Postdoctoral position:
New approaches for uncertainty quantification in stratigraphic correlation and modeling.

The Université de Lorraine is currently seeking candidates for an 18 month postdoctoral position in integrative numerical geosciences with the RING Team of GeoRessources, Université de Lorraine. The successful candidate will work in the RING Team, a pluridisciplinary and diverse group of 12-15 researchers and graduate students working at the interface of geoscience, computer science and applied mathematics. The team is part of École Nationale Supérieure de Géologie in the GeoRessources laboratory, a research lab of Université de Lorraine and CNRS. The research team is driven by passion for developing computer-based methods and theories for geological and geophysical modeling, serving the geoscience community to address scientific and natural resource management challenges.

The theme of the postdoc is the development of new approaches for correlation and modelling of stratigraphic formations from typical subsurface data (wells and possibly also geophysics). The research will be primarily on the development of new algorithms or workflows to improve the state of the art in the way stratigraphic uncertainty is quantified and managed. Indeed, stratigraphic correlation is often challenging because of the complexity of depositional and erosional processes and the existence of stratigraphic gaps at multiple scales (Sadler, 1981). Previously, several approaches have been developed for well correlation and dating (Brazell et al., 2019; Lallier et al., 2013; Olea, 1994; Sylvester, 2023; Waterman and Raymond, 1987). In addition to algorithmic challenges, the choice of what to correlate based on the data and on the geological settings has also been shown to be important (Baville et al., 2022; Caumon et al., 2024; Lallier et al., 2016). Finally, the analysis, processing, validation of multiple possible stratigraphic correlation scenarios and their integration into inverse problem raises several challenges, such as the management of the variable number of layers (Herrero et al., 2025).

To apply, the candidate should send a CV (including the contact information of two referees) and a short (2 to 5 pages) research proposal describing the research project to be addressed during the postdoc. The candidate will be selected based on the scientific relevance of the research question(s), the interest and quality of the proposed approach, and how it complements the recent and ongoing work of the RING team. The candidate will work primarily with Guillaume Caumon (Université de Lorraine), and will have opportunities to engage in collaborations with other team members and partners.

Planned starting date: July 2025

Application files must be sent to jobs@ring-team.org before **May 31, 2025**, and must include:

- A cover letter
- A CV, including list of publications and contact information for two or more referees
- The PhD thesis
- If available, the PhD review and defense reports.

Location & conditions

Nancy (France), a UNESCO World Heritage city with a vibrant student life and a rich cultural agenda, only 90 minutes away from Paris, Luxembourg and Strasbourg.

The postdoctoral scholarship (2700 to 3500 EUR monthly depending on experience) includes full salary, social benefits (incl. 44 days of paid leave annually).

References

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Sylvester, Z., 2023. Automated multi-well stratigraphic correlation and model building using relative geologic time. Basin Res. 35, 1961–1984. https://doi.org/10.1111/bre.12787

Waterman, M.S., Raymond, R., 1987. The match game: new stratigraphic correlation algorithms. Math. Geol. 19, 109–127.