing
- **jupyter notebooks** · used for exploratory programming
- **Bash**, **Make, ...** · experience with linux scripting and development
- **SQL, yaml** · used in side-projects as simple database solutions
- **LaTeX**, **LuaTeX** · extensive experience formatting large documents (e.g. Ph.D. dissertation)

Other

- **Fusion DC** 2016 Program Representative
- **TGD Solutions** board member

AWARDS, SCHOLARSHIPS & GRANTS

2012-2016 **Doctoral Scholarship**

Universidad Carlos III de Madrid, *CINECA*

PIF scholarship for four years, summer school funding

2017 **Ph.D. Research Award**

European Physical Society

The Plasma Physics Division of the European Physical Society (EPS) shall grant up to four prizes annually to young scientists from the 38 European countries associated with the EPS in recognition of truly outstanding research achievements associated with their PhD study in the broad field of plasma physics

website: EPS

2019 **Monaco/ITER postdoctoral Fellowship**

Principality of Monaco

The Monaco/ITER Postdoctoral Fellowship Program allows young researchers to participate in one of the great scientific and technical challenges of the 21st century and to work closely with leading experts in fusion science and technology within a unique international setting. The principal motivation of the research fellowships is the development of excellence in research in fusion science and technology within the ITER framework. Brilliance and creativity, together with understanding of the relevance of the individual research interests to the ITER Project, are a key requirement.

website: ITER

2019 **PyTorch Scholarship Challenge**

Facebook

10k recipients selected worldwide to start using PyTorch for deep learning

website: Udacity

Utrecht, Netherlands · +32 494 39 92 19 · weyenst@gmail.com

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