

JOB OFFER

Position in the project:	Sano PhD Student - Project title: Advancing BioMedical Literature Search using Federated Search and Generative AI
Scientific discipline:	Computational Medicine, Clinical Data Science, Computer Science, Biological Science
Job type (employment contract/stipend):	A full-time contract of employment for 4 years
Number of job offers:	1
Remuneration/stipend amount (" <i>X0 000 PLN of full remuneration cost, i.e. expected net salary at X 000 PLN</i> "):	<ul style="list-style-type: none"> • An attractive basic salary up to 9300 PLN gross • Additional private medical care and partially sponsored access to sport facilities
Position starts on:	Expected start ASAP – Summer 2023
Maximum period of contract/stipend agreement:	4 years
Institution:	Sano Centre for Computational Personalised Medicine – International Research Foundation, Krakow, Poland
Project leader:	dr. Ahmed Abdeen Hamed (Clinical Data Science Research Group Leader)
Project title:	<p>Operationally, Sano strategically combines the most prestigious scientific grant currently available from the national Polish Foundation for Science (FNP) – the International Research Agenda Programme (IRAP) – with one of the most competitive grants in the EU’s H2020 programme, Teaming for Excellence.</p> <p>Combined with additional Polish Ministry of Science guarantees, the Centre has secured investment exceeding €30M. With this scale of funding, and aided by an excellent European partnership network, we can be confident that Sano will bring a critical mass to this transformational field of research, in order to translate scientific advancement into clinical practice.</p>
Project description:	<p>Sano presents a great opportunity for people who want to make a change in the world by developing life-changing technologies and solutions for healthcare worldwide.</p> <p>Sano Centre for Computational Medicine is a new International Scientific Foundation located in Kraków, Poland.</p> <p>Sano aspires to be a major translational scientific institute, operating at the meeting point of academic science, established MedTech industry, and emerging start-up environment, combining the best of these three perspectives.</p> <p>Established with support from the European Commission and the Foundation for Polish Science, Sano aims to be a major driving force behind the advancement of computational medicine for the benefit of healthcare systems worldwide.</p> <p>Sano acts as a core technology and expertise provider for industry, and creator of innovation, developing state-of-the-art solutions for healthcare. Thanks to the substantial funding and excellent European partnership network, Sano will bring a critical mass to this transformational field of research, in order to translate scientific advancements onto clinical practice. Sano’s ambition is to become the Reference Centre for Computational Medicine in Central Europe and build a reputation as a leading institute on a global level.</p>

As a cross-disciplinary institution, Sano uses machine learning/artificial intelligence (ML/AI), large scale computer simulations (HPC), data science, and other computational technologies towards overcoming global challenges in healthcare systems. The research agenda will be executed in close collaboration with Partners in Poland, EU and USA.

We value:

- Passion - Passion in what we do, engagement in Sano operations, taking responsibility, providing initiative, being happy at work.
- Innovation - Boldness in articulating and pursuing novel ideas, courage to think outside the box.
- Integrity - Directness, openness, tolerance and respect. Scientific integrity (we do not cut corners).
- Diversity - Diversity in backgrounds, cultures and opinions of Sano employees. Promotion of women in STEM.

Sano's Research Agenda is built on six research pillars, interacting with each other. For each of the pillars, Sano aims to attract senior professionals to assume positions of Group Leaders. Although fully independent, all of the groups at Sano will be working in concert to invent computational healthcare solutions of the future.

Project title: Advancing BioMedical Literature Search using Federated Search and Generative AI

Publication date: 14.06.2023

Closing date: 16.07.2023

Level of education: Master's degree

Hours: 40 hours per week

Salary indication: up to 9300 PLN gross monthly

Supervisors:

Sano: Dr. Ahmed Abdeen Hamed (Clinical Data Science Research Group Leader)

Project start: ASAP (Summer 2023)

The position is for Sano's Clinical Data Science team. We are seeking a highly motivated and talented individual to join our research team as a PhD student. This position offers an exciting opportunity to contribute to the advancement of biomedical literature federated search through the application of generative AI techniques and cutting-edge tools, such as ChatGPT, LLaMA, Alpaca, and others.

The successful candidate will be involved in developing and enhancing a federated search engine that enables simultaneous searching of multiple biomedical literature databases. This research project aims to leverage the power of generative AI models and natural language processing to improve the effectiveness and efficiency of information retrieval from diverse biomedical sources. The candidate will explore the use of state-of-the-art tools, including ChatGPT, LLaMA, Alpaca, and other relevant AI

Key responsibilities include:

models, to enhance the search capabilities, semantic understanding, and user interaction within the federated search framework.

The position is especially adequate for PhD students who want to learn about, apply and further develop workflow technologies for scalable data integration in the exciting field of clinical data science and analytics. You will contribute to the ambition of Sano's Clinical Data Science team to be nationally and internationally recognized for its strengths in clinical data science in general and biomedical data analytics, in particular.

You are expected to:

- Conduct an in-depth review of the existing literature on federated search in the biomedical domain, as well as generative AI models and techniques.
- Design and implement novel algorithms and methodologies to improve the performance and accuracy of the federated search engine.
- Utilize generative AI tools, such as ChatGPT, LLaMA, Alpaca, etc., to enhance the natural language understanding and generation capabilities of the search system.
- Collaborate with interdisciplinary teams, including researchers and clinicians, to understand their needs and incorporate their feedback into the system design.
- Perform rigorous evaluations and experiments to assess the effectiveness and efficiency of the developed federated search framework.
- Publish research findings in top-tier conferences and journals, contributing to the academic and scientific community.
- Contribute to the intellectual environment of the research group through active participation in discussions, seminars, and knowledge sharing.

