Aoife Hughes, MBCS, B.Sc., Ph.D.

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Statement

As a scientist I thrive off the challenge of the unknown. I love working in new fields and using the breadth of my experience to provide insights into novel problems.

Previously I have worked in the fields of computer vision, transcriptiomics, genomics, mathematical modelling and data science. I am also passionate about mentoring others.

Employment History

2022 – ····	🔖	**Data Scientist** - Research Engineering The Alan Turing Institute
	🔖	**Journal Editor** - Journal of Open Source Software (JOSS)
2019 – 2022	🔖	**Ph.D Tutor** - The Brilliant Club Charity.
2017 – 2018	🔖	**X-ray Image Analyst** - Doonan Lab, Aberystwyth University.
2016 – 2017	🔖	**Junior Scientist** - National Plant Phenomics Centre.
2015 – 2018	🔖	**Teaching Assistant** - Computer Science Department, Aberystwyth University.
2013 – 2014	🔖	**Systems Developer** - Belfast Metropolitan College, Northern Ireland, UK.
	🔖	**Gymnastics Coach** - Salto National Gymnastics Centre, Northern Ireland, UK.

Education

2018 – 2022	🔖	**Ph.D. John Innes Centre** Morris Group Thesis title: *Computational modelling of information transfer between cells* (aimed completion by September 2022)
2014 – 2018	🔖	**B.Sc. Computer Science, Aberystwyth University**. Dissertation title: *Modelling the effects of domestication in Wheat through novel computer vision techniques.*
2012 – 2014	🔖	**Diploma in Software Engineering, Belfast Metropolitan College**

Research Publications

Journal Articles

1. Tomkins, M., **Hughes**, **A.**, & Morris, R. J. (2021). An Update on Passive Transport in and out of Plant Cells. *Plant Physiology*, (kiab406). 🔗 doi:10.1093/plphys/kiab406

2. **Hughes, A.**, Faulkner, C., Morris, R. J., & Tomkins, M. (2021). Intercellular Communication as a Series of Narrow Escape Problems. *IEEE Transactions on Molecular, Biological and Multi-Scale Communications*, 7(2), 89–93. 🔗 doi:10.1109/TMBMC.2021.3083719

3 Ohtsu, M., Jennings, J., Johnston, M., Liu, X., **Hughes, A.**, Stark, K., … Faulkner, C. (2021). Colletotrichum higginsianum effectors exhibit cell to cell hypermobility