

Pierre Marza

*PhD Student - Visual Navigation,
Deep Learning, Computer Vision*

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Education

- 2020 –present **PhD, Visual Navigation**, LIRIS, INSA Lyon, France.
◦ Visual Navigation, Computer Vision, Deep Learning, Reinforcement Learning
- Advisors : **Laetitia Matignon** ([Personal Web-page](#)), **Olivier Simonin** ([Personal Web-page](#)), **Christian Wolf** ([Personal Web-page](#))
- 2017–2020 : **Master in Computer Science**, INSA Lyon, France.
◦ Research & Development Specialization
◦ Exchange Semester at KTH, Stockholm, Sweden (Courses about Machine Learning, Deep Learning, Reinforcement Learning)
- 2015–2017 : **Preparatory classes (Scientific common core)**, INSA Lyon, France.

Publications/Patents

- 2021 Sean Moran, Pierre Marza, Steven McDonagh, Sarah Parisot, and Gregory Slabaugh. A device and method for image processing. *WO Patent*, 2021.
- 2021 Pierre Marza, Laëtitia Matignon, Olivier Simonin, and Christian Wolf. Teaching agents how to map: Spatial reasoning for multi-object navigation. *arXiv*, 2021.
- 2020 Sean Moran, Pierre Marza, Steven McDonagh, Sarah Parisot, and Gregory Slabaugh. DeepLpf: Deep local parametric filters for image enhancement. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2020.

Experience

- Feb., 2019 – **Junior Researcher - Visual Question Answering**, ORANGE LABS, Rennes, France.
- Aug., 2020 ◦ Object Detection in images - Attention mechanisms
◦ Guiding detection of salient regions with textual information
- Advisors : **Corentin Kervadec** ([Personal Web-page](#)), **Grigory Antipov** ([Google Scholar](#)), **Moez Baccouche** ([Google Scholar](#)), **Christian Wolf** ([Personal Web-page](#))
- May, 2019 – **Research Intern in Computer Vision**, HUAWEI Noah's Ark Lab, London.
- Dec., 2019 ◦ Research work on Image Quality Enhancement (deblurring, denoising, demosaicing) with Deep Learning
◦ Neural Architecture Search (NAS)
◦ Main contributor to a WO Patent for a Deep Learning Image Enhancement architecture
◦ 2nd author of a paper accepted to CVPR 2020 (DeepLPPF)
- Advisors : **Sean Moran** ([Personal Web-page](#)), **Greg Slabaugh** ([Personal Web-page](#))
- June, 2018 – **Python development - Neural Networks**, SOGETI High Tech, Lyon.
- August, 2018 Chatbot - Recurrent Neural Networks (Seq2Seq, LSTM)

Challenges

- Feb., 2021 **Multi-Object Navigation Challenge**, *Embodied AI Workshop*, CVPR 2021.
- Introducing auxiliary tasks to guide the emergence of spatial reasoning abilities
 - Training an agent equipped with projective mapping to predict the distance to, direction towards a target to reach, and estimate if the current goal has already been seen within the episode
 - Our solution ranked 1st
- Dec., 2018 **HUAWEI Deep Learning Experience**, *HUAWEI*, Stockholm.
- Semi-supervised image classification
 - 24h Deep Learning Competition - Team of 4 people - Ranked 2nd among a few teams in Stockholm

Projects

- 2019–2020 **Sim2Real Domain Transfer**, *INSA Lyon*.
- Sim2Real Domain Transfer for Deep Reinforcement Learning
- Advisor : **Christian Wolf** ([Personal Web-page](#))
- 2018–2019 **Brain ML**, *KTH*, Stockholm.
- Brain inspired neural network to perform multi-modal learning
 - Unsupervised clustering of images and associated captions
 - Sparse representations - Autoassociative Memory
- Advisor : **Pawel Herman** ([Personal Web-page](#))

Reviewing

- 2021 **TPAMI**.

Teaching Assistantship

- 2021–2022 **Deep Learning and Differentiable Programming**, *Computer Science*, INSA Lyon.