**Personal details and date of CV**

- Surname: Hagolani
- First names: Pascal Felix
- ORCID: 0000-0002-0603-8734
- Birthdate: 11 April 1984, Spain
- Citizenship: Germany
- Permanent Resident: Finland

**Contact information**


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**Degrees**

- 04.10.2021. Doctor in Philosophy. Biological and Environmental Sciences. University of Helsinki. Helsinki, Finland. registrar@helsinki.fi
- 11.09.2013. Bachelor in Biology. Universidad de Granada. Granada, Spain.

**Linguistic skills**

- Mother tongue: Spanish, German
- Other languages: English (full professional)

**Current employment**

01.03.2024 - ongoing. Postdoctoral researcher. Kamaludin Dingle, Gulf University for Science & Technology. In my current postdoctoral research, I am exploring the apparent dichotomy between certain statistical models, particularly in quantitative genetics, that successfully predict long-term evolution, and theoretical work suggesting these predictions should be significantly weaker. To address this, I am using a model of tooth development and applying quantitative genetics methods to better understand why these predictions hold or under what circumstances they fail. Additionally, I am utilizing Algorithmic Information Theory to investigate various systems, aiming to predict the limits of their complexity over a given timeframe.

**Previous work experience**

01.0.6.2014 - 31.05.2021. Doctoral researcher. Isaac Salazar Ciudad, University of Helsinki. During my PhD studies, I developed innovative methods and algorithms to investigate how complex organisms can develop and evolve in a stable manner. My research involved computational approaches, utilizing simulations primarily written in Fortran and Bash. The main program I used here was EmbryoMaker, a computational model able to simulate in 3D the biomechanics and cell behaviors in animal tissues. By using the CSC supercomputer TAITO, I gained hands-on experience with SLURM for job scheduling and resource management. Additionally, I have some experience with CUDA, having implemented it in one of the Fortran-based programs. The data generated from these simulations was processed and analyzed using Python and R. As part of my academic work, I regularly presented my findings to colleagues and the broader scientific community through conferences and seminars, as well as publishing my results in peer-reviewed scientific articles.

01.06.2021 - 30.02.2024. Postdoctoral researcher. Marie Semón and Sophie Pantalacci , ENS de Lyon. France. During my postdoc in Lyon I studied how pleiotropy affects the coevolution of two teeth. For this I used an already existing code written in Fortran and adapted it to the needs of my project as well as developing an evolutionary algorithm that would select for the occlusion between

the two teeth. This involved transforming the 3D morphology that the model produced into a 2D morphology and then finding the position between both morphologies that would maximise the surface of contact between the teeth. Similarly as during my PhD I used a supercluster located in Lyon to run the simulations.

**Research funding and grants**

15.07.2016 - 18.08.2017. Grand Challenge Application, grant provided by the CSC in Finland to provide computational resources. Amount granted: 6,000,000 Cpuh. I initiated the process to apply for this grant, wrote the initial draft of the application and helped to revise it. Principal investigator was Isaac Salazar Ciudad.

18.07.2018 - 18.07.2018. Grand Challenge Application, grant provided by the CSC in Finland to provide computational resources. Amount granted: 7,000,000 Cpuh. I initiated the process to apply for this grant, wrote the initial draft of the application and helped to revise it. Principal investigator was Isaac Salazar Ciudad.

**Research output**

***Publications:***

Total number of publications: 3

**Hagolani PF**, Zimm R, Marín-Riera M and Salazar-Ciudad I. "Cell signaling stabilizes morphogenesis against noise." Development 146.20 (2019): dev179309. Peer-reviewed scientific article.

**Hagolani PF**, Zimm R, Vroomans R and Salazar-Ciudad I. “On the evolution and development of morphological complexity: a view from gene networks.” PLoS Comput Biol 17 (2021): e1008570. Peer-reviewed scientific article.

Dingle K, **Hagolani PF**, Zimm R, Umar M, O'Sullivan S, Louis A. “Bounding phenotype transition probabilities via conditional complexity.” biorxiv. https://doi.org/10.1101/2024.12.18.629197

**PhD Thesis**

Title: On the origins and evolution of morphological complexity : a developmental perspective

Defense date:  10th of June 2021

Link: https://helda.helsinki.fi/items/70fabb91-bb27-4dc5-8635-458c1ec1a3ed

**Teaching merits**

- UP2 Constructive alignment in Course Design. University of Helsinki. 2019.
- Evo-Devo: the whole story. University of Helsinki. 2018. Function: Teacher and designer of the course.
- UP1 Teaching and learning in higher education. University of Helsinki. 2017.
- Teaching assistant in the Universitat Autònoma de Barcelona. 2014.

**References**

- Marie Sémon. Previous employer. Email: marie.semon@ens-lyon.fr

- Sophie Pantalacci. Previous employer. Email: sophie.pantalacci@ens-lyon.fr
- Kamaludin Dingle. Previous employer. Email: dingle.k@gust.edu.kw