

## Personal Details

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Dominic Stefan Bräm  
Pediatric Pharmacology and Pharmacometrics  
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## Education & Work Experience

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- 2021 – 2024**      **PhD student in Pediatric Clinical Pharmacology and Pharmacometrics, University of Basel**  
Investigate neural ordinary differential equations (NODEs) in pharmacometrics and develop NODE structures specifically for pharmacometric applications, translate machine learning models to classical pharmacometric models, apply machine learning to impute missing covariate data for pharmacokinetic analysis, conduct classical pharmacokinetic and pharmacodynamic analysis with drug-drug interaction, optimize drug dosing for clinical application and personalized medicine
- 2020 – 2021**      **Internship on Advanced Analytics in Pharmacometrics, Roche**  
Investigate the application of artificial neural networks in pharmacokinetic modelling
- 2019 – 2020**      **Master Thesis: *Population Pharmacokinetics in Patient Data and Image Analysis***  
Investigate population pharmacokinetics in pediatrics for Busulfan and Gentamycin, analyze PET-data using ordinary differential equations and analytical approaches
- 2019**              **Research Project: *Interrupted time series analysis of acetaminophen intoxications and the influence of a policy change***  
Conduct statistical time series analysis of spontaneous case reports, investigate effect of new dosage strength on acetaminophen intoxications
- 2018**              **Research Project: *Determination of kinetic parameters by simulating enzymatic assays***  
Perform enzyme kinetic and inhibition assays, analyze observed dynamics with pharmacometric modeling
- 2018 – 2020**      **MSc Pharmaceutical Sciences, ETH Zurich**  
Courses in Biopharmacy, Biostatistics, Pharmacoepidemiology, Computer-Assisted Drug Design, Scientific writing, Pharmacovigilance, Clinical Development etc.
- 2015 – 2018**      **BSc Pharmaceutical Sciences, ETH Zurich**  
General courses in Mathematics, Statistics, Informatics, Biology, Chemistry, Biochemistry etc.

## Teaching Activities

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- 2023 and 2024**      **Applied Pharmacometrics Training mentoring program**  
Teach and supervise doctoral-level students from Africa in pharmacometric analysis, including theoretical and practical background in pharmacometrics, development of analysis plans, and publication of scientific articles
- 2022 and 2024**      **R introduction course at University of Basel**  
Organize and conduct an R introduction course for students and employees of University of Basel, including theoretical lectures and practical exercises
- 2023**              **Workshop on Machine Learning in Pharmacometrics at University of Buffalo**  
Organize and conduct a workshop on integrating machine learning into pharmacometrics for students of the State University of New York, including theoretical lectures and practical exercises in Monolix

## Oral Presentations at Conferences and Seminars

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- 2024**              **Modeling & Simulation Seminar, Basel, Switzerland**  
Modeling pharmacometric data with neural ODEs: Get insights into unknown model structures with machine learning
- 2024**              **Drug Metabolism Discussion Group (DMDG) Open Meeting, York, United Kingdom**  
Application of Neural ODEs to predict PK and PD profiles
- 2023**              **American Conference on Pharmacometrics (ACoP), Maryland, USA**  
Modeling pharmacometric data with Neural ODEs including inter-individual variability
- 2023**              **Population Approach Group Europe (PAGE) Meeting, Rome, Italy**  
Neural ODE structures based on pharmacokinetic principles
- 2022**              **American Society for Clinical Pharmacology and Therapeutics (ASCP) Satellite Session, online**  
Machine Learning supports covariate imputation in Pharmacometrics
- 2021**              **Modeling & Simulation Seminar, Basel, Switzerland**  
Supporting Pharmacometrics by learning with machines

## Extracurricular Activities

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2010 – 2024	<b>Scout leader, Section leader, Group leader</b> Manage an association with over 120 members, lead a group of up to 20 scout leaders, work in a team, take responsibility, solve different kind of problems, deal with different areas e.g. corporate design & corporate identity, annual planning, event organization etc.
2018 – 2020	<b>Executive board member of the Academic Pharmacy Student's Association (APV), ETH Zurich - Chief editor of student magazine <i>Tonikum</i></b> Organize editorial meetings, coordinate article submission, contact to sponsors, responsible for printing and publishing
2019	<b>SPHN Data Privacy and IT Security Training</b> Training for the handling of patient data