Hugo **Vergnes**

AI Research Scientist · Computer Vision

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Summary

Research Scientist at a Bay Area start-up with 3+ years of experience in AI and machine learning development, specializing in backend systems for a fully autonomous cancer screening detection pipeline. Skilled in building scalable machine learning models, data pipelines, and deploying AI solutions in production. Eager to expand expertise to new domains, tackle complex challenges, and continuously adopt new technologies and tools.

Work Experience

Whiterabbit.ai INC
Redwood City, California USA

AI Research Scientist - Full time — *Apr. 2022 - Current*

- Designed and implemented screening exam classifiers achieving 99% sensitivity while maintaining high rule-out rate, significantly enhancing early cancer detection in mammograms.
- Developed a comprehensive suite of AI algorithms for evaluating diagnostic quality, outperforming radiologists with over 15 years of experience in sensitivity and specificity.
- Conducted in-depth analysis and testing of AI-based diagnostic algorithms, ensuring high reliability and robustness in clinical settings. Submitted to the FDA and addressed feedback. It is pending approval.

Stanford AIMI
Stanford, California USA

Part time - Research Assistant — *Jan. 2021 - Jun. 2021*

- Research work at AIMI aiming to find lymphomas in children's full-body scan and automate Deauville score calculation.
- Data clean-up, co-registration and benchmark for PET and MRI scans.

Extrality
Paris, France

Deep Learning Research Intern — *Apr. 2020 - Aug. 2020*

- Implemented a Graph Deep Learning algorithm to generate a mesh with +40 000 nodes.
- Achieved state-of-the-art performances on 2D meshes with 1024 nodes.
- Conducted extensive search to design a lightweight, scalable model for future use.

McKinsey & Company
Paris, France

Summer Business Analyst — *Jun. 2019 - Aug. 2019*

- Implemented a sequential Monte-Carlo algorithm based on Bayesian inferences to zero in on unknown values.
- Designed +100 tests on a Machine Learning algorithm to enhance the model's predictive capability.
- Conducted extensive press search with the client to adapt models to the market need.

Education

Stanford University
Stanford, California USA

Master of Science - Statistics & Data Science — *Sep. 2020 - Jun. 2022*

- Focus on Deep Learning, computer vision and medical imaging with research at AIMI to develop AI-driven tools for lymphoma detection in pediatric full-body scans to automate the Deauville score computation with transformers and CNNs.
- Relevant coursework includes Applied Statistics, Statistical Learning, Deep Learning, Python and C++ Software Development
- Proficient in statistical modeling and hypothesis testing, enabling accurate assessment of model reliability and precision.

Ecole Polytechnique
Paris, France

Engineering Diploma, Master of Science - Applied Maths — *Sep. 2017 - Jun. 2020*

- Strong theoretical foundation in AI/ML. Foundational ML principles and statistical theories.
- Probability theory, linear algebra, and calculus to optimize ML algorithms, ensuring robust model performance.
- Comprehensive understanding of optimization, regularization techniques bias-variance trade-off.

Projects & Scientific work

RSNA 2024
Chicago, Michigan USA

First author & Presenter — *Dec. 2024*

- A comparative study of AI and expert Radiologist performance for technical recall assessment in screening mammography.

Blog Posts & Presentation

- State-of-the-Art in Computer Vision: ViT, CNNs and Beyond
- Masked Auto-encoders are not that strong of learners