JEAN-YVES ROULET

Computer Vision & Deep Learning Engineer

Computer Vision • Deep Learning • Object Detection • Image Segmentation • PyTorch

CONTACT

+55 19 9 8155-9471

linkedin.roulet@gmail.com

São Paulo - SP, Brazil

Jean-Yves Roulet

SKILLS

- Computer Vision +5 years
- Artificial Intelligence +5 years
- Data Science +5 years
- Robotics Engineering +5 years
- 3D Printing /Modeling +3 years

EDUCATION

2020 - 2021
STATE UNIVERSITY OF CAMPINAS

- BSc. Applied and Computational Mathematics
- Rank 1/40 , GPA 8.06/10

2015 - 2019
STATE UNIVERSITY OF CAMPINAS

- BEng. Engineering Physics - Optoelectronics
- Rank 9/18 , GPA 8.019/10

2015 - 2018
STATE UNIVERSITY OF CAMPINAS

- BSc. Physics
- Rank 3/84 , GPA 8.119/10

2019 - 2020
UNIVERSITY OF PENNSYLVANIA

- Robotics MicroMasters Program

LANGUAGES

- English (Fluent)
- French (Native)
- Portuguese (Native)
- German (Basics)

ABOUT ME

I'm a Swiss-Brazilian Computer Vision & Deep Learning Engineer with 5+ years of experience developing AI and computer vision solutions for real-world applications. I'm particularly passionate about teaching machines to see and understand the world, and I enjoy tackling challenging perception problems through deep learning, from object detection, classification, and image segmentation to the development and optimization of custom vision models.

My background combines engineering, mathematics, physics, and applied research, with hands-on experience using Python, PyTorch, TensorFlow, OpenCV, and modern deep learning architectures. I've worked across research and industry, developing and deploying AI solutions and integrating computer vision systems into larger software and robotic platforms.

I'm driven by curiosity and enjoy taking a problem from an initial idea through experimentation and model development to a reliable, production-ready solution.

EXPERIENCE

ROBOTIC CREW

🇺🇸 2026

Robotics & Computer Vision Engineer

Developed software for autonomous robotic systems, contributing to the deployment of humanoid and mobile robots in real-world environments across the United States and Europe.

- Designed robot perception pipelines using LiDAR, depth cameras, OpenCV, and YOLO, enabling real-time environmental understanding and object detection.
- Developed robotics applications using Python and C++ with ROS 2, integrating perception, navigation, planning, and control within a modular robotics software stack.
- Developed and validated perception and autonomous robotics applications using NVIDIA Isaac Sim, Gazebo, and RViz, supporting simulation, testing, and deployment workflows.
- Implemented autonomous navigation with Nav2, combining localization, mapping, path planning, and Behavior Trees for robust indoor autonomy.
- Integrated Large Language Models (LLMs) into autonomous concierge robots for natural language interaction, command interpretation, and conversational assistance.
- Explored Reinforcement Learning techniques in simulation to support autonomous robot behaviors.

Selected deployments

- San Francisco, USA: Autonomous Unitree humanoid robots for warehouse logistics, including autonomous navigation, object transportation, and task execution.
- Paris, France: Custom-built autonomous concierge robots for indoor navigation, visitor assistance, and natural language interaction.

GEPRODE

🇧🇷 2025-2026

Artificial Intelligence Specialist - Deep Learning

Developed and implemented AI and deep learning solutions to solve complex engineering problems in the tunnel construction sector, including prediction of geological risk and ground subsidence.

- Developed machine learning and deep learning models for geological risk assessment and ground subsidence prediction.
- Developed an automated document analysis pipeline using computer vision and deep learning to extract, interpret, and structure geological information from technical documents.
- Built and deployed scalable machine learning training and inference pipelines using Python, PyTorch, TensorFlow, and AWS services.
- Applied mathematical modeling and data analysis to solve complex engineering problems.

SPRINEXO

🇧🇷 2023-2025

Computer Vision Engineer

Selected Project — Vehicle Damage Assessment & Parts Analysis

- Developed an end-to-end computer vision and deep learning solution for a digital vehicle insurance company to automatically detect damage to vehicle parts from images.
- Developed object detection and instance segmentation models using YOLO and Mask R-CNN to identify and localize vehicle components.
- Developed EfficientNet-based deep learning models for visual damage assessment and classification, determining whether damaged parts should be repaired or replaced.
- Used PyTorch, TensorFlow, and OpenCV throughout the development of computer vision and deep learning pipelines.
- Managed the complete model development lifecycle, including data preparation, model training, evaluation, optimization, and production deployment.
- Deployed the resulting computer vision solution using AWS services.

