Georgi Tancev

MSc ETH

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Experience

01/20– **Research Scientist**, *Swiss Federal Institute of Metrology (METAS)*, Bern.
- Managing a project funded by Innosuisse, the Swiss Innovation Agency, with the objective of developing a novel low-cost sensor system for air quality monitoring (36779.1 IP-ENG).
- Developing, implementing, and evaluating of machine learning algorithms for prediction (regularized linear regression/neural network, random forest) and anomaly detection (local outlier factor, one-class support vector machine, isolation forest) from raw sensor data in Python using Scikit-Learn, TensorFlow, PyMC3.
- Conducting market research, interacting with original equipment manufacturers, designing experiments from published data (full/fractional factorial, central composite, Box-Behnken), and assessing component parts with respect to performance.
- Organizing and moderating project meetings, giving presentations, and writing/reviewing (scientific) reports and publications.
- Analyzing experimental data as in-house data science consultant for different metrology laboratories or external collaborators.

09/19–11/19 **Data Scientist**, *University of Basel*, Basel.
- Implementing, training, and evaluating deep learning models for image segmentation (MD-GRU, V-Net) in Python using TensorFlow within high performance computing environments.
- Analyzing volumetric medical imaging data, i.e., segmentation of multiple sclerosis lesions in human brain scans generated by magnetic resonance imaging.

04/18–04/19 **Data Scientist**, *University Children's Hospital Basel*, Basel.
- Developing standardization procedures for a novel medical device based on breath analysis.
- Analyzing and visualizing clinical/omics data with methods such as supervised/unsupervised machine learning (principal component analysis, t-distributed stochastic neighbor embedding, random forest), parametric and non-parametric statistical tests (t-test, Wilcoxon rank-sum/signed-rank test) and analysis of variance (F-test, Kruskal-Wallis test), i.e., mining biomarkers/risk factors and statistical modeling in MATLAB and Python using SciPy, Pandas, Scikit-Learn.
- Deploying machine learning models using Flask, Angular, Docker.
- Reporting results and writing scientific publications.

05/17–03/18 **Postgraduate**, *Novartis*, Basel.
- Programming, modeling, and simulating manufacturing processes in Python using NumPy, SciPy.
- Developing crystallization processes of early-phase drug substances in wet-lab.
- Designing/drawing manufacturing inventory using FreeCAD.

01/14–04/17 **Tutor**, *Forum 44*, Baden.
- Teaching math, physics, and chemistry to adolescents in one-to-one or group lessons.

Education

09/15–03/17 **MSc ETH in Chemical and Bioengineering**, *Swiss Federal Institute of Technology*, Zürich, 5.6.

09/11–08/15 **BSc ETH in Chemical Engineering**, *Swiss Federal Institute of Technology*, Zürich, 4.8.

08/07–06/11 **General Qualification for University Entrance**, *Cantonal School*, Baden.

Certifications

04/20 **Bayesian Methods for Machine Learning**, *National Research University - Higher School of Economics*.

03/20 **Algorithms and Data Structures**, *University of California, San Diego*.

02/19 **Deep Learning**, *deeplearning.ai*.

01/19 **SQL for Data Scientists**, *University of California, Davis*.

12/18 **Machine Learning**, *Stanford University*.

11/18 **Good Clinical Practice**, *University Hospital Basel*, Basel.

11/18 **Project Management for Researchers**, *University of Basel*, Basel.

10/18 **Scientific Writing (Academic Conventions and Style)**, *University of Basel*, Basel.

Projects

10/19–11/19 **Medical Language Model Learner (MLML)**.

- Medical Language Model Learner (MLML) is a machine learning/data science application for natural language processing of medical documents (classification by medical specialty). It is developed as a pure Python back-end using Scikit-Learn and Streamlit (*ml-ml.herokuapp.com*).

05/19–09/19 **openPK**.

- openPK is an attempt to provide physiolocigally based pharmacokinetic modeling to a broader audience. Deterministic pharmacokinetic models from the academic literature have been implemented in a Python/Flask back-end, whereas the front-end has been built in TypeScript/Angular (*openpk.herokuapp.com*).

Skills

Industry Knowledge

- Algorithms
- Biology
- Chemistry
- Clinical Research
- Data Analysis
- Data Science
- Deep Learning
- Engineering
- Life Science
- Machine Learning
- Mathematical Modeling
- Numerical Simulation
- Programming
- Project Management
- Research
- Statistics

Tools and Technologies

- Git
- LaTeX
- MATLAB
- Python
- SQL
- Unix

Interpersonal Skills

- Communication
- Critical Thinking
- Negotiation
- Teamwork

Languages

- English (advanced)
- French (basic)
- German (native)
- Macedonian (basic)

Interests

- Computer Science
- Endurance Sports
- Literature
- Photography
- Politics
- Technology

Publications

- Tancev, G.; Pascale, C. The Relocation Problem of Field Calibrated Low-Cost Sensor Systems in Air Quality Monitoring: A Sampling Bias. *Sensors* **2020**, *20*, 6198.
- Gotta, V.; Tancev, G. Identifying Key Predictors of Mortality in Young Patients on Chronic Haemodialysis: A Machine Learning Approach. *Nephrology Dialysis Transplantation* **2020**.
- Singh, K.; Tancev, G. Standardization Procedures for Real-Time Breath Analysis by Secondary Electrospray Ionization High-Resolution Mass Spectrometry. *Analytical and Bioanalytical Chemistry* **2019**, *411*, 4883.