Alice Rogier

Postdoctoral researcher
in Medical Informatics

Contact

- July 9, 1996 (28 years old)
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About me

Electronic Health Records (EHRs) offer a huge set of observations that can generate real-world evidence. However, these valuable data often remain unexploited, and I believe there is significant untapped potential within them.

I am eager to explore bioinformatics techniques combined with NLP tools to gain insights from these data. I find the interdisciplinary nature of medical informatics and collaboration with experts from various fields enriching.

Being a team player, I enjoy actively contributing to a group's efforts. Outside of work, you can find me dancing or hiking.

Programming languages
R, Python

Query languages
SQL, SPARQL

Human languages
French (native speaker)
Fluent in English and Spanish

Research expertise
Knowledge graph, Survival analysis, Statistical learning, Text mining

Hobbies
Modern jazz
Hiking

Education

2020–2024 **PhD in Medical Informatics** *Université Paris Cité*
Biomedical data science, ontologies, knowledge extraction from EHRs, semantic web, temporal reasoning, NLP, graph mining, survival analysis.

2017–2019 **MSc in Bioinformatics** *Université Paris-Saclay*
Algorithmics, statistics (frequentist and Bayesian), machine learning, data mining, database managing, omics data analysis (genomics, transcriptomics, structural biology), programming (Python, Java, C, R, Perl)

2016–2017 **BSc in Organism Biology and Ecology** *Université Paris-Saclay*
Ecology and evolution, biodiversity, molecular and cellular biology, environmental data analysis

Professional experiences

Since Nov 2024 **Postdoctoral researcher** *Carpem Cancer Institute, Paris*
I am currently working on structuring and integrating chemotherapy data into a database aligned with the Master Observational Trial methodology, which enables robust analyses by combining clinical trial data with high-quality electronic health records.

Dec 2020 - Oct 2024 **PhD student** *Inserm-Inria HeKA Team*
Clinical data warehouses hold important information about chemotherapies and their effects, but it is often scattered and hard to interpret. To make use of these valuable data, I developed two knowledge graphs, OntoTox [1] and ChemoOnto [2, 3]. These graphs organize data on chemotherapy treatments and toxicities, facilitating comparisons between theoretical treatment protocols and actual patient outcomes. I created the ProtoDrift metric to quantify deviations in chemotherapy protocols, thus refining adherence assessments. I validated ProtoDrift through survival analyses, showcasing its potential in advancing precision oncology research.

Nov 2019 - Dec 2020 **Design engineer** *Inserm, Paris Georges Pompidou hospital*
I took part in the QualiHealth project aimed at improving the quality of healthcare data. I developed text mining tools to extract information from medical narrative reports during the COVID crisis[4]. I contributed to the implementation of OntoDol [5].

Professional experiences (continued)

Mar - Aug 2019   **Intern** *Inserm, Paris Georges Pompidou hospital*
High-Throughput Phenotyping for glomerular diseases

Jul - Aug 2018   **Intern** *Parasitology Unit of the Center Dr. Hideyo, Mexico*
Identification of blood meals from *Triatomia dimidiata* in the Yucatán.

Jun - Aug 2017   **Intern** *EcoSys laboratoty, INRA.*
Characterization of metal contaminations in urban farm soils.

Teaching

Spring 2022, 24h   **Database Management (L3)** *Université Paris Cité*
I led practical work on database design and query languages for third-year computer science students.

Falls 2021 and 2022, 48h   **Python Programming (L1)** *Université Paris Cité*
I led first-year MIASH (Applied Mathematics for Social Sciences) students through foundational python programming.

Spring 2023, 24h   **GUI Projects in Java (L2)** *Université Paris Cité*
In this course, I guided groups of 5-6 second-year computer science students through Java-based GUI projects I wrote, AlignSeq and PhyloApp. The subject introduced them to biological alignment sequences and phylogeny. Advanced students progressed to a fusion project combining elements from both initial projects in collaboration with another group. This challenged them to merge their solutions.

Talk and events

Type	Event	Date
Poster	AI4Health 2021	04/01/2021
Oral presentation	HeKA team meeting	15/02/2021
Oral presentation	HeKA team meeting	13/09/2021
Poster	CRC scientific day	23/09/2021
Oral presentation	MedInfo 2021	02/10/2021
Second Best Student paper		
Poster	AI4Health 2022	12/01/2022
Oral presentation	Bernoulli Lab kick-off (APHP-Inria)	22/03/2022
Oral presentation	CRC scientific day	22/09/2022
Poster	ISMB/ECCB 2023 Lyon	25/07/2023
Oral presentation	ISMB/ECCB 2023 Lyon	25/07/2023

References

Bastien Rance   Assistant Professor in Medical Informatics, Georges Pompidou Hospital, Université Paris Cité
Researcher at the Must team (Inserm)
bastien.rance@aphp.fr

Adrien Coulet   Assistant Professor in Informatics at Université Paris Cité and Université de Lorraine
Researcher at the HeKA team (Inserm–Inria)
adrien.coulet@inria.fr

Scientific publications

[1] **Alice Rogier**, Adrien Coulet, and Bastien Rance. "Using an ontological representation of chemotherapy toxicities for guiding the information extraction and integration from EHRs". In: *MedInfo* (2021).

[2] **Alice Rogier**, Bastien Rance, and Adrien Coulet. *ChemoOnto, an ontology to qualify the course of chemotherapies.* Jan. 2024. DOI: 10.5281/zenodo.10548491. URL: https://doi.org/10.5281/zenodo.10548491.

[3] Jong Ho Jhee, **Alice Rogier**, Dune Giraud, Emma Pinet, Brigitte Sabatier, Bastien Rance, and Adrien Coulet. "Representation and comparison of chemotherapy protocols with ChemoKG and graph embeddings". In: *SWAT4HCLS.* 2024.

[4] Antoine Neuraz, Ivan Lerner, William Digan, Nicolas Paris, Rosy Tsopra, **Alice Rogier**, David Baudoin, Kevin Bretonnel Cohen, Anita Burgun, Nicolas Garcelon, et al. "Natural language processing for rapid response to emergent diseases: case study of calcium channel blockers and hypertension in the COVID-19 pandemic". In: *Journal of medical Internet research* 22.8 (2020).

[5] Alexandre Saadi, **Alice Rogier**, Anita Burgun, and Rosy Tsopra. "Design of an Ontology-Based Triage System for Patients with Chronic Pain". In: *MEDINFO 2021: One World, One Health–Global Partnership for Digital Innovation.* IOS Press, 2022, pp. 81–85.

[6] Antoine Neuraz, Ghislain Vaillant, Camila Arias, Olivier Birot, Kim-Tam Huynh, Thibaut Fabacher, **Alice Rogier**, Nicolas Garcelon, Ivan Lerner, Bastien Rance, et al. "Facilitating phenotyping from clinical texts: the medkit library". In: *Bioinformatics* (2024), btae681.