SEBASTIAN RAUSCHERT

Strategic Manager | Principal Data Scientist | Technical Leader

CONTACT

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sebrauschert

Sebastian Rauschert

EDUCATION

PhD in Human Biology — Ludwig-Maximilians-University, Munich (November 2013 - November 2017)

Master of Public Health — Ludwig-Maximilians-University, Munich (October 2011 - September 2013)

Bachelor of Arts in Sociology and Psychology — Ludwig-Maximilians-University, Munich (October 2008 - September 2011)

PROFILE

Technical leader with 12+ years in data science, computational biology, and machine learning, specializing in fit-for-purpose solutions for business optimization and scientific discovery. Experienced in leading cross-functional teams and international partnerships on multi-million-dollar research projects in biotech, healthcare, and genomics initiatives. Experienced in bridging research and stakeholder needs through reproducible, production-ready solutions.

KEY ACHIEVEMENTS

- ***Leadership:*** *Set-up the Computational Biology team and infrastructure at the Minderoo Foundation from scratch, scaling from 1 to 5 staff* and implementing the strategic direction.
- ***Software development and optimization:*** *Accelerated disease variant prediction software (VARPP,) by 6.5X through Random Forest parallelization and interpretable Machine Learning implementation, reducing processing time from 40 minutes to 6 minutes on 8 cores for a 500-tree ensemble model, with linear scaling based on available cores (varppRule)*
- ***Partnership, Project & Budget Management:*** Managed international partnerships worth $10M+, expanding resources and expertise for computational biology projects, whilst ensuring deliverables are met for partner-led projects, e.g. software (CONSULT-II & KRANK) and publications

WORK EXPERIENCE

PRINCIPAL DATA SCIENTIST

INSiGENe Pty Ltd

April 2024 - Present

- ***Workflow Development:*** Led the creation and automation of 5+ analytical workflows, streamlining client data analytics and improving processing efficiency and time by 40%.
- ***Optimization of Information retrieval:*** Established large language model functionality in our workflows, improving information retrieval from documents, protocols, and scientific publications, decreasing research time by 25%.
- ***Analytical Reproducibility:*** Guided our software engineering efforts to implement fully reproducible processing of client data in our proprietary DecipherC2C platform, leading to our first proof-of-concept client project for the platform.
- ***Technical Leadership & Education***: Created and authored "Byte-Sized Breakdowns", a technical newsletter combining data science insights with practical GitHub tutorials, establishing our team as thought leaders while providing hands-on learning resources for the broader data science community.

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WORK EXPERIENCE

MANAGER, RESEARCH COMPUTATIONAL BIOLOGY

Minderoo Foundation

August 2021 - April 2024

- ***Leadership***: Set up and spearheaded the computational biology unit of the OceanOmics project, leading to the robust identification of over 500 species through environmental DNA analysis via a reproducible and automated pipeline**.** I further set up the eDNA dashboard for outreach and stakeholder engagement, and subsequently got promoted to Manager, Computational Biology.
- ***Team Development***: I increased the technical output and project delivery through scaling the computational biology team from 1 to 5 data scientists and bioinformatics staff, whilst mentoring junior team members with no expertise in our data types to become proficient in not only analyzing it, but setting up reproducible and automated analytical workflows.
- ***Technology Innovation:*** Led a project to introduce machine learning models into the analytical pipeline that improved the accuracy of genomic predictions by up to 89%, directly contributing to global conservation efforts. Oversaw the development of a large language model chatbot as an easy to use interface to our data for stakeholders, now part of the eDNA dashboard**.**

COMPUTATIONAL BIOLOGIST

Telethon Kids Institute

December 2019 - August 2021

- ***Software Development***: Developed varppRule, an interpretable machine learning model that augments rare disease diagnosis by analyzing patient genomics and publicly available tissue expression data. The model empowers clinicians with clear explanations for variant predictions, leading to faster and more confident diagnostic decisions.
- ***Data Integration***: Created a centralized data repository for the team, streamlining access to key datasets and reducing analysis time by 40% via pre-processed workflow integration.
- ***Workflow Optimization***: Automated and updated analytical workflows from in house to integrating a best practice pipeline for large genomic data sets, increasing analysis speed by 60% and boosting reproducibility (Encode Pipeline Setup).

BIOINFORMATICIAN

Telethon Kids Institute

February 2018 - December 2019

- ***Pipeline Development:*** Built and deployed automated pipelines that reduced manual data processing time by 60%, increasing overall productivity. It also enabled less technical staff to execute otherwise complex analytical processing of in-house generated data sets.
- Software Development*:* Led a project that utilized machine learning as an efficient tool to identify genetic markers for disease risk, contributing to the discovery of actionable insights in pediatric health.
- ***International Collaboration:*** Secured 20k+ in research grants through collaborative work on the genomics project of the European Union funded LifeCycle project, directly contributing to software and Whitepaper development.