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The logo for SORSE, featuring the letters S, O, R, S, and E in a stylized, multi-colored font (teal, purple, pink, and red) on a black rectangular background. The logo is positioned within a blue circular graphic element that has a paint-splatter effect.

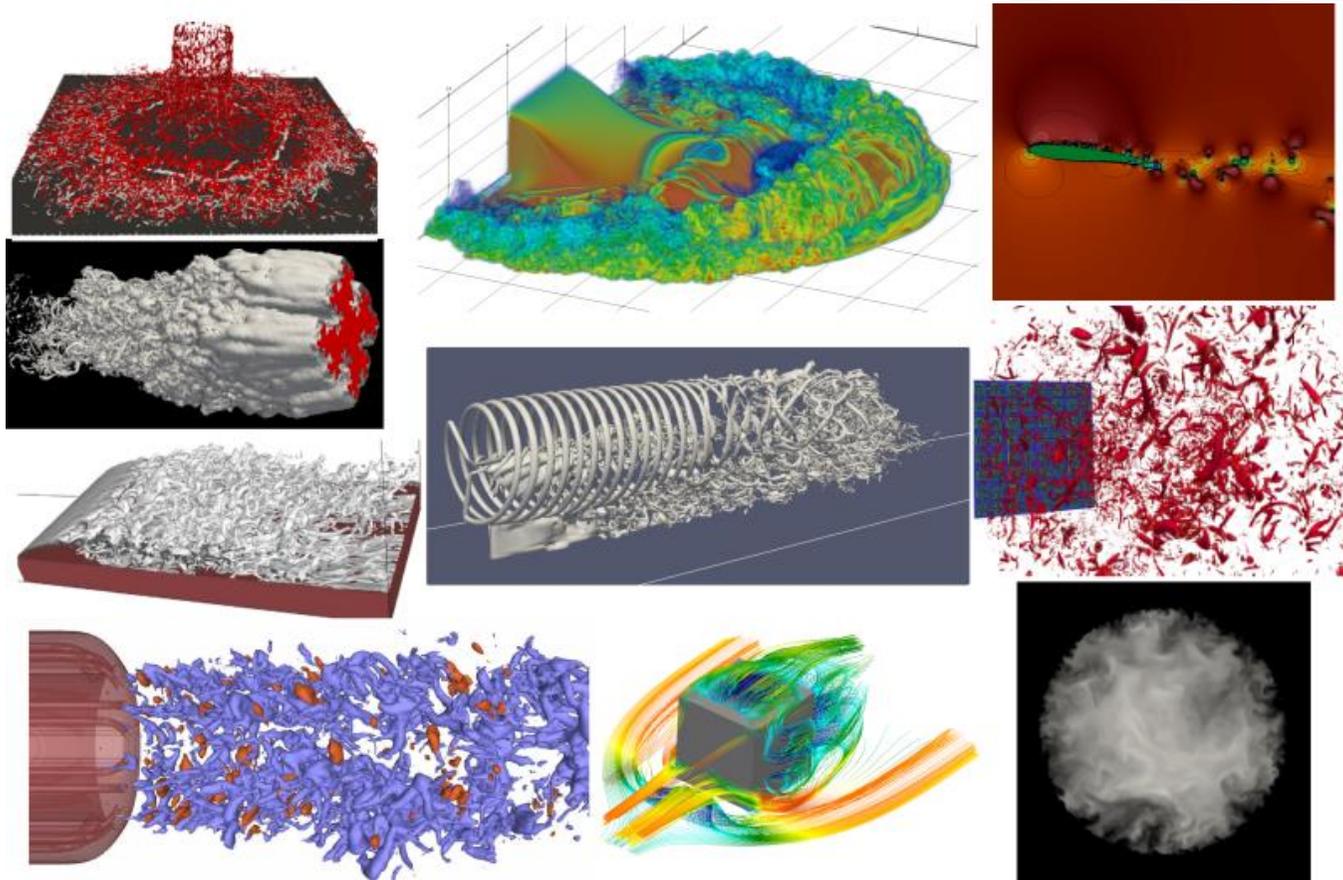
**RSE careers in France:  
the French National  
Centre for Scientific  
Research (CNRS) option**



# My background

- **PhD Poitiers (France)**
- 2002-2005
- **Post-Doc Poitiers (France)**
- 2005-2006
- **Post-Doc ICL (UK)**
- 2006-2014
- **Lecturer/Reader ICL (UK)**
- 2014-present

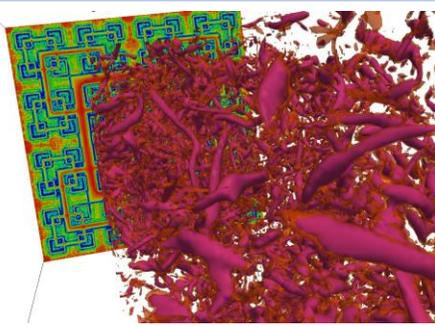




**Computational Fluid Dynamics / High Performance  
Computing Turbulence / Flow Control**

One open-source  
framework: **Xcompact3d**

<https://github.com/xcompact3d>



# Xcompact3d

- First developed in France early 2000
- Major software developments 2009-2011 via HECToR eCSE (embedded Computational Science and Engineering) projects with NAG Ltd (3 projects of 1 year)
- New capabilities 2016-2020 via ARCHER eCSE (4 projects of 1 year)
- Training via the UK Turbulence Consortium
- Limited sustainability
- No support team / no customer service

