Fons van der Plas

Educational Technology Consultant
Massachusetts Institute of Technology

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Work Experience

Educational Technology Consultant
Jun 2020 – present

Massachusetts Institute of Technology — Cambridge, USA / remote

Co-developed the open online course Computational Thinking based on my platform Pluto.jl. Developed lecture materials, homeworks in tandem with a new programming environment and publishing platform.

- Enabled students worldwide to learn numerical mathematics, data science and modeling in a highly engaging way.
- Lecture videos have **2.1 million views** on YouTube, lecture notebooks have **800k visits** yearly.

Founder and lead developer
Feb 2020 – present

Pluto.jl Ecosystem — Worldwide

Lead developer of Pluto.jl, a popular free open source project to make scientific computing more accessible and interactive. The Pluto.jl notebook IDE is widely used, and sees **96 hours of active use per hour**.

- Initiator and lead organizer of the 2-day PlutoCon 2021 conference, hosting 21 speakers, 29 interactive posters (notebooks) with 42K views online.
- Collected over $25,000 in OSS grants, paid out to 7 contributors and infrastructure.
- Reviewed 942 pull requests from 117 contributors.
- Widely recongized as industry leading interactive scientific computing environment. **#1 most starred** Julia package.

Interactive Tools Consultant
Sep 2021 – Jun 2022

Julia Computing, Inc. — Cambridge, USA / remote

Using my experience in Julia-specific Programmer Experience (PX) design to create specialized **app-building tools**, deployed on air-gapped cloud platforms.

- Enabled scientists with no prior developer experience to design and deploy interactive data apps.
- Led a team of 3 in development of low-code scientific tooling.

Work Group Supervisor
Jan 2016 – Aug 2019

Technisch Creatief Centrum — Nijmegen, NL

Teaching art, crafts and programming to children aged 10-16. Designed a new curriculum based on Scratch and MicroBit.

Teaching Assistant
Jan 2017 – Feb 2019

Radboud University — Nijmegen, NL

Taught exercise classes and graded homework for **6 courses** totaling 63 weeks in Mathematics and Astronomy.

- Senior TA for *Introduction to Mathematics*, wrote exam questions, exercise solutions, and gave supplemental lectures, earning the **Faculty Award for teaching**.

Education

(unfinished) MSc Computer Simulations for Science and Engineering
2019 – 2020

TU Berlin — Berlin, DE

Joint master's program in **mathematical modeling**, numerical analysis, computer science, high-performance computing and visualization. Did not finish because I founded and worked full-time on Pluto.jl.

BSc Mathematics
2015 – 2019

Radboud University Nijmegen — Nijmegen, NL

Graduated **cum laude** (GPA: 8.9/10) with 220 EC.

- Bachelor thesis combined probability theory and algebraic graph theory with classical electric power systems modeling to analyze the effect of fluctuating renewable energy sources on failures in Germany's power grid (grade: 9.0/10).

Study exchange
2018

Université Paris Diderot — Paris, FR

21 EC in Mathematics courses, taught in French (GPA: 9.2/10).

Open Source Projects

PlutoTurtles.jl	A very simple to learn drawing package for Julia, based on Logo. Turtle drawings can be played in an animation, highlighting lines of Julia code that control the current step. A collection of sample notebooks teaches Julia fundamentals.	2024
featured	Curated collection of 35 **beginner-friendly notebooks** from 11 authors, hosted interactively online. Featured notebooks became a new entry point for Julia beginners, and are now listed on julialang.org/learning.	2023
Pluto.jl	A reactive notebook IDE, based on **metaprogramming and graph theory** with a custom frontend. The Julia–JS link is among the most stable and flexible in the ecosystem. Provides an intuitive interface using CodeMirror-based frontend. Extensively tested package manager integration led to ground-breaking reliability and reproducibility in educational content.	2020
printi	An open source, public, RESTful API and web server that allows anyone to turn a thermal receipt printer into a web-enabled (IoT) photo printer. Reverse engineered a printer driver; the custom driver is faster than the factory default. Written in C#, Python, JS, and C.	2018
resim	A real-time, interactive **simulation of various relativistic effects** (e.g., Doppler, light aberration, time dilation, and a software event horizon). Produced best-in-class visuals with high performance. Written in C# with OpenGL.	2016
eisinga	A handheld device that identifies star constellations using accelerometer/magnetometer readings. **Designed, printed, and assembled a PCB**. Designed in EAGLE, written in C++.	2015

Achievements

#1 starred	Julia package (5k GitHub stars)	2024
Keynote Speaker	at JuliaCon local Eindhoven	2023
Community Prize	Julia Community Prize	2021
155K views	of my lectures and talks on YouTube	
#1 watched	talk at JuliaCon 2020 (46K views)	2020
Interviewed	for publications on Pluto.jl in LWN.net and Nature	2020
Student Rep.	during restructuring of the first-year curriculum	2018
Faculty Award	for my supplemental lectures on *Introduction to Mathematics*	2017
≥100 solved	Project Euler Problems	2016
9th place	Dutch Mathematics Olympiad	2014
13th place	Dutch Physics Olympiad	2014

Software Skills

Expert	Julia, JavaScript
Proficient	React, immer, d3, CodeMirror, TypeScript, puppeteer, HTTP, GitHub Actions, Python (SciPy), C#, Java, MatLab, R, C++, LaTeX, Haskell, git, Docker, Adobe Flash, Arduino, EAGLE, LabVIEW, ffmpeg
Effective	Clojure, Prolog, PHP, SQL, Lua, NetCDF, CUPS, CAD, F#, Mathematica

Talks

✉ = on invitation, 🪑 = poster, 🎓 = lecture

JuliaCon Eindhoven, NL	🪑 Pluto.jl – is scientific computing accessible?	2024
WIAS institute Berlin, DE	✉ Julia and Pluto.jl – is scientific computing accessible?	2024
Ghent University, BE	✉ Julia doctoral school bonus lecture	2024
JuliaCon Local Eindhoven, NL	✉ (keynote) Pluto.jl – making scientific computing accessible and fun!	2023
JupyterCon Paris, FR	Pluto.jl – reactive and reproducible notebooks for Julia	2023
Netherlands eScience Center	✉ Julia for HPC – reproducible and interactive	2022
JuliaCon	Pluto.jl — one year later	2021
JuliaCon	Open and interactive Computational Thinking	2021
Computational Thinking	🎓 Modeling climate change	2021
Computational Thinking	🎓 How to collaborate on software	2021
PlutoCon	JavaScript inside notebooks	2021
PlutoCon	Built-in package management in Pluto.jl	2021
PlutoCon	PlutoSliderServer.jl – notebooks as interactive websites	2021
Computational Thinking	🎓 Functions are objects	2020
Computational Thinking	🎓 How to install Pluto.jl	2020
JuliaCon	Pluto.jl – interactive notebooks	2020