

# CECILE MEIER-SCHERLING

cecile.meier-scherling@brown.edu  $\diamond$  LinkedIn: cecilemeier-scherling

Personal Website: cecile-meier-scherling.github.io

## SUMMARY AND INTERESTS

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**Interests:** Machine learning, deep learning, and Bayesian statistic approaches that overcome limited genomic data challenges while studying drug resistance in diseases.

## EDUCATION

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**Brown University, Center for Computational Molecular Biology** 2022 - Exp. 2027

Ph.D. Student in Computational Biology

Co-advisors: Lorin Crawford, Ph.D. and Jeffrey Bailey, MD Ph.D.

**Boston University, College of Engineering** 2018 - 2022

B.S. in Biomedical Engineering, concentration in Machine Learning

Bachelor thesis advisor: Dr. Muhammad Zaman

## RESEARCH EXPERIENCE

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**Center for Computational Molecular Biology**, Brown University Sep 2022 - Present  
*Graduate Research Assistant* Providence, RI

- Advised by Dr. Lorin Crawford and Dr. Jeffrey Bailey
- Developed Bayesian modeling framework to estimate and forecast the selection for *Plasmodium falciparum* artemisinin drug resistance-associated mutations in Uganda, and compare estimates to mutations in South-East Asia
- Analyzing virulence genes causing malaria using a reference-free approach to then develop a convolutional neural network (CNN) to predict which virulence genes are associated with disease progression, drug resistance, and malaria transmission

**Dana-Farber Cancer Institute**, Harvard Medical School May 2021 - Mar 2023  
*Research Student in the Department of Data Science* Boston, MA

- Developed a pan-cancer evolutionary model to estimate tumor evolutionary modes on the basis of copy number variations (CNVs) from single-cell RNA sequenced data with Dr. Franziska Michor and Dr. Simona Cristea

**Beth Israel Deaconess Medical Center**, Harvard Medical School Jun 2019 - July 2019  
*Research Intern at Berenson-Allen Center for Non-Invasive Brain Stimulation* Boston, MA

- Worked with Dr. Mark Halko to investigate effects and safety of magnetic non-invasive brain stimulation (TMS) on attention in adults

## PROFESSIONAL EXPERIENCE

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**Evotec** Jun 2020 - Jul 2020  
*Student Intern in the High-Content Imaging Department* Hamburg, Germany

- Developed pipeline to analyze cell structure in different imaging techniques for microscopy data analyses (Cell Profiler and Acapella)

## TEACHING EXPERIENCE

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- Brown University** Jan 2024 - May 2024  
Graduate Teaching Assistant for Statistical Analysis of Biological Data (BIOL 0495)
- Boston University**, College of Engineering Jan 2020 - May 2021  
Undergraduate Teaching Fellow for Probability, Statistics, and Data Science (3 semesters)

## MANUSCRIPTS IN PREPARATION

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1. **Meier-Scherling, C.**, Watson, O., Asua, V., Ghinai, I., Katairo, T., Garg, S., Conrad, M., Rosenthal, P., Okell, L., Bailey, J. Selection of artemisinin partial resistance Kelch13 mutations in Uganda in 2016-22 was at a rate comparable to that seen previously in South-East Asia. [*Preprint MedRxiv*]

## CONFERENCE AND INVITED TALKS

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1. **Meier-Scherling, C.**, Baharav T., Niaré K., Salzman, J., Crawford, L., Bailey, J. Analyzing the relatedness of genomic variation in malaria parasites using a reference-free approach. **2024 RECOMB-SEQ, Boston MA.**
2. **Meier-Scherling, C.**, Watson, O., Asua, V., Ghinai, I., Katairo, T., Garg, S., Conrad, M., Rosenthal, P., Okell, L., Bailey, J. Comparison of strength of selection for Plasmodium falciparum artemisinin resistance-associated mutations between southeast Asia and Uganda. **2023 ASTMH Young Investigator Award Competition, Chicago, IL.**
3. **Meier-Scherling, C.**, Watson, O., Asua, V., Ghinai, I., Katairo, T., Garg, S., Conrad, M., Rosenthal, P., Okell, L., Bailey, J. Initial selection of artemisinin partial resistance in East Africa is comparable to previous rapid emergence in South East Asia. **2023 Wellcome Sanger Institute, Molecular Surveillance Team, virtual.**

## POSTER PRESENTATIONS

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1. **Meier-Scherling, C.**, Baharav T., Niaré K., Salzman, J., Crawford, L., Bailey, J. Analyzing the relatedness of genomic variation in malaria parasites using a reference-free approach. **2024 RECOMB-SEQ, Boston, MA.**
2. **Meier-Scherling, C.**, Watson, O., Asua, V., Ghinai, I., Katairo, T., Garg, S., Conrad, M., Rosenthal, P., Okell, L., Bailey, J. Comparison of strength of selection for Plasmodium falciparum artemisinin resistance-associated mutations between southeast Asia and Uganda. **2023 ASTMH, Chicago, IL.**
3. **Meier-Scherling, C.**, Watson, O., Asua, V., Ghinai, I., Katairo, T., Garg, S., Conrad, M., Rosenthal, P., Okell, L., Bailey, J. Comparison of strength of selection for P. falciparum artemisinin resistance-associated mutations between southeast Asia and Uganda. **2023 ISMB/ECCB, Lyon, France.**
4. **Meier-Scherling, C.**, Watson, O., Asua, V., Ghinai, I., Katairo, T., Garg, S., Conrad, M., Rosenthal, P., Okell, L., Bailey, J. Initial selection of artemisinin partial resistance in East Africa is comparable to previous rapid emergence in South East Asia. **2023 Brown Public Health Research Day, Providence, RI.**
5. **Meier-Scherling, C.**, Cristea, S., McDonald, T., Michor, F. evoModes: A modeling framework for estimating tumor evolutionary modes from single-cell RNA sequencing data. **2022 CSH Biological Data Science Conference, Cold Spring Harbor, NY.**

## AWARDS

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<b>Travel Award for RECOMB 2024</b> , Graduate Student Council at Brown University	May 2023
<b>Travel Award for ASTMH 2023</b> , Brown University BioMed Center	May 2023
<b>Travel Award for ASTMH 2023</b> , Brown University Graduate School	May 2023
<b>Best Poster Award</b> , TransMed COSI at ISMB/ECCB 2023	Aug 2023
<b>Travel Award for ISBM/ECCB 2023</b> , Brown University Graduate School	May 2023
<b>Travel Award for ISBM/ECCB 2023</b> , Brown University BioMed Center	May 2023
<b>Travel Award for ISBM/ECCB 2023</b> , Graduate Student Council at Brown University	May 2023
<b>Cum Laude</b> , Boston University College of Engineering	May 2022
<b>Second Place for Societal Impact Award for Senior Thesis</b> , Boston University	May 2022
<b>Semi-Finalist in Rice 360 Global Health Technology Design Competition</b>	Mar 2022
<b>Dean's List</b> , Boston University College of Engineering	Dec 2021
<b>Dean's List</b> , Boston University College of Engineering	May 2021
<b>Dean's List</b> , Boston University College of Engineering	May 2020
<b>Patriot League Honor Roll</b> , Patriot League	May 2021
<b>Patriot League Honor Roll</b> , Patriot League	May 2020
<b>Patriot League Honor Roll</b> , Patriot League	May 2019
<b>Bloom Family Leadership Academy</b> , Boston University Athletic Department	Sep 2019

## SKILLS

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**Programming Languages:** RStudio, RMarkdown, Python (Num-py, Pytorch, TensorFlow, Keras), MATLAB, STATA, C++, high-performance computing (slurm, snakemake)  
**Software/Tools:** Git/GitHub, Microsoft Office, LaTeX  
**Languages:** German (native), English (native), French (B2), Latin (Latinum)

## SELECTED LEADERSHIP EXPERIENCES

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<b>Women in Data Science</b> , Data Science Institute at Brown University Conference organizer	Mar 2024 - Present
<b>Council on the German American Conference at Harvard e.V.</b> Member	Jan 2024 - Present
<b>Ph.D. Admissions Committee</b> , Brown University Interviewer for Brown University's Computational Biology graduate program	Dec 2023 - Present
<b>World Economic Forum Global Shaper</b> , Providence Hub Curator (Feb 2024 - present), Volunteer (Sep 2023 - Feb 2024)	Sep 2023 - Present
<b>German American Conference</b> , Harvard Kennedy School Advisor	Jan 2023 - Present
<b>German American Conference</b> , Harvard Kennedy School Conference co-chair, and organizing member	Sep 2019 - Jan 2024
<b>Berlin Exchange Medicine Journal</b> Co-Lead Organizer for Peer-Review Fellowship	Nov 2021 – Sep 2022
<b>Women's Rowing Team</b> , Boston University Division 1 athlete	Sep 2018 - Sep 2021
<b>Bloom Family Leadership Academy</b> , Boston University Selected member	Sep 2019 - Sep 2021