

ENAC-SIE, Master Project	Start: Feb 2019
30 ECTS credits	End: Jul 2019

Title	Analysis of human mobility patterns for the modelling of infectious diseases
Supervisors	Javier Perez-Saez, Prof. Andrea Rinaldo
Objective	To extract predictable patterns from sociological data regarding water contacts in the perspective of integrating them in a large-scale spatially explicit schistosomiasis modelling framework.
Abstract	The transmission of infectious diseases is influenced, among other factors, by the patterns of human mobility at the national scale. Of particular importance are the seasonal variations in space and time. We here aim at better understanding and modelling these fluxes using a dataset of anonymized cell phone records from 100'000 users in Burkina Faso, West Africa.
Task description	• Statistical analysis of pre-processed cellphone data • Integration of observed fluxes in spatial mathematical models of the transmission of diseases (ebola, schistosomiasis)
Required skills	• Proficient in R/Matlab/Python
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