

# Simon de Moreau

## AI SCIENTIST - ROBOTICS

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Researcher in computer vision and robotics with a strong focus on real-time, embedded, and AI-powered systems. Proven ability to lead innovative projects from concept to deployment, resulting in functional prototypes, publishable research, and patents.

## Work Experience

### R&I Engineer

Valeo

Dec. 2022 – present

Bobigny, France

- Designed from scratch a real-time perception system for autonomous vehicles, leveraging high-definition (HD) headlights for active nighttime sensing.
- Conceptualized, implemented and evaluated deep learning models (CNNs, Transformers) for depth estimation, semantic understanding, and scene-aware dynamic illumination.
- Built a prototype integrating camera, LiDAR, HD lighting, and edge computing on a vehicle.
- Delivered strong research outcomes: 2 published papers, 15 patent applications.
- Coordinated multiple partners, delivered demonstrations to clients and executives, contributed to strategic directions.
- Supervised research interns and provided technical mentorship across teams on AI projects.

### Robotics Research Intern

SuburVAN

Apr. 2022 – Sept. 2022

Le Chesnay-Rocquencourt, France

- Developed a real-time autonomous driving prototype from concept to demonstrator, based on sensor fusion (LiDAR, camera), and 3D computer vision.
- Designed and implemented the full perception-to-control pipeline: segmentation, curb and obstacle detection, trajectory estimation, and lateral control.
- Integrated multiple sensors in ROS and deployed the system on a test vehicle for live autonomous navigation.
- Led the project: took ownership of critical technical decisions, coordinated modules, mentored peers, met deadlines, reliability and performance goals.
- Prototyped next-step improvements beyond MVP, laying the foundation for future system upgrades.

### Research Intern

UQTR - Mitacs Globalink

May. 2021 – July. 2021

Trois-Rivières, Canada

- Designed and developed the system of an agricultural robot platform.

## Education

### PhD in Computer Science and Robotics

Mines Paris - PSL University

2022 – expected graduation March 2026

Paris, France

- Research topic : Leveraging HD headlights to improve performances and robustness of computer vision at nighttime. Under the direction of Fabien Moutarde (Mines Paris, CAOR).

### MSc Research in Artificial Intelligence and Robotics

CY Cergy Paris University

2021 – 2022

Cergy, France

### MSc Engineering

ENSEA

2019 – 2022

Cergy, France

- Graduated first of the class and with the highest honors. Specialization in Signal Processing and Computer Science.

## Publications

### Preprint 2025

**S. De Moreau et al.** – *LiDAS: Lighting-driven Dynamic Active Sensing for Nighttime Perception*

### BMVC 2025

**S. De Moreau et al.** – *LED: Light Enhanced Depth estimation at night*

### IEEE IV 2025

**S. De Moreau et al.** – *DOC-Depth: A novel approach for dense depth ground truth generation*

### IEEE IECON 2021

G. Monsalve **et al.** – *Development of agricultural robot platform with virtual laboratory capabilities*

### Patents

**S. De Moreau, Y. Almhio, B. Stanciulescu, F. Moutarde** – WO2025180829A1 – **Published** September 2025

**S. De Moreau, H. El Idrissi Y. Almhio, B. Stanciulescu, F. Moutarde** – WO2025180830A1 – **Published** September 2025

**Co-Inventor on 15 patent applications** filed – 2023-2025

## Skills

**AI & Perception:** Computer Vision, Deep Learning, Machine Learning, 3D, Multimodal Learning, Active Sensing, Adverse Conditions.

**Programming:** C, C++, Python, PyTorch, NumPy, OpenCV, Git, HPC, Linux, Real-Time Systems.

**Robotics & Systems:** ROS, Embedded Systems, Sensor Calibration, Sensor Fusion, Dataset Creation, SLAM.

**Hardware & Design:** PCB Design, CAD (SolidWorks, Fusion 360), System Prototyping.

**Soft Skills:** Technical Leadership, Mentoring, Cross-functional Coordination, Project Management, Strategy, Creative Problem Solving.