Venelin Mitov

Data Scientist, Ph.D.

✆ upon request
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🖥 *https://venelin.github.io*

*I am a mathematician and computer scientist, fascinated by
biology and passionate about analysing complex data.*

Curriculum Vitae

Employment

2019–2020   **Scientific Assistant II**, Computational Evolution group, Department of Biosystems Science and Engineering (D-BSSE), ETH Zurich.
Modeling stem-cell development using phylogenetic comparative methods.

2014–2018   **Scientific Assistant I**, Computational Evolution group, D-BSSE, ETH Zurich, Ph.D. thesis: Phylogenetic comparative methods in the era of big data.
supervised by Prof. Dr. Tanja Stadler

2010–2011   **Lead Performance Engineer**, Adhoc International, Basel.
Project leadership in performance testing of e-banking web applications.

2006–2010   **Performance Engineer**, Adhoc International, Basel.
Development and execution of performance tests for web applications.

2005   **Software Engineer (internship)**, Adhoc International, Basel.
Design and implementation of Java-based test automation tools for web applications.

2003–2004   **System Administrator**, University St. Kliment Ohridski, Sofia, Bulgaria.

Education

2011–2013   **M.Sc. Student**, Computational Biology and Bioinformatics, ETH Zurich, Switzerland, Thesis: Transfer learning of genome wide transcription dynamics during a malaria infection.

2004–2005   **International Exchange (Erasmus) Student**, DESS, Networks and Telecommunications, University Louis Pasteur, Strasbourg, France.
Included as part of B.Sc. studies.

2000–2005   **B.Sc. Student**, Computer Science, University St. Kliment Ohridski, Sofia, Bulgaria.

Nominations and Scholarships

2018   **Nomination for the Silver Medal of ETH Zurich for outstanding doctoral thesis**.
Six nominated candidates from D-BSSE will be evaluated for the award on December 18th 2019.

2004-2005   **Scholarship for one year studies in France in the framework of the student exchange program "Erasmus"**.
Based on excellent academic record and knowledge of French.

2000-2004   **Scholarship for B.Sc. studies**.
Based on excellent entry exams and academic record.

Publications

See 🖥 https://venelin.github.io/publications.

Grants

2015   **Funding for the first "Taming the BEAST" workshop**, Swiss Universities Conference (SUK) doctoral program 2013-2016, 25'000 CHF.

Projects

See ↰⌂ `https://venelin.github.io/projects`.

Other contributions

2019 Co-organiser of the seminar series "Methods & Beers", `https://methods-and-beers.ch`.

2016 Co-organiser of the first "Taming the BEAST" workshop, `https://taming-the-beast.org`.

2015 Review of the article "Predicting Microbial Traits with Phylogenies", Systematic Biology.

Skills

Modeling / machine learning methods:
- Multivariate regression and classification: linear regression, logistic regression, support vector machines, neural networks;
- Convex optimization: Gradient descent, Alternating direction method of multipliers;
- Monte Carlo simulation: reversible jump Markov Chain Monte Carlo sampling;
- Dimensionality reduction and regularization: Ridge, Lasso, Principal Component Analysis; self-organizing maps;
- Population dynamics: Ordinary differential equations (ODE) models;
- Computer assisted drug design: virtual molecular screening and molecular dynamics simulation;
- Graphical models: Bayesian networks;
- Stochastic models: Branching processes, Brownian motion (BM) and Ornstein-Uhlenbeck (OU) processes, Gaussian models.

Computater science:
- Data structures and algorithms;
- Programming languages: Expertise in R, C++, Java, Unix shell, SQL; Notions about C#, Matlab, Python;
- Libraries: STL, Armadillo, alglib;
- Parallel computing: OpenMP, MPI, LSF;
- Data visualization: ggplot2.

Other skills:
- Project management;
- Scientific writing, documentation and presentation skills;
- Languages: English and French – fluent, German – C1, Bulgarian – native.

Interests and hobbies

Playing the piano, swimming, volleyball, hiking, bicycle touring.

References

Upon request.