

Viktor Skantze

Data Scientist

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DATA SCIENTIST

Viktor Skantze

6 years of experience



Summary

Innovative Data Scientist & Machine Learning Engineer with a **PhD in Mathematical Modelling**, specializing in precision nutrition and industrial applications. Proven track record in algorithm development, big data analysis, and cross-functional collaboration. Seeking opportunities to drive impactful solutions in industry or academia.

Skills

- Python
 - Conda
 - Poetry
 - Django
 - Black
- Git
- Bash
- Windows Subsystem for Linux (WSL)
- Docker
- SQL
 - PostgreSQL
 - DBeaver
- Matlab
- R
- Computational clusters (Bianca at Uppsala University)
- Algorithm development
 - Developer of the novel algorithm: "Parametric Dynamic Mode Decomposition with Control":
<https://github.com/FraunhoferChalmersCentre/pDMDc>

- Computer vision
 - OpenCV
 - Camera Calibration
 - Pose Estimation
 - Depth Estimation
- Deep learning
 - Feed Forward Networks
 - CNN's
 - Auto Encoders
 - Variational Auto Encoders
 - Reinforcement Learning
- Sensor fusion
 - Kalman Filtering
 - Particle Filtering
- Control theory
 - Optimal Control
 - Model Predictive Control
- Signal processing
 - Fourier Transform
 - Filtering
 - Principal Component Analysis
- Mathematical optimization
 - Global Optimization: Genetic Algorithms, Simulated Annealing, Particle Swarm etc.
 - Local Optimization: Gradient-based Methods, Simplex, etc.
 - Algebraic Optimization
- Dynamic modelling/Time series analysis
 - Autoregressive models: ARX, ARIMA, Dynamic Mode Decomposition
 - Ordinary Differential Equations
 - State Space Models
- Big data analysis
 - Tensor Decompositions
 - Matrix Decompositions
 - Factor Analysis
 - Matrix Completion, Recommender Systems
 - Multivariate Regression: Lasso, Elastic net, PLS, Tree-based Methods, MUVR
 - Clustering: K-means, PAM, Gaussian Mixture Modelling

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- Univariate & multivariate statistics
 - Statistical Testing
 - Bayesian Statistics & Inference
 - Sequential Monte Carlo Sampling
 - Non-linear Mixed-Effects Modelling
- Soft skills
 - Skilled in prospecting and outreach
 - Lead generation
 - Experienced in cross-disciplinary teamwork and effective communication of complex results.

Trainings & certifications

- Various talks at international conferences on mathematics in precision nutrition.
- Several won research grants, e.g., Kungliga vetenskapsakademin (100k SEK).
- Courses on mathematics, statistics, and mandatory ethics & writing courses during my PhD.
- 5 published articles , advancing the field of precision nutrition, and three more on the way:
https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=viktor+skantze&oq=Viktor+

Experience

- **Data scientist / Applied Researcher – Fraunhofer-Chalmers Centre (2024 - now)**
- **Industrial PhD Student – Chalmers & Fraunhofer-Chalmers Centre (2019- 2024)**
- **Master Thesis – Zenuity/Zenseact (2019)**
- **Junior Mechatronics Engineer – Aros Electronics (2018)**

Education

- **Post-Doctoral Studies, Harvard Medical School (2024)**
 - Visiting researcher at the Channing Lab, investigating optimal metabolic responses to personalize diets through mathematical modeling and optimization theory. Supervisors: Frank Hu and Yang-Yu Liu
- **Doctoral Studies, Chalmers University of Technology (2019 - 2024)**
 - PhD in Mathematical Modelling for Precision Nutrition.
 - Curriculum: Statistical learning & dynamical modelling.
 - Main subjects: Statistics, Inference, Big data analysis, Machine learning, Mathematical Modelling, & Matrix analysis.

- **Master's Degree in System, Control & Mechatronics, Chalmers University of Technology (2017 - 2019)**
 - Curriculum: Control & Signal processing.
 - Main subjects: Control, Signal processing, Machine learning, Mathematical Modelling.
- **Erasmus+ Exchange, Universidad de Navarra–Tecnun (2016 - 2017)**
 - San Sebastián, Spain.
 - First year of the MPSYS master.
 - Main subjects: Electric Drives, Digital Signal processing.
- **Bachelor's Degree in Mechanical Engineering, Chalmers University of Technology (2013 - 2016)**
 - Main subjects: Mathematics and Physics, Programming, Applied physics
 - Title of the Thesis: "Analysis of geometries in flowmeters in medical ventilation equipment".

