Faculté de l'Environnement Architectural, Naturel et Construit (ENAC)
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ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

ENAC-SIE, SIE/Master Project, Fall 2017	Start:	19/09/2017
4/30 ECTS credits	End:	22/12/2017 (approx.)

Title	**Evaluation and prediction of world populations dynamics**
Supervisors	Dr. Paolo Benettin, Dr. Damiano Pasetto, Prof. Andrea Rinaldo
Objective	Develop new projections of world populations using flow dynamics methods
Abstract	World populations evolve in time following very different dynamics. Most european countries are in an "ageing" phase, where newborn are decreasing and mean population age is around 40 years. The opposite case is that of developing countries, where population is in a growth phase and mean age is slightly over 20 years. All dynamics can be quantified using global datasets recently provided by the United Nations. The analysis of these datasets can reveal the population evolution of each country in the world over the last 60 years and it is the basis to make new prediction using innovative methods from flow dynamics.
Task description	1. analysis of global population datasets 2. quantification of immigration/emigration fluxes 3. developement of a model to evaluate and predict world population dynamics (master projects only) 4. assessment of model uncertainty (master projects only)
Required skills	• good numerical and programming skills (Matlab, Python or R)
Contact	paolo.benettin@epfl.ch

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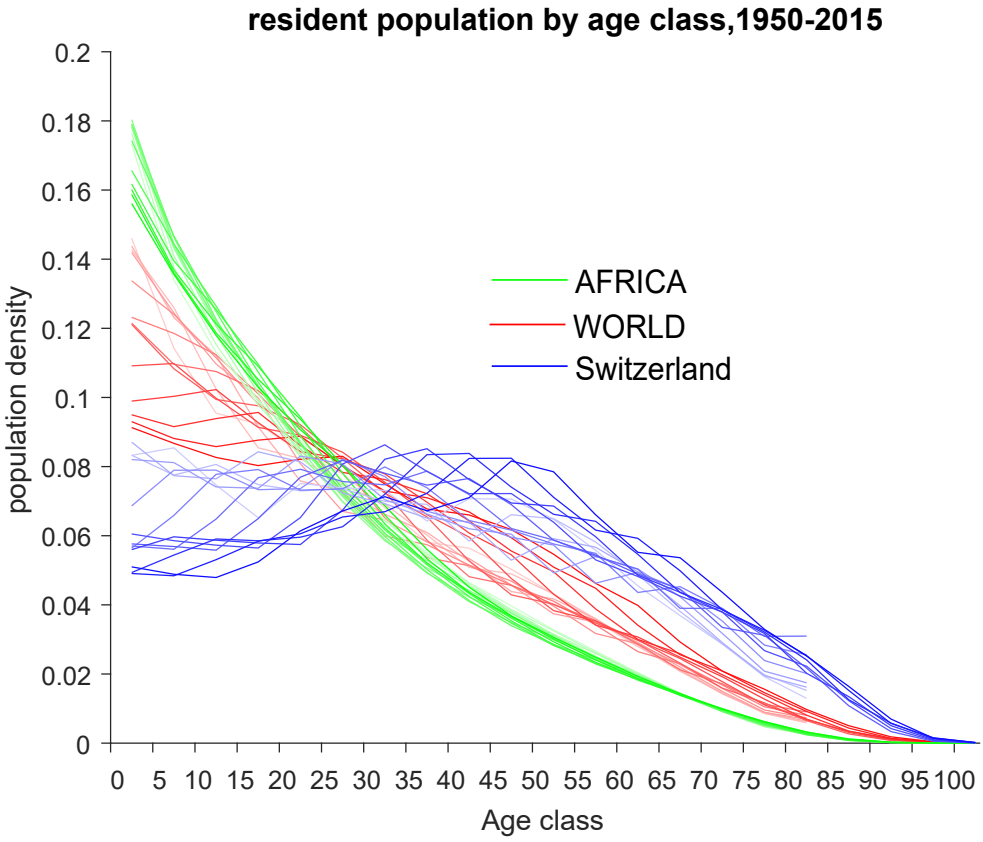

Figure 1: Examples of local and global population evolution