CV **Brendan Latham**

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Research Interests

I am interested in uncovering novel biomechanical systems in insects and applying these discoveries to engineering through interdisciplinary collaboration. I strive to solve complex biomechanics problems by integrating advanced imaging, computational modelling, and experimental techniques. While my research mainly focuses on acoustics, I am also interested in exploring a range of functions, from flight and adhesion to chemoreception and vision.

Education

- **Ph.D. in Electronic & Electrical Engineering**
  - *University of Strathclyde*, October 2020 – Present
- **M.Sc. (with Distinction) in Medical Visualisation & Human Anatomy**
  - *University of Glasgow*, *GSA School of Sim. & Vis.*, 2017 – 2018 (transcript)
- **B.Sc. (Honours) in Biology (2:1)**
  - *University of Aberdeen*, 2012 – 2016 (transcript)

Research experience

PhD Researcher – Insect Acoustics
University of Strathclyde, October 2020 – Present

- **Research:** A long-standing question of secondary filtering in the cricket ear (publication)
- **Key Findings & Contributions:**
  - **Identification of the 'Dividing Membrane'**– A previously overlooked structure
  - **'Coupled membranes hypothesis'** – The case for a series of mechanically linked independently tuned resonators solving both filtering and transmission
  - **Contradiction of Literature** – Using phase response data, we confirmed the low-frequency peak must originate from an internal structure and not from the tympanum

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Visiting Researcher – UK-Canada Doctoral Exchange Scheme
University of Toronto, June – September 2023

- **Research:** Behavioural study investigating the effect of host resource competition on the development of *O. ochracea* larvae, designed in Toronto, then US lab collaboration (preprint)
- **Key Contributions & Findings:**
  - **Resource Competition Affects Larval Outcomes** - Using 600 crickets we revealed that two larvae developing within the same host negatively affect pupation success
  - **Implications** - Provides insights into wild ecology and optimising colony rearing

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Master's Research
University of Glasgow, and *GSA School of Simulation & Visualisation*, 2018

- CT imaging of mammalian skull anatomy and testing learning resource (publication)

Volunteer Biologist
Fauna Forever non-profit, November–December 2016

- Living in the remote Peruvian Amazon collecting insect biodiversity data

B.Sc. Honours Research
University of Aberdeen, 2015 – 2016

- **Research:** Investigating RNA interference gene knockdown in *Tribolium* insects (dissertation)
- **Key Contributions & Findings:**
  - Using microinjection of dsRNA reagents, followed by RT-qPCR, we successfully achieved significant mortality via >95% suppression across all target genes

Publications

1. 1st/Lead Author: Dominquez, Latham et al. (2025) [Joint Lead Author, In Review]
2. 1st/Lead Author: Latham et al. (2024) *Journal of The Royal Society Interface*
3. 1st/Lead Author: Latham et al. (2019) *Springer Nature*
4. 2nd Author: Díaz-García, Latham et al. (2023) *Bioinspiration & Biomimetics*

Conference presentations

- 2023, *Invertebrate Sound and Vibration (ISV) Conference,* Lincoln, UK (read abstract)
- 2022, *14th International Congress of Neuroethology*, Lisbon, Portugal (read abstract)
- 2022, *14th Scottish Imaging Network (SINAPSE) Annual Scientific Meeting*, Glasgow (oral)
- 2021 & 2022, *3rd & 4th Doctoral School Multidisciplinary Symposia*, Strathclyde (oral)

Awards and recognition

- 2024, *Images of Research* university competition, 'Highly Commended' award (view online)
- 2023, *Canada Secondment* - Awarded by UKRI and Mitacs on proposal (research proposal)
- 2022, *3 Minute Thesis* competition, University of Strathclyde, local finalist (info)

Software

- **PhD** – NRecon, CT Analyser, CTVox, Dragonfly, Mudbox, MeshLab, Polytec PSV, R Stats
- **MSc** – Agisoft PhotoScan, 3D Slicer, Autodesk 3ds Max, ZBrush, SurveyMonkey, Unity 3D
- **BSc** – EXpasy, BLASTs, MEGA, CFX Manager, Minitab Express, ImageJ, (*Microsoft Office*)

Hardware

- **PhD** – micro-CT, light and fluorescence microscopy, laser vibrometry, finite-element analysis
- **MSc** – Advanced anatomy training via cadaveric dissection, CT imaging, programming
- **BSc** – Microinjection, RNA extraction, spectrophotometry, reverse transcription, RT-qPCR

Deadline management and teamwork

- Conceived and led my own PhD project and managed my own research budget (£5,200)
- Arranged visit to Prof. Bailey for specimens; brought Dr. Williams into my co-authorship team
- Consistently met conference abstract deadlines and submitted proposal to UKRI by deadline
- Provided lab training and mentorship: Prof Hofstetter, Cai Johnson, M. Maleque, R. Stoakes
- Colleagues and I wrote a Review; I wrote the biology section and wrote reviewer responses

Employment History

- 2023, *visiting researcher*, 3 m, University of Toronto, UKRI grant, contact: Prof Andrew Mason
- 2019-2020, *trainee barista*, 4 months, Glasgow, Costa Coffee, contact: Marcela Mclellan
- 2018-2019, *charity*, 1 yr, Glas., Christian ministry, [SC038484 (S.)], contact: Darren Jackson
- 2016-2017, *retail*, 7 m, Harris Tweed Isle of Harris Ltd., contact: Catherine Campbell
- 2016, *volunteer biologist*, 1 m, Amazon Rainforest, insect data, contact: Dr. Chris Kirkby

References

- Available on request and via hyperlinks