



Paul Berg

paul@ber.gp

ber.gp

GitHub

Scholar

About

I am a researcher currently looking for an opportunity to solve challenging problems.

I have experiences designing theoretical computer vision systems as well as carrying out more applied projects in remote sensing or medical imaging.

Education

Engineering Degree in Computer Science (Data Science minor)

Université de Technologie de Compiègne (UTC), Compiègne
Sep. 2016 - Aug. 2021

Erasmus Semester in Software Engineering

Technische Universität (TU), Graz, Austria
Feb. 2018 - June. 2018

Skills

Python	Pytorch, matplotlib, Polars, numpy
JuliaLang	Pluto, IRTools, Editor support
JavaScript	React, node, Typescript
Web	HTML, CSS
Compilers	MLIR, C++
Others	Git, Rust, Zig, bash, slurm, linux

Languages

French	Native
English	Fluent, 980/990 TOEIC
German	Basic, A2

Experiences

Postdoctoral Researcher

Bern University of Applied Sciences (BFH), Bienne, Switzerland
Since Jan. 2025

Researched the use of geostationary satellite images for short-term forecasting of weather data using machine learning methods. The main application is being able to predict at in a very short time frame the production of solar farms.

PhD in Representation Learning for Remote Sensing

IRISA, Université de Bretagne Sud, Vannes
Nov. 2021 - Dec. 2024

Studied the field of representation learning with applications to remote sensing images supervised by [Minh-Tan Pham](#) and [Nicolas Courty](#). Researched applications of optimal transport theory for self-supervised learning. Results were published in international conferences and journals.
Teaching assistant in a master course in Deep Learning with [Nicolas Courty](#) and [Olivier Grisel](#) and taught practicals in SQL databases.

JuliaLang Open Source Contributor

Online
Since Sep. 2020

Maintained and developped core features to the notebook system [Pluto.jl](#) which is being used in institutions such as MIT or Nasa. I also contributed bug fixes and features to core packages of the ecosystem.
I was a mentor during [Google Summer of Code 2022](#), which resulted in the developpment of a new package which has been successfully adopted in the ecosystem.

Computer Vision Research Intern

IRISA, Université de Bretagne Sud, Vannes
Feb. 2021 - Aug. 2021

Joined an ongoing [research project](#) and developped a weakly supervised method for marine mammal detection which has since been published.

Freelance Web Developer

Freelance, Compiègne
Sep. 2018 - Feb. 2020

Developped a custom solution for an online catalog and bill estimator for a local artisan. Developped new custom features for a Drupal site used by >1k members.

Publications

Horospherical Learning with Smart Prototypes

Paul Berg, Björn Michele, Minh-Tan Pham, Laetitia Chapel and Nicolas Courty.
British Machine Vision Conference (BMVC), 2024.

Box for Mask and Mask for Box: weak losses for multi-task partially supervised learning

Hoàng-Ân Lê, Paul Berg and Minh-Tan Pham.
British Machine Vision Conference (BMVC), 2024.

Multimodal Supervised Contrastive Learning in Remote Sensing Downstream Tasks

Paul Berg, Baki Uzun, Minh-Tan Pham and Nicolas Courty.
IEEE GRSL, 2024.

Joint multi-modal Self-Supervised pre-training in Remote Sensing: Application to Methane Source Classification

Paul Berg, Minh-Tan Pham and Nicolas Courty.
IEEE IGARSS, 2023.

Automatic part segmentation of facial anatomies using geometric deep learning toward a computer-aided facial rehabilitation

Duc-Phong Nguyen, Paul Berg, Bilel Debbabi, Tan-Nhu Nguyen, Vi-Do Tran, Ho-Quang Nguyen, Stéphanie Dakpé, Tien Dao.
Engineering Applications of Artificial Intelligence, 2023.

Spherical Sliced-Wasserstein

Clément Bonet, Paul Berg, Nicolas Courty, François Septier, Lucas Drumetz and Minh-Tan Pham.
International Conference on Learning Representations (ICLR), 2023.

Self-supervised learning for scene classification in remote sensing: Current state of the art and perspectives

Paul Berg, Minh-Tan Pham and Nicolas Courty.
Remote Sensing, 2023.

Weakly supervised detection of marine animals in high resolution aerial images

Paul Berg, Deise Santana Maia, Minh-Tan Pham and Sébastien Lefèvre.
Remote Sensing, 2022.

Other Research Activities

Reviews

I have reviewed for the following conferences and journals: GRSL, TGRS, BMVC and ECML PKDD.

Talks/Posters

13/12/2024 PhD Defense, Vannes.
26/08/2024 Team Seminar, Île d'Arz.
10/07/2024 Coil.jl - Lifting Julia array operations to MLIR, JuliaCon, Eindhoven.
02/07/2024 RFIAP, Lille.
25/06/2024 Department Day, Rennes.
01/12/2023 A macro-view of Reactivity in Pluto.jl, JuliaCon Local, Eindhoven.
16/07/2023 IGARSS, Pasadena.
07/07/2023 Department Day, Rennes.
06/10/2022 Team Seminar, Vannes.
08/04/2021 Automated Bindings & Metaprogramming, PlutoCon, Online.