Paul Berg

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GitHub
Scholar

About

I am a third year PhD student 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

Erasmum Semester in Software Engineering

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

Skills

Python	Pytorch, Pandas, Polars, numpy
JuliaLang	Pluto, IRTools, Editor support
JavaScript	React, node, Typescript
Web	HTML, Tailwind
Others	Git, Rust, bash, linux

Languages

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

Experiences

PhD in Representation Learning for Remote Sensing

IRISA, Université de Bretagne Sud, Vannes
Nov. 2021 - ~Nov. 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 teached practicals in SQL databases.

JuliaLang Open Source Contributor

Since Sept. 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. 2024

Joined an ungoing research project and developped a weakly supervised method for marine mammal detection which has since been published.

Fullstack Developper Intern

Epsor, Paris
Sep. 2019 - Feb. 2020

Helped during the migration of a legacy nodejs application to a new CQRS-based stack (Kafka) of the fintech startup Epsor. I was in the team that developped a workflow system for long running jobs on top of Cadence (Golang).

Freelance Web Developper

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.
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.
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, 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

10/07/2024	Coil.jl - Lifting Julia array operations to MLIR, JuliaCon, Eindhoven.
02/07/2024	RFIAP, Lilles.
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.

Interests

Running, Biking, Triathlon.