

Noâm Boussouf

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Academic Profile

Graduate researcher in Computer Science at Keio University (HVRL) and École Centrale de Nantes with a strong theoretical foundation from PSL University (M2 IASD). My research focuses on Computer Vision for biomedical imaging, particularly learning task-relevant visual representations that generalize across diverse data distributions under limited supervision. I am especially interested in self- and semi-supervised learning and domain generalization.

Publications

Peer-Reviewed Conference Proceedings

- **Noâm Boussouf**, Adrien Maglo, Mohamed Chaouch, Paul Pham Dang, Hideo Saito.
“PoseConvSpot: Overcoming Domain Shifts in Precise Event Spotting for Sports Videos via Pose-Only Spatio-Temporal Regression”.
In **Proceedings of the 9th ACM International Workshop on Multimedia Content Analysis in Sports (MMSports '26)**, in conjunction with ACM Multimedia, Rio de Janeiro, Brazil, 2026.
Role: First Author. Project page: noambsf.github.io/PoseConvSpot

Preprints and Manuscripts

- **Noâm Boussouf**, Adrien Maglo, Mohamed Chaouch, Hideo Saito.
“Volley3D: Unified 3D Full-Sequence Reconstruction from Monocular Broadcasts”.
Role: First-author. Available on project page: noambsf.github.io/Volley3D

Education

Keio University

Yokohama, Japan

Master of Science in Computer Science (Research-Track)

Oct. 2025 – Present (Exp. Aug. 2027)

Hyper Vision Research Laboratory (HVRL), advised by Prof. Hideo Saito.

Admitted through a Double Degree program with École Centrale de Nantes. Research-intensive graduate curriculum focused on Computer Vision.

Cumulative GPA: 3.75 / 4.00 (1st year completed).

Graduate Coursework: Computer Vision, Advanced Signal Processing, Non-Linear Dynamics, Quantum Information Theory, Applied Statistical Analysis.

PSL University (Dauphine, ENS Paris, Mines Paris)

Paris, France

Master 2 IASD – M.Sc. in Artificial Intelligence, Systems, and Data

Sept. 2024 – Sept. 2025

Ranked #1 in France, #24 Worldwide (QS World University Rankings), #33 THE World Rankings.

Highly selective, theoretical research master coordinated by Université Paris-Dauphine, École Normale Supérieure (ENS Paris) and Mines Paris.

Master Thesis: “Unsupervised Day-to-Night Image Translation for Nighttime Image Restoration”.

Rank: 6th / 53 in a cohort composed of top French Grande École graduates (Polytechnique, ENS, Centrale Paris, Mines Paris...). Cumulative Grade: 15.1/20.

Core Curriculum: Learning Theory, Optimization, Non-Convex Inverse Problems, 3D Point Clouds, Generative AI, Optimal Transport, Reinforcement Learning...

École Centrale de Nantes

Nantes, France

Diplôme d'Ingénieur (Equivalent to Master of Engineering / M.Eng.) Sept. 2022 – Present (Dual Degree)

Top-tier French Grande École – Specialization in Computer Science for Artificial Intelligence.

Year 2 (M1 equivalent): Foundations of Deep Learning, Reinforcement Learning, Computer Vision, Graph Theory – GPA: **4.00 / 4.00**.

Year 1 (B.S. equivalent): Advanced Applied Mathematics, Numerical Optimization, Probability & Statistics – GPA: **3.78 / 4.00**.

Academic Award: Recipient of the **Centrale Nantes Foundation Scholarship** (merit-based award for International studies).

Lycée Pierre de Fermat

Classes Préparatoires aux Grandes Écoles (PCSI / PC)*

Toulouse, France

Sept. 2020 – July 2022

Intensive 2-year undergraduate preparation in advanced Mathematics and Theoretical Physics for competitive national exams.

Cumulative GPA: **3.88 / 4.00**.

Research Experience

Hyper Vision Research Laboratory (HVRL), Keio University

Graduate Research Assistant (Advisor: Prof. Hideo Saito)

Oct. 2025 – Present

Yokohama, Japan

- **Cryo-EM Particle Picking:** Investigating self- and semi-supervised representation learning for particle picking in low-SNR cryo-electron microscopy micrographs, with the aim of reducing dependence on expert annotations and improving generalization across datasets.
- **Volley3D (First-author preprint):** Developed a framework for 3D volleyball-scene reconstruction from monocular broadcast footage without 3D supervision. Combined jump-aware player kinematics with 2D-to-3D ball trajectory reconstruction using TCN-based segmentation, collision matching, and a physics-based solver.
- **PoseConvSpot (First author; Accepted for oral presentation at ACM MMSports 2026):** Designed a pose-only spatiotemporal regression architecture (Strip Pooling, GRU, and Soft Gamma Loss) for precise jump-event spotting. Improved mAP@3 by 14.1% under cross-arena evaluation compared with state-of-the-art RGB-based baselines.

GoPro, PSL University

Computer Vision Research Intern – Master Thesis

April 2025 – September 2025

Paris, France

- Investigated **unsupervised Image-to-Image (I2I) translation** to synthesize realistic nighttime training data from daytime imagery, addressing extreme low-light data scarcity. Developed an enhanced CycleGAN incorporating structural priors (leveraging DINO) alongside an RGB-to-RAW unprocessing pipeline, allowing seamless adaptation of RAW-to-RAW and RGB-to-RGB **domain transfer** models.
- Formulated a dual-task evaluation protocol assessing both low-level restoration (denoising metrics) and high-level perception (object detection mAP) to assess synthetic domain transfer performances.

CEA LIST, Université Paris-Saclay

Computer Vision Research Intern (LVA Lab)

Apr. 2024 – Aug. 2024

Palaiseau, France

- Investigated monocular 3D reconstruction of volleyball scenes from uncalibrated broadcast footage, combining player tracking, pose estimation, and kinematic modeling.
- Developed an initial physics-informed approach to handling jump-related ambiguities, laying the groundwork for subsequent research on pose-based jump-event spotting.

Nantes University Hospital (CHU de Nantes)

Machine Learning Research Project

Oct. 2023 – Mar. 2024

Nantes, France

- Contributed to a clinical machine learning project predicting lung transplant rejection from patient data, in collaboration with a doctoral researcher.

Technical Skills & Languages

Technical Skills

PyTorch, CUDA, OpenCV, NumPy, SciPy, Python, C/C++, Linux, Git, Slurm

Languages

French (Native), **English** (IELTS 7.5), **Japanese** (Conversational)