Quentin Geissmann

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Research Experience

2018– *Postdoctoral research fellow (Human Frontier Science Program).* **How plant microbiomes interact with herbivorous insects**. Department of Immunity and Microbiology, University of British Columbia. (Dr C. Haney, Dr J. Carrillo).

2014–2018 *PhD student.* Department of Life Sciences, Imperial College London. **High-throughput Acquisition, Analysis and Alteration of Sleep in *Drosophila*** (Dr G. Gilestro).

- Statistical analysis and modelling of large time series
- Computer-aided design, 3d printing and electronics
- Machine learning applied to behaviour analysis

2010–2013 *Research technician.* Department of Animal and Plant Sciences, Sheffield University. **Stress, Resistance and Evolution of Bacteria Facing the Insect Immune System** (Dr J. Rolff).

- Image processing, computer vision
- Experimental microbiology and flow cytometry
- Bioinformatics

2010 (6 months) *Master's placement.* Global Health Institute, EPFL (Switzerland). **Molecular and Functional Characterisation of the Peptidoglycan Recognition Protein LC (PGRP-LC) in *Drosophila* immunity** (Dr B. Lemaitre).

- Confocal microscopy
- Experimental genetics
- Molecular biology

2009 (5 months) *Master's placement.* UMR 1272: Insect Physiology, Signalling and Communication, INRA Versailles. **Electrophysiological Study of Olfactory Receptor Neurones of Male *Spodoptera litoralis* in Response to a Female Pheromone** (Dr P. Lucas).

- Electrophysiological data analysis
- Single sensillum recording

Education

2014–2018	*PhD.* **Computational biology**, High-throughput Acquisition, Analysis and Alteration of Sleep in Drosophila. Imperial College, London.
2013–2014	*MSc.* **Bioinformatics and Theoretical Systems Biology**, distinction. Imperial College, London.
2008–2010	*MSc.* **Integrative Biology and Physiology**, distinction. Specialist modules: 'Molecular phylogenetics' and 'Mathematical modelling in biology'. Université Pierre et Marie Curie, Paris.
2005–2008	*BSc.* **Biology of Organisms**, first. Specialist modules: "Behavioural biology", "Ecological interactions". Université de Bourgogne, Dijon.

Publications

2019	**Q. Geissmann**[*], E. J. Beckwith[*], G. F. Gilestro. Most sleep does not serve a vital function. Evidence from *Drosophila melanogaster*. *Science Advances*. 10 citations.
2019	**Q. Geissmann**[†], L. García Rodriguez, E. J. Beckwith, G. F. Gilestro. Rethomics: an R framework to analyse high-throughput behavioural data. *PLoS ONE*. 10 citations.
2017	**Q. Geissmann**, L. García Rodriguez, E. J. Beckwith, A. S. French, A. R. Jamasb, and G. F. Gilestro. Ethoscopes: An open platform for high-throughput ethomics. *PLoS Biology*. 22 citations.
2017	E. J. Beckwith, **Q. Geissmann**, A. S. French, and G. F. Gilestro. Regulation of sleep homeostasis by sexual arousal. *eLife*. 39 citations.
2016	S. Fan[*], **Q. Geissmann**[*], E. Lakatos[*], S. Lukauskas[*], A. Ale, A. C. Babtie, P. D. W. Kirk, and M. P. H. Stumpf. MEANS: python package for Moment Expansion Approximation, iNference and Simulation. *Bioinformatics*. 14 citations.
2014	L. Duvaux, **Q. Geissmann**, K. Gharbi, J.-J. Zhou, J. Ferrari, C. M. Smadja, and R. K. Butlin. Dynamics of Copy Number Variation in Host Races of the Pea Aphid. *Mol Biol Evol*. 37 citations.
2013	**Q. Geissmann**[†]. OpenCFU, a New Free and Open-Source Software to Count Cell Colonies and Other Circular Objects. *PLoS ONE*. 211 citations.

Teaching, Supervision and Outreach

2018	*CAJAL Advanced Neuroscience Training Programme*, instructor, 4 days.
2017–2018	*Statistics in* `R` to undergraduate students, teaching assistant, 12h/year.
2017	Public engagement at Imperial College festival: interactive presentation of ethomics, 2h.
2016–2017	Lecture seminar: "High-throughput analysis of sleep behaviour" for the Applied Biosciences and Biotechnology MSc, 2h/year.
2014–2017	`Python` *programming* for the Bioinformatics and Theoretical Systems Biology MSc, teaching assistant, 12h/year.
2014–2018	Supervision of masters and undergraduate students, on average three students per year.
2013	`Unix` *tools for biologists*, at Next Generation Sequencing workshop, Sheffield University, 3h.

[*] Co-first authorship

[†] Corresponding author

Significant Posters and Presentations

2021	Invited speaker: Sticky Pi, an AI-powered smart insect trap for community chronoecology *British Columbian Spotted Wing Drosophila Group, Online.*
2020	Invited speaker: High-throughput monitoring of insect behaviours, from the lab to the field *Annual Meeting of the Argentinian Society for Neuroscience Research, Online.*
2019	Invited speaker: Manipulation of insect vector behaviour by the plant microbiome, a high-throughput phenotyping approach *Annual Meeting of the Entomological Society of America, St. Luis, MO.*
2019	Invited speaker: The plant microbiome and its effect on plant health *Pacific Regional Society of Soil Science Meeting, UBC, Vancouver.*
2018	Invited speaker: How much sleep does a fly *really* need? *Life Sciences Departmental Seminar, Imperial College London.*
2017	Poster: **Q. Geissmann**, L. García Rodriguez, E. J. Beckwith, and G. F. Gilestro. Is sleep deprivation really lethal to flies? *European Drosophila Research Conference, London.*
2017	Invited speaker: Is sleep deprivation really lethal to flies? *Champalimaud Centre for the Unknown, Lisboa.*
2017	Poster: **Q. Geissmann**, L. García Rodriguez, E. J. Beckwith, and G. F. Gilestro. Next generation activity monitoring sheds new light on *Drosophila* sleep. *UK clock club, Oxford.*
2016	Invited speaker: Using ethoscopes to quantify and alter sleep. *London Sleepy Club, London.*
2015	Invited speaker: High throughput quantification of sleep in fruit fly. *MRC translational innovation mixers, London.*

Awards and Recognitions

2019	Human Frontier Science Program Long-Term Fellowship – 156,840 Canadian dollars
2016	First prize for best second-year PhD research poster.
2013-2017	BBSRC Doctoral Training Program studentship – 120,000 Pound sterling.

Scientific Computing and Programming

In addition to my primary interest in biology, I have extensive experience in computer programming and have developed several scientific applications in various languages[1]:

`R`	*Highly competent*: base functions, statistics, algebra, data visualisation and package development.
`python`	*Highly competent*: scientific computing, package development and web applications.
`C/C++`	*Highly competent*: OpenCV (image processing & machine learning), OpenMP and standard library.
System	*Highly competent*: GNU/Linux.
Web	*Competent*: javascript and HTML/CSS.

[1] Most of my contributions are open-source and publicly available (see http://github.com/qgeissmann)