

Mihály Koltai

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CURRENT POSITION

Institut Curie, U900 (**Computational Systems Biology of Cancer group**)

Paris, France

Bioinformatician postdoctoral research associate

Sept 2016 -

EDUCATION

Ruprecht-Karls-Universität Heidelberg

Heidelberg, Germany

PhD in Computational Biology

May 2016

Grade: 1.0 (highest distinction)

Eotvos Lorand University

Budapest, Hungary

Diploma (5-year course) at Department of Biological Physics

February 2012

PROJECTS

COLOSYS project: systems biology of drug resistance in colon cancer

Sept 2016 - Present

- Using stochastic logical and ODE models to predict/reproduce drug responses in colorectal cell lines
- Model optimization/machine learning by using drug screen and CRISPRi data as constraints
- Exact calculation method for stochastic logical models implemented as [MATLAB toolbox](#) (manuscript under review)
- EU project coordination: coordinating collaboration and meetings with experimental partners

PhD project on mathematical modeling of microbial signaling

March 2012 - May 2016

- Parameter fitting of systems of ordinary differential and algebraic equations for biological signaling networks
- Stochastic simulations of bacterial motility, derivation of analytical solution
- Collaboration with experimental biologists: model fitting by microscopy and flow cytometry data
- Publications: Nature Communications, PNAS

M.Sc. project: rule-based modeling of signal transduction

September 2010 - January 2012

- Manual curation and database entry for the [SignaLink](#) database
- Stochastic rule-based modeling of signal transduction

SKILLS

- Quantitative and modeling skills: kinetic and biochemical models, ordinary differential equations, stochastic simulations, Boolean modeling, parameter fitting, local and global optimization methods
- Programming languages: R, MATLAB, Python, Mathematica, Bash, Perl, LaTeX
- Languages (scale: A1-A2-B1-B2-C1-C2-Native): Hungarian (N), English (C2), French (C1), German (C1)
- Recent trainings:
 - [Applied Plotting, Charting & Data Representation in Python](#)
 - Machine Learning: [Machine Learning](#) | [Machine Learning with Python](#) | [Neural Networks and Deep Learning](#) | [Improving Deep Neural Networks](#)

PUBLICATIONS

See [Google Scholar profile](#). 4 first author articles (3 shared *). Total citations (06/2020): 193.

[1] D. Fazekas*, [M. Koltai*](#), D. Türei* et al, *SignaLink 2 - a signaling pathway resource with multi-layered regulatory networks*, BMC Syst Biol. 2013 Jan 18;7:7

[2] S. Bubendorfer*, [M. Koltai*](#), F. Rossmann, V. Sourjik, K. M. Thormann, *Secondary bacterial flagellar system improves bacterial spreading by increasing the directional persistence of swimming*, Proc Natl Acad Sci USA. 2014 Aug 5;111(31):11485-90

[3] A. Banderas*, [M. Koltai*](#), A. Anders, V. Sourjik, *Sensory input attenuation allows predictive sexual response in yeast*, Nat Commun. 2016 Aug 25;7:12590

[4] [M Koltai](#), V Noel, A Zinovyev, L Calzone, E Barillot, *Exact solving and sensitivity analysis of stochastic continuous time Boolean models*, BMC Bioinformatics 21, 241 (2020)