

Imaging Data Engineer

CIBM Multi-institution computable biomedical imaging platform (MiCo-BID) and CHUV-Lundin Brain Tumor Database

The mission for this position is to **develop the data science infrastructure necessary for large-scale, automated medical image storage, sharing, processing, and modelling** according to best national and international standards. This infrastructure is developed jointly by CIBM and the Lundin Center for Brain Tumor Research under two projects with overlapping aims:

- The *Multi-institution computable biomedical imaging platform* project, supported by the CIBM and Swiss Data Science Center, aim at building an open research imaging data infrastructure linking the two University Hospitals of Lausanne and Geneva, the Universities of Lausanne and Geneva, and the EPFL. The core platform we use and contribute to is the open source, INRIA-led Shanoir project.
- The *CHUV-Lundin Brain Tumor Database* project, funded by the Lundin Family Center for Brain Tumor Research, aims at building the most complete brain tumor database in the world, comprising clinical data, imaging data, and omics data. With a target size of several thousand patients, and a commitment to open science from the beginning, this ambitious project aims at supporting data-driven research in brain cancer.

Tasks for the imaging data engineer position include

- Develop image selection and depersonalization tools and pipelines based on metadata
- Develop and integrate ETL workflows and ensure correct data formats
- Integrate and develop tools for semantic data annotation and metadata management
- Interface with the storage and computing environment in each institution
- Develop, integrate and automate image analysis tools and services, including interfaces with existing platforms in institutions.
- Integrate and develop image segmentation tools and pipelines
- Prepare deployment of tools in the form of containers.
- Optimize data processing, including performance, scaling, traceability, reproducibility.
- Use good development practices, including version control, unit tests, integration tests, CI/CD
- Develop and maintain documentation for pipelines and tools, including data dictionaries and standard procedures

Affiliation and Collaboration:

The Imaging Data Engineer will be affiliated with both the CIBM Data Science CHUV-HUG Imaging for Precision Medicine Section and the Lundin Family Brain Tumour Research Center at CHUV, and physically located at the Translational Machine Learning Laboratory within the Department of Medical Radiology at CHUV. To promote cross-departmental and cross-institutional collaboration, the engineer will regularly embed with the CHUV IT department's data science team (DSI) or the HUG IT department imaging team (DSI), dedicating half to a full day each week to collaborative efforts.

You will join a dynamic team of scientists and engineers with diverse technical backgrounds. Frequent interactions with medical professionals will enrich your role. Our team is committed to gender equity, and we strongly encourage women to apply.

Supervisor

- **Main Supervisor:** Dr Jonas Richiardi, Department of Radiology, Lausanne University Hospital; Head of CIBM DS CHUV-HUG Imaging for Precision Medicine Section, <https://cibm.ch/research/projects/imaging-for-precision-medicine/>; Imaging workgroup coordinator at Lundin Family Center for Brain Tumor Research <https://www.chuv.ch/en/braintumour/>. Jonas.Richiardi@chuv.ch
- **Co-Supervisor:** Dr Sébastien Courvoisier, Data Science officer CIBM DS CHUV-HUG Imaging for Precision Medicine Section; Faculty of medicine, UNIGE, sebastien.courvoisier@unige.ch

Qualification, previous experience and background

- MSc or PhD in computer science, data science, or related fields such as electrical engineering, biomedical engineering, applied mathematics, or statistics.
- Demonstrated previous experience in DataOps, data processing, and big data pipelines
- Demonstrated previous experience in software development, including object-oriented programming, architecture design, documentation, testing, and deployment.

Requested Skills

- Very good knowledge of Python 3.10+, including relevant data science libraries such as pandas/polars, SQLAlchemy.
- English knowledge (B1+) mandatory, French knowledge (B1+) is a strong advantage
- Strong communication ability and professionalism.
- Excellent inter-personal skills

Desirable

- Knowledge of ML libraries such as scikit-learn and Pytorch is an asset
- Experience in medical imaging, including international standards such as DICOM, and community standards such as BIDS, is a strong advantage

Location:

Main: Translational Machine Learning Laboratory (TML), part of the Department of Medical Radiology, Lausanne CHUV

Secondary: CHUV IT department's data science team (DSI) or the HUG IT department imaging team (DSI)

We offer: Competitive salary with regular progression, high social benefits, three days of training per year, 25 working days of vacation per year.

Dates/Duration: June 2025 / One-year contract, renewable

How to apply: Send your informal inquiries to jonas.richiardi@chuv.ch or apply directly on the online CHUV platform: <https://recrutement.chuv.ch/vacancy/imaging-data-engineer-for-medical-radiology-department-307025.html>

About CIBM

The CIBM Center for Biomedical Imaging was founded in 2004 and is the result of a major research and teaching initiative of the partners in the Science-Vie-Société (SVS) project between the Ecole polytechnique fédérale de Lausanne (EPFL), the Université de Lausanne (UNIL), Université de Genève (UNIGE), the Hôpitaux Universitaires de Genève (HUG) and the Centre Hospitalier Universitaire Vaudois (CHUV), with the generous support from the Fondation Leenaards and Fondation Louis-Jeantet.

CIBM brings together highly qualified, diverse, complementary and multidisciplinary groups of people with common interest in biomedical imaging.

We welcome you in joining the CIBM Community.

About Lundin Family Center for Brain Tumour Research

The Lundin Family Brain Tumour Research Centre was established in 2022 thanks to the generous support of Mr. Lukas Lundin and his family. Its mission is to promote clinical innovation to improve the outcome of patients suffering from brain and spinal cord tumours. To achieve this objective, it has set three key priorities.

- Firstly, it aims to enhance brain cancer research by offering financial support to a minimum of five clinical projects through a competitive grant program.
- Secondly, it is committed to fostering the growth of the next generation of researchers and promoting international collaborations in neuro-oncology through a post-graduate training program.
- Lastly, it seeks to empower scientific teams by providing them with essential research infrastructure to support clinical trials and research projects. This includes expanding its brain tumour database and biobank by incorporating additional clinical, radiological, and molecular data and making it available to worldwide researchers.