Profile of candidates/requirements:

As our successful candidate you should have:

- Master's degree (completed or near completion) in a relevant discipline, such as data; science, mathematics, biostatistics, computational biology, computational chemistry;
- Proficiency in Python, C++, Java, and/or Julia programming;
- Familiarity with generative AI models and frameworks, such as ChatGPT, LLaMA, Alpaca, or similar tools.
- Solid understanding of biomedical literature databases, ontologies, and related resources.
- Excellent problem-solving abilities and the ability to work both independently and collaboratively in a research team.
- Strong written and verbal communication skills, with the ability to present research findings effectively.

Required documents:

Sano is an equal opportunities employer. We prioritize diversity and are committed to creating an inclusive environment for everyone. We value a spirit of enquiry and perseverance, provide the space to keep asking questions, and promote a culture of curiosity and creativity.

Do you recognize yourself in the job profile? Then we look forward to receiving your application.

Applications in .pdf should include:

- a cover letter;

	<ul style="list-style-type: none"> a curriculum vitae.
We offer:	<p>We offer a fixed term contract for 40 hours per week for the duration of 4 years. This will be supported by an educational plan that includes attendance of courses and (international) meetings. The contract will include opportunities to participate in teaching and supervision of undergraduate and master students.</p> <p>The salary, depending on relevant experience before the beginning of the employment contract, will be up to 9300 PLN gross per month, based on a full-time contract (40 hours a week) for the duration of 4 years with private medical care and a sports card.</p> <p>This PhD will be a collaboration between Sano and a degree awarding body. The student will be based in Poland, operating in conjunction with the Cyfronet supercomputing centre hosted by AGH.</p> <p>Sano offers excellent opportunities for study and development, access to many international conferences on computational medicine and the possibility to grow in a scientific society.</p>
Please submit the following documents to:	<p>Our recruitment system:</p> <p>https://sano.elevato.net/en/sano-phd-student-project-title-advancing-biomedical-literature-search-using-federated-search-and-generative-ai,ja,160</p> <p>We will support you in every stage of the recruitment process.</p>
Application deadline:	July 16 th 2023
For more details about the position please visit (website/webpage address):	www.sano.science
Euraxess job/stipend offer (in case of PhD and postdoc positions):	https://euraxess.ec.europa.eu/jobs/116776

Non-Discrimination

To provide open, transparent and internationally accessible career development opportunities the Centre will follow The European Charter for Researchers and The Code of Conduct for the Recruitment of Researchers. The entire recruitment process will be carried out respecting the non-discrimination rules; the Centre is an equal opportunity employer, values diversity and affirms the right of every qualified applicant to receive consideration for employment without regard to race, colour, religion or belief, sex, gender identity or expression, national origin, language, sexual orientation, disability, age, political opinion, social or economic condition.

Your Personal Data

In accordance with the general regulation of 27 April 2016 on the protection of personal data, hereinafter referred to as GDPR, we wish to inform you that:

1. The Administrator of your personal data is the Sano Centre for Computational Personalised Medicine - International Research Foundation – located at (30-072) Kraków, ul. Nawojki 11. The Administrator may be contacted at the following e-mail address: legal@sano.science.
2. Your personal data shall be processed for the purposes of the recruitment process.
3. The legal basis for processing your personal data for the purposes of recruitment shall be Article 6 Section 1 Point c of the GDPR, with processing being necessary for the fulfilment of a legal obligation to which the Administrator is subject, particularly Article 118a of the Law on Higher Education as well as Article 221 of the Labour Code. The condition legalising the processing of personal data provided voluntarily by the candidate, which is beyond the scope of data referred to in Article 221 of the Labour Code, shall be Article 6 Section 1 Point a of the GDPR – consent by the data subject.

4. Providing your personal data, subsequent to the decision to enter the recruitment process, is obligatory within the scope defined by Article 221 of the Labour Code and the Law on Higher Education and determines the possibility of applying for work as well as possible further employment. In the case of personal data which is beyond the scope of the aforementioned legal regulations, providing your data is voluntary but it does determine the possibility of participating in the recruitment process.
5. Your personal data shall be processed on behalf of the data administrator by authorised personnel purely for the recruitment purposes.
6. Your personal data shall be stored for a period of time necessary for the fulfilment of the recruitment process. Should the recruitment outcome prove negative, your data shall be removed immediately at the completion of recruitment, unless otherwise provided by the record-keeping regulations— then for a period of time specified in these regulations.
7. Your personal data shall not be shared with external entities with the exception of cases provided for by legal regulations. Should you submit your application documents in electronic form, the recipient of your data may be an entity acting on behalf of the administrator i.e. a mail service operator.
8. Under the terms of the GDPR, you shall be entitled to:
 - a. the right to access your data,
 - b. the right to rectify it if factually incorrect,
 - c. the right to remove or restrict the processing of the data as well as the right to data portability – in cases prescribed by the law,
 - d. the right to object to the processing of the data,
 - e. the right to file a complaint with the supervisory authority – the President of the Personal Data Protection Office, should you consider that the processing of your personal data violates personal data protection regulations.