**EPSRC**

Pioneering research  
and skills



Engineering and  
Physical Sciences  
Research Council

# ExCALIBUR - an algorithmic approach to exascale design

- £45.7m Strategic Priorities Fund (SPF) programme led by the Met Office, UKAEA and UKRI
- Deliver research and innovative algorithmic development to harness the power of exascale HPC
- Redesign high priority computer codes and algorithms, keeping UK research and development at the forefront of high-performance simulation science.



# ExCALIBUR - an algorithmic approach to exascale design

- A Landscape review identified that the UK do not have a well-defined career path for Research Software Engineers (RSEs)
- Identify needs for long-term support & professional development, and barriers to career progression, and ensure that HPC is attractive to new and potential RSEs
- Let's have a look at France



# The CNRS

<https://www.dailymotion.com/video/x2lo2jm>

*Advancing knowledge  
for the benefit of  
society*

The National Centre for Scientific Research is an interdisciplinary public research organisation under the administrative supervision of the French Ministry of Higher Education and Research.

**3.3  
billion**  
A budget of

**33,000**  
people dedicated  
to research

**1,144**  
research  
laboratories in  
France and  
abroad

**Research fields :**

- Biology
- Chemistry
- Ecology and environment
- Humanities and social sciences
- Engineering and systems
- Mathematics
- Nuclear and particles
- Physics
- Information sciences
- Earth sciences and astronomy



**Status :** Public Scientific and Technological Establishment (EPST)

**Date of creation :** October 19, 1939

**President :** Antoine Petit

**Headquarters :** 3, rue Michel-Ange, Paris 16<sup>e</sup>





## Main features of the CNRS budget :

- A €3.3 billion budget;
- 77% of resources come from public service subsidies, and 23% from CNRS-generated income (research contracts, funding from calls for proposals, provision of services, etc.);
- half of the CNRS-generated income comes from research contracts (375 M€ in 2016), and a third from project or research programme funding (255 M€ in 2016). A little more than 1/10th of research contracts are concluded with private companies.



## CNRS Structure



- 1,100 laboratories in France
- Joint research units (UMR) with a university, a higher-education institution, or a research organisation
- 10 CNRS Institutes
- 36 international joint units (UMI)

### **Staff members with varied duties and status**

CNRS researchers, engineers and technicians work alongside academics, engineers and technicians from other institutions (universities, engineering schools, other research organisations). Their teams are complemented with PhD students, postdoctoral fellows, researchers, engineers and technicians often paid by research contracts.



## 5 missions:

1. Conduct scientific research
2. Transfer research results
3. Share knowledge
4. Train through research
5. Contribute to scientific policy



*1st in the Nature Index ranking*  
*2nd in Scimago Institutions Rankings*  
*4th most visible research institution on the Web*  
*5th patent filer in France*  
*8th most innovative public research institution*



# A committed employer



→ Recipient of the HR Excellence in Research Award

→ Permanent employees recruited by competitive entrance examination

33,000 people, including over 15,000 researchers, 14,000 engineers, and approximately 4,000 technicians. Permanent employees are recruited through external competitive entrance examinations. More than 90 nationalities.

→ More than 200 occupations

The research activities are organised into 41 sections and 5 interdisciplinary commissions. **The engineers and technicians who contribute to and support research fall into over 200 occupations from numerous professional fields, including sciences of the living world, chemical sciences, the humanities and social sciences, computer science, information, administration, and management.**

→ Quality of life at work, a priority

→ Integrating people with disabilities



# Working for the CNRS



## 2 recruitment routes

### External competitions

In December for researchers, in June for engineers.

### Fixed term contract

Offers throughout the year

Within a team, a laboratory, a service, a delegation or even a large equipment, the staff of the CNRS work throughout the territory to develop or support a research project.



## Working for the CNRS: Computer science, HPC and Data stream



### **Research Engineer in scientific computing**

Recruitment at PhD level

Open-ended contract

From €1,900 to €4,450 per month before tax

Lead software development / research activities

### **Design/Studies Engineer in scientific computing**

Recruitment at Meng/Beng level

Open-ended contract

From €1,700 to €3,600 per month before tax

Apply knowledge/expertise/skills to a particular problem

In practice, both positions are fairly similar and each role is fine-tuned by the host institution, project, other staff members.



# In conclusion



- There is a well-defined career path for Research Software Engineers in France
- The CNRS offers a sustainable career path for RSEs
- CNRS RSEs have a secured position (open-ended contract) & are fully contributing to the research activities in their host institutions
- <https://carrieres.cnrs.fr/en/work-at-the-cnrs>