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SEMANTIX

Data Scientist 2022-2023

- Developed computer vision and deep learning solutions for document fraud detection, identifying forged signatures and alterations to document text and visual content.
- Developed computer vision systems for real-time people detection and tracking in warehouse environments, monitoring compliance with required personal protective equipment (PPE).
- Developed and trained deep learning models using PyTorch, TensorFlow, YOLO, U-Net, and CLIP for visual analysis and classification tasks.
- Built Python-based ML applications and inference pipelines, using FastAPI, Gradio, and Streamlit for rapid prototyping and deployment.
- Developed and deployed scalable machine learning solutions using GCP, Docker, Kubernetes, and MLflow.

SOLOGIX

Computer Vision Engineer 2021

- Developed an end-to-end computer vision and deep learning system for automated analysis of pharmaceutical aluminum blisters.
- Developed semantic segmentation and object detection solutions to identify blister boundaries and pharmaceutical capsules in images.
- Implemented automated defect detection and quality inspection, identifying damaged or defective blister regions.
- Developed algorithms for geometric analysis and automated cutting-path planning based on the detected blister boundaries.
- Implemented real-time computer vision pipelines for automated blister analysis and robotic manipulation.
- Managed the development and deployment of the computer vision system using AWS services.

UNICAMP (State University of Campinas)

Computer Vision Undergraduate Researcher 2020-2021

Research Project — Plant Disease Detection Based on Deep Learning

- Developed an automated computer vision system for plant recognition and disease detection using deep learning.
- Trained and evaluated deep learning models on publicly available plant leaf image datasets, covering five major Brazilian crops and ten diseases per crop.
- Conducted multiple experiments to evaluate model performance and investigate the effectiveness of deep learning approaches for automated plant disease detection

EXPERTISE

- **Programming Languages:** Python, R, MATLAB, Octave, C/C#/C++, Java, JavaScript[ES6+]
- **Tools:** Git, Docker, Kubernetes, Conda, Linux
- **Computer Vision:** pytorch, tensorflow, YOLO, deepface, CLIP , OpenCV, Mask R-CNN, U-Net, Image Segmentation, Object Detection, Image Classification, DeepFace
- **Robotics:** ROS/ROS2, Copper Robotics, SLAM, Lidar, Gazebo, Unity, NVIDIA Isaac Sim
- **Data Science:** PySpark, TensorFlow, Keras, Pytorch, GPU Acceleration, Seaborn, CatBoost, XGBoost, Numpy, Pandas, Sciki-Learn, MatPlotLib, mlflow, Spark, Hadoop, BigQuery, AWS SageMaker, LangChain, LangGraph, llamaindex, Terraform, TorchServe
- **Machine Learning:** Regression: Simple/Multiple Linear Regression, Polynomial Regression, SVR, Decision Tree Regression, Random Forest Regression. Classification: Logistic Regression, K-NN, SVM, Kernel SVM, Naive Bayes, Decision Tree Classification, Random Forest Classification. Clustering: K-Means, Hierarchical Clustering. Reinforcement Learning
- **Deep Learning:** CNNs. R-CNNs, VAEs, RNNs, GANs, NLP, NLU, LLMs (LangChain, Lanhgraph), FMs. Dimensionality Reduction. Model Selection and Boosting: k-fold Cross Validation, Model Evaluation, Hyperparameter Tuning, GridSearch, Hugging Face, PyTorch Lightning, ONNX Runtime, tensorflow
- **Front-End:** HTML5, CSS3, Flexbox, CSS Grid, Bootstrap5, React.js, React Redux, React Hooks, Gradio, Streamlit
- **Back-End:** Node.js, Express.js, NPM/NPX, FastAPI, Uvicorn, Flask, Django
- **Databases & Cloud:** SQL, PostgreSQL, MongoDB, IBM DB2, IBM Cloud, GCP, AWS, TorchServe, Baseten, Replicate, TensorFlow Serving
- **Deployment & MLOps:** Docker, Kubernetes, AWS, GCP, MLflow, ONNX Runtime, TorchServe, TensorFlow Serving

Additional projects and experience - Linkedin - Jean Roulet