Cédric **Rommel**

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Research Interests

Speech processing, Representation learning, Zero-shot learning, Reinforcement learning, Optimal control, Optimization, feature selection, sparse methods, multi-task learning, functional data analysis, online clustering, ...

Education

INRIA, École Polytechnique (CMAP) *Paris, France*

PhD in Machine Learning and Optimal Control *Nov. 2015 - Oct. 2018*

Data analysis for aircraft trajectory optimization
Supervised by Frédéric Bonnans and Pierre Martinon, from the COMMANDS team.
CIFRE funding by company Safety Line.

MINES ParisTech *Paris, France*

Master of Science and Engineering *Sep. 2011 - Jun. 2015*

Mathematics, Statistics, Control Theory, Optimization, Signal Processing, Software Engineering.

Experience

INRIA - Parietal team *Paris, France*

Postdoctoral researcher *Dec. 2020 - Today*

Research in the field of automatic data augmentation and deep learning for neuroscience.

Ava Accessibility *Paris, France*

Chief Scientist *Nov. 2018 - Dec. 2020*

- Research and engineering in the speech processing field for deaf accessibility.
- Research in real-time neural speaker diarization, neural voice embeddings, zero-shot learning and speech separation.
- Design, implementation, training, deployment and monitoring of such models.
- AI roadmap design, team management and hiring of new scientists and engineers.

Safety Line *Paris, France*

Machine Learning Researcher (*PhD Candiate*) *Nov. 2015 - Oct. 2018*

- Designed state-of-the-art learning-to-control models for aircraft trajectory optimization.
- Research in model-based reinforcement learning, functional data density estimation, multi-task learning and feature selection.
- Implemented models into python packages used in commercial products.

French Space Agency (CNES) *Paris, France*

Trajectory optimization engineer (*Internship*) *Apr. - Aug. 2015*

- Designed a trajectory optimization technique tailored for a reusable rocket project.

Systems & Control Center (CAS), MINES ParisTech *Paris, France*

Research Assistant *Sep. 2014 - Apr. 2015*

- Inference of the orientation of a ballistic missile using the data of a single magnetometer.
- Work performed under the supervision of Nicolas Petit and Lionel Magnis during his PhD Thesis.

Reviewer

NeurIPS 2019/2020/2021, ICML 2020/2021

Skills

Programming: Python, Git, LaTeX, NodeJS, C++, Java, Matlab

Machine Learning: Tensorflow, Pytorch, scikit-learn

Languages: Portuguese, French, English, Spanish

Publications and pre-prints

- **Rommel, Cédric**, Thomas Moreau, and Alexandre Gramfort. CADDA: Class-wise Automatic Differentiable Data Augmentation for EEG Signals. *CoRR*, 2021
- **Rommel, Cédric**, Frédéric Bonnans, Pierre Martinon, and Baptiste Gregorutti. Gaussian mixture penalty for trajectory optimization problems. *Journal of Guidance, Control, and Dynamics*, 42(8):1857–1862, 2019
- **Rommel, Cédric**, Frédéric Bonnans, Baptiste Gregorutti, and Pierre Martinon. Structured Feature Selection of Continuous Dynamical Systems for Aircraft Dynamics Identification. *HAL*, 2018
- **Rommel, Cédric**, Frédéric Bonnans, Baptiste Gregorutti, and Pierre Martinon. Quantifying the Closeness to a Set of Random Curves via the Mean Marginal Likelihood. *HAL (Submitted)*, 2018
- **Rommel, Cédric**, Frédéric Bonnans, Baptiste Gregorutti, and Pierre Martinon. Block sparse linear models for learning structured dynamical systems in aeronautics. *HAL*, 2018
- **Rommel, Cédric**, Frédéric Bonnans, Baptiste Gregorutti, and Pierre Martinon. Aircraft Dynamics Identification for Optimal Control. In *7th European Conference for Aeronautics and Space Sciences*, 2017