RACHEL BLIN

PhD student in Deep Learning applied to polarimetric imaging for object detection in road scenes

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EDUCATION

PhD in Deep Learning applied to polarimetric imaging for object detection in road scenes
LITIS lab, INSA Rouen Normandie

📅 since September 2018 📍 Rouen, France

Co-advised by Dr. Samia Ainouz and Prof. Stéphane Canu

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Engineering school in data science
INSA Rouen Normandie, Information Systems Architecture department

📅 September 2013 - July 2018 📍 Rouen, France

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First year of medicine studies
Université Pierre et marie Curie

📅 September 2012 - June 2013 📍 Paris, France

PROFESSIONAL EXPERIENCE

Researcher in Deep Learning applied to polarimetric imaging
LITIS lab, INSA Rouen Normandie

📅 since September 2018 📍 Rouen, France

- Knowledge of the deep neural networks used for object detection and train some of them on my own datasets
- Introduction to polarimetric imaging and extraction of the most relevant features to discriminate an object
- Creation of the first public large polarimetric dataset labelled for object detection purpose and containing diverse weather conditions
- Teaching
- Supervising an intern

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Engineer internship as junior architect
Sopra HR Software

📅 Since February 2018 📍 La Défense, France

- Design of new solutions for payroll control
- Exploration of technologies for data analysis and machine learning
- Test the prototype to solve the problem

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Specialization internship as web designer
New York University

📅 June 2017 - August 2017 📍 New York, USA

- Design of a website for the Diet Optimizer project, a linear program to give a user recipes to meet his nutritional requirements
- Creation of MySQL databases to make a profile for the user allowing him to give his feed-back on recipes
- Use of data science optimization and research oriented approach

PROJECTS

INSA Certified ISO 9001:2015 Project
January 2017 - January 2018
- Working for the client A2iA, development of handwriting recognition software company
- Creating an engine to process a PDF document to return its written content
- Quality manager of the project

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Image processing
September 2017 - January 2018
- Extraction of the reflection of an image using the KNMF algorithm

September 2016 - January 2017
- Image segmentation depending on its different textures

TECHNICAL SKILLS

- **Programming languages** Python, Matlab, Java, SQL, C, Pascal, Bash
- **Frameworks** Keras, NumPy, SciPy, Pandas
- **Algorithms** Deep Neural Networks for object detection, Decision trees, SVM, K-NN
- **Databases** MySQL, PostgreSQL
- **Web technologies** HTML5, CSS3, Computer networking

LANGUAGES

- French : native speaker
- English : Full Professional Proficiency (TOEIC 905/990)
- Spanish : Professional Working Proficiency
- Arabic : Limited Working Proficiency

EXPERIENCE ABROAD

- **Africa** : Cameroon (1996-2001, 2011-2012), Nigeria (2006-2009), Libya (2009-2010), Senegal (2020)
- **North America** : USA (2017)
- **Asia** : Syria (2001-2003), Lebanon (2010-2011)
- **Europe** : Spain (2005-2006)

PUBLICATIONS

- **A new multimodal RGB and polarimetric image dataset for road scenes analysis**
  Rachel Blin, Samia Ainouz, Stéphane Canu, Fabrice Meriaudeau
  2020 Conference on Computer Vision and Pattern Recognition Workshop (CVPR)
- **Road scenes analysis in adverse weather conditions by polarization-encoded images and adapted deep learning**
  Rachel Blin, Samia Ainouz, Stéphane Canu, Fabrice Meriaudeau
  2019 IEEE Intelligent Transportation Systems Conference (ITSC)
- **Adapted learning for polarization-based car detection**
  Rachel Blin, Samia Ainouz, Stéphane Canu, Fabrice Meriaudeau
  Fourteenth International Conference on Quality Control by Artificial Vision (QCAV), 2019

TEACHING

- **Numerical Analysis**
  - 2019-2020 school year at INSA Rouen Normandie, practical sessions
  - February 2020 at Virtual University of Senegal, lecture courses and practical sessions
- **Information Theory**
  - 2019-2020 school year at INSA Rouen Normandie, practical sessions
  - Design of the practical sessions
- **Signal processing**
  - 2019-2020 school year at INSA Rouen Normandie, practical sessions
- **Introduction to Deep Learning**
  - 2019-2020 school year at INSA Rouen Normandie, lecture courses and practical sessions