

# Candidature IR CNRS

Concours 52 - BAP E

Nicolas Gensollen

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September 21, 2021

## 1 Who am I?

- Education
- Experience

## 2 Past work

- 2017 - 2018: NREL PostDoc (US)
- 2019 - 2020: LIP6 PostDoc (FR)
- 2020 - now: INRIA Engineer (FR)

## 3 Motivations

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- **2007:** Baccalaurat S, Mention Tres Bien, Lycee Richelieu, Rueil-Malmaison
- **2007-2009:** MPSI/MP at Lycee Louis Pasteur, Neuilly
- **2012:** Engineer degree in telecommunications at Telecom SudParis, Evry
- **2013:** Awarded with a PhD UPMC fellowship (bourse detat)
- **2016:** Defended my PhD in computer science at Telecom SudParis

**Title:** Modeling and optimizing a distributed power network : a complex system approach of the prosumer management in the smart grid

**Jury:**

- |   |                                      |
|---|--------------------------------------|
| ● Matthieu Latapy, LIP6, president        | ● Slawomir Pietrasz, ENGIEE          |
| ● Andr-Luc Beylot, ENSEEIHT, rapporteur   | ● Michel Marot, Telecom SudParis     |
| ● Jean-Guy Caputo, INSA Rouen, rapporteur | ● Monique Becker, Telecom SudParis   |
| ● Frederica Darema, AFSOR                 | ● Vincent Gauthier, Telecom SudParis |

- **2017 - 2018:** Postdoc at the National Renewable Energy Laboratory (NREL), in Golden, CO, USA. *Power Systems Design and Studies group*, supervised by Bryan Palmintier.
  - ▶ Methods and tools to optimize deployment of renewable energy resources in power systems.
- **2019 - 2020:** Postdoc at LIP6, in Paris, France. *Complex Networks team*, supervised by Matthieu Latapy.
  - ▶ Anomaly detection methods for streams of interactions.
- **2020 - now:** Engineer at INRIA, in Saclay, France. *PARIETAL team*, supervised by Bertrand Thirion and Gael Varoquaux.
  - ▶ Development and maintenance of statistical/machine learning and neuroimaging softwares (Scikit-learn, Nilearn...)

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## **Focus: Methods for the integration of renewable generation in large scale power networks**

- Sequential decision problems under uncertainty
  - Large-scale network generation with topological and dynamic constraints
- 
- ▶ Stochastic optimization methods (ex: Approximate dynamic programming), co-simulation
  - ▶ Project-oriented organization, work in large teams, international projects with academic and industrial partners
  - ▶ Software engineering best practices, VCS, HPC environments, open source development, Large scale heterogeneous data, DIRTY data...

## Focus: Streams of interactions

- Anomaly detection in different contexts (streaming, offline...)
    - ▶ Fraud detection, money laundering
  - Random generation models
  - Study blockchain based systems (ex: crypto-currencies)
- 
- ▶ Large volumes of data (up to billions of interactions)
  - ▶ Design efficient data structures, Design scalable algorithms
  - ▶ Labcom LIP6-Bleckwen



## Focus: Open source machine-learning and neuroimaging tools

- Work on developing and maintaining some of PARIETAL's most successful tools: Scikit-learn, **Nilearn**, MNE-python, Joblib
  - Implementation of machine learning algorithms dedicated to neuroimaging
  - Develop surface-based analysis in Nilearn
- Maintenance of well established open source packages, Backward compatibility, API design, CI/CD
- Open source community, Organization of regular meetings of developers, Organization of coding sprints (Nilearn - NiBabel dev-days 2021)

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## Why research engineer?

- Combines two important aspects
  - Working in a scientific research context
  - Technical aspect (software dev, data engineering, computing...)
- Appreciate team work and having concrete deliverables

## Why this position?

- LAM is one of the most important research center in France
- Ambitious R&D program
- Cutting-edge scientific environment
- Large and very skilled engineering team
- Looking forward to learning many new things
- Appealing challenges (huge amount of data, heavy computations...)
- Good match with my profile and what I enjoy doing

# Thank you!

## Questions?

- **Website:** <https://nicolasgensollen.github.io/>
- **GitHub:** <https://github.com/nicolasgensollen>
- **ORCID ID:** <https://orcid.org/0000-0001-7199-9753>
- **Scholar:** <https://scholar.google.com/citations?user=4UsQKiwAAAAJ&hl=fr>
- **Twitter:** [https://twitter.com/Gensollen\\_N](https://twitter.com/Gensollen_N)
- **Linkedin:** <https://www.linkedin.com/in/nicolas-gensollen-7b535857>