

Open Position for Master's Student in Network-Based Epidemic Modeling

Short description

The Bergthaler Lab at the Medical University of Vienna is seeking a motivated Master's student to contribute to the SLORA Data:Research:Austria project.

The student will work on the development of the Austrian Labor-stratified metaPopulation Infection Network (ALPIN), a data-driven model designed to study the temporal evolution of respiratory disease-related sick leave statistics in Austria. As part of an interdisciplinary research effort, the student will help implement and evaluate new model features, apply the model to Austrian sick leave data, and investigate how different modeling choices and additional data sources affect model performance. The project combines **mathematical modeling**, **data analysis**, and **computational inference**, with a particular focus on metapopulation models and Approximate Bayesian Computation. It offers the opportunity to work on a timely public health question at the interface of epidemiology, data science, and complex systems. For examples of related work by lab members, see Ódor et al. and Amman et al. below [1,2]. The project may also serve as the basis for a Master's thesis, depending on the requirements and timeline of the student's degree program.

Requirements

- Enrollment in a relevant Master's program, for example in mathematics, physics, statistics, data science, computer science, epidemiology, or a related field
- Previous programming experience, preferably in Python
- Interest in mechanistic epidemic models, Bayesian inference, and/or optimization algorithms
- Availability to contribute substantially to the project for a duration of 6-12 months

Previous experience in epidemic modeling or Bayesian inference is an advantage, but not required.

What we offer

- Close supervision in an interdisciplinary research lab at the intersection of infectious diseases, epidemiology, immunology, public health surveillance and mathematical modeling
- Experience with real-world virus surveillance, sick leave and administrative data
- The opportunity to contribute to the development of a new computational model for respiratory disease dynamics in Austria
- A project that may be developed into a Master's thesis, depending on the student's program

Application

Applications should be submitted to Dr. Gergely Odor (gergely.odor@meduniwien.ac.at). Please include a CV, a brief statement of interest, and, if available, a recent transcript of records. Applications will be reviewed on a rolling basis. For full consideration, please apply by **June 30, 2026**. The preferred starting period is **summer/fall 2026**, with the exact starting date to be discussed.

[1] Ódor et al., *PNAS* 118.41 (2021) doi:10.1073/pnas.2112607118

[2] Amman et al., *Nature biotechnology* 40.12 (2022) doi:10.1038/s41587-022-01387-y