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Research Interests

I am a mathematician specialised in stochastic approaches and statistics. Moreover, I always had a big interest in medical sciences and looked for a discipline where to combine these two areas. I naturally focused on biostatistics which led me towards the pharmacometrics speciality. The underlying mathematical methodology is very complex, especially the stochastic aspects of the pharmacokinetic modeling -i.e. the mixed effects approach- offers a wide range of interesting problems.

My main focus in the PharMetrX program is to determine how the observed variability in pharmacokinetic data can be explained by hierarchical models -i.e. the allocation of variability into inter-indivvdual, inter-occasion and residual variabilty- with the objective to give a mechanistic understanding of the resulting variance components. More specifically, the unknown random aspect of the inter-individual variability could be explained by deterministic elements such as covariates common to drugs presenting the same biopharmaceutical properties. This would lead to a better understanding of the origins of the variability in pharmacokinetics data and would allow to optimise the study designs in drug development and the dosing regimen going towards dose indivisualization.

http://compphysiol.math.uni-potsdam.de/