Languages

- English Fluent
- Swedish Fluent/Native
- Spanish Fluent
- Portuguese Fluent

Projects Portfolio

University of Naples

Federico II

2025-02 - ongoing

Role: Data scientist/Machine learning engineer

Industry: Academia

Context: Research

Responsibilities:

- Develop a dynamic model to estimate uncorrected glucose response from type-1 diabetes patients with closed-loop system.
- Predict sampled glucose response from diet
- Use optimal control to suggest optimal diet for the patients to minimize insulin use.
- Publish research findings and communication of results.

Environment: Python, scikit-learn, numpy, joblib, pymc

**Internal &
Volvo Cars**

2024-10 - ongoing

Role: Data scientist/Machine learning engineer

Industry: Automotive

Context: Consulting

Responsibilities:

- Develop algorithm for human pose estimation and align it with a simulation software for line production planning.
- Write software for camera calibration using python and opencv.
- Generate dataset for camera calibration and for pose estimation.

Environment: Python, opencv, voxelpose

**Chalmers &
Harvard
Medical
School**

2024-07 - ongoing

Role: Data scientist/Machine learning engineer

Industry: Food science

Context: Consulting

Responsibilities:

- In-house statistician for the Department of Food Science at Chalmers University of Technology.
- Analyze continuous glucose measurement (CGM) data to infer how individuals in the normal population respond differently to the same food.
- Infer meal timing using derivative-based methods.
- Signal processing for noise removal.
- Parametrize response time series for interpretable statistics.
- Infer associations between response parameters and clinical measures using statistical tests.
- Identify differential response groups using dimensionality reduction tools e.g., PCA.
- Predict glucose response from food intake and clinical measures using machine learning tools, e.g., random forest.
- Predict entire glucose response dynamics using the library pymc, i.e., Sequential Monte Carlo methods and Bayesian statistics.
- Build and maintain entire code base on Github as project goes on.
- Communicate research findings at conferences and meetings.

Environment: Python, pymc, numpy, joblib, scikit-learn

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Örebro University

2025-05 – 2025 -06

Role: Data scientist/Machine learning engineer

Industry: Academia

Context: Consulting

Responsibilities:

- Analyze metabolomics time series and investigate association with inflammatory biomarker
- Write report on research findings and communication of results.

Environment: Python, scikit-learn, numpy

Uppsala University

2024-07 – 2024 -12

Role: Data scientist/Machine learning engineer

Industry: Academia

Context: Research

Responsibilities:

- Perform multivariate statistics for researchers that investigate juvenile arthritis.
- Publish research findings and communication of results.

Environment: Python, scikit-learn, numpy

Oatly

2023-03 – 2023 -04

Role: Data scientist/Machine learning engineer

Industry: Food science

Context: Consulting

Responsibilities:

- Analyze the NutriScore algorithm to evaluate whether it favors foods products containing animal protein compared to vegetarian or vegan alternatives.
- Sensitivity analysis of algorithm to demonstrate edge cases.

Environment: Matlab

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Chalmers University of Technology

2019-08 – 2024 -01

Role: Researcher

Industry: Food science

Context: Academia

Responsibilities:

- Investigated the association of glucose patterns after a single non-standardized meal with habitual diet composition and features of the daily glucose profile in individuals without diabetes.
- Developed and applied a methodology (MUV2) for adjusting for covariates and assessing modeling fitness in machine learning.
- Performed data-driven analysis and prediction of dynamic postprandial metabolic response to multiple dietary challenges using Dynamic Mode Decomposition.
- Identified metabotypes in complex biological data using Tensor Decomposition (PARAFAC).
- Analyzed differential responders to a mixed meal tolerance test associated with Type 2 Diabetes risk factors and gut microbiota.
- Wrote all the articles.
- Did all the derivations, maths, and statistics.

Environment: Python, R, Matlab