FLAVIA HODEL

Doctoral student in Human Genomics

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Experiences

Visiting PhD student
Wellcome Trust Centre for Human Genetics, University of Oxford
2019

I went to the WTCHG for a collaborative project to identify key genomic determinants of humoral immune responses against multiple human pathogens. This experience allowed the exchange of ideas and data, and provided me with new tools to bring back to my colleagues.

PhD student in Human genomics & Computational biology
Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland
2018 - ongoing

Supervisor: Prof. Jacques Fellay

I use genome-wide genotyping data, bioinformatics tools and statistical methods to explore the interplay between human genetic variation, persistent infections and chronic inflammation, and understand their independent and combined effect on coronary artery disease. It is a multidisciplinary and collaborative project bringing together our in-house data with other biobanks.

Graduate teaching assistant
Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland
2018 - ongoing

Subjects taught: Probabilities and statistics, Genetics and genomics, and Introduction to life sciences for School of Computer and Communication Sciences (IC).

Summer trainee
Institute of Human Virology, Nigeria
2016

Worked with a team of scientists to address the HIV/AIDS crises in Nigeria through the development of infrastructure for treatment, care, prevention, and support.

Education

Ph.D. in Computational and Quantitative Biology (EDCB)
Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland
2017 – ongoing

M.Sc. in Bioinformatics
University of Lausanne, Switzerland
2016 – 2017

B.Sc. in Biology
University of Lausanne, Switzerland
2012 – 2015

Volunteering

Nuit de la lecture
Caretaker of book-crossing boxes in Lausanne
2022 - ongoing

EPFL – ETHZ Summer School "Shaping the Future of (bio)-Medicine"
Co-organiser
2019

Planed the event and location, made budget for the event, contacted sponsors and speakers, co-organised the health hackathon in collaboration with the MIT

Basic computer course for seniors
Instructor at ACLI Svizzera
2016

Languages

French	Native
Swiss-German	Native
English	Full professional proficiency
Italian	Level C1
Spanish	Level C1

Strengths

Data analysis · Bioinformatics · Biostatistics · Data visualization · Genomics · Infectious diseases · GWAS · Linear/logistic regression · Univariate/multivariate analysis · Survival analysis · Biobanks · Biomarkers · R · BASH · Python · LaTeX · GitHub

Team spirit · Leadership · Adaptability · Eye for detail · Emotional intelligence · Conferences and events organisation · Research presentations

Publications

Hodel, F., Naret, O., Bonnet, C., Brenner, N., Bender, N., Waterboer, T., ... & Fellay, J. (2022). The combined impact of persistent infections and human genetic variation on C-reactive protein levels. *medRxiv*, doi 10.1101/2022.01.07.22268880.

Hodel, F., Chong, A. Y., Scepanovic, P., Xu, Z. M., Naret, O., Thorball, C. W., ... & Fellay, J. (2021). Human genomics of the humoral immune response against polyomaviruses. *Virus Evolution*, veab058.

Lawless, D., Allen, H. L., Thaventhiran, J., **Hodel, F.**, Anwar, R., Fellay, J., ... & NIHR BioResource–Rare Diseases Consortium. (2019). Predicting the Occurrence of Variants in RAG1 and RAG2. *Journal of clinical immunology*, 39(7), 688-701.

Scepanovic, P., **Hodel, F.**, Mondot, S., Partula, V., Byrd, A., Hammer, C., ... & Lantz, O. (2019). A comprehensive assessment of demographic, environmental, and host genetic associations with gut microbiome diversity in healthy individuals. *Microbiome*, 7(1), 130.

Scepanovic, P., Alanio, C., Hammer, C., **Hodel, F.**, Bergstedt, J., Patin, E., ... & Quintana-Murci, L. (2018). Human genetic variants and age are the strongest predictors of humoral immune responses to common pathogens and vaccines. *Genome medicine*, 10(1), 59.

Hodel, F., Patxot, M., Snäkä, T., & Ciuffi, A. (2016). "HIV-1 latent reservoir: size matters". *Future Virology*, 11(12), 785-794.

Conferences

European Society of Human Genetics (ESHG)

Vienna, Austria - Berlin, Germany - Gothenburg, Sweden

2019, 2020, 2021

Early career poster award candidate in 2021

American Society of Human Genetics (ASHG)

San Diego, CA, USA

2018

Professional development

Machine Learning

Online course on Coursera

2020 - Ongoing

Given by Stanford University, CA, USA

- Supervised learning (parametric/non-parametric algorithms, support vector machines, kernels, neural networks)
- Unsupervised learning (clustering, dimensionality reduction, recommender systems, deep learning)
- Best practices in machine learning (bias/variance theory; innovation process in machine learning and AI)

Creative thinking: techniques and tools for success

Online course on Coursera

Certificate earned in Oct. 2020

Given by Imperial College London, UK

- Creativity tools and Thinking styles
- Morphological analysis
- TRIZ: The theory of inventive problem solving
- The SCAMPER method

Summary

As a data analyst, I have expertise in computational biology. I analyze large-scale biological data and find solutions to better understand human diseases using genetics and environmental factors. In my PhD, I particularly enjoy the collaboration with my interdisciplinary colleagues and other institutes, the communication of data to enable future decisions, and the great freedom to create. I am enthusiastic and eager to learn new software and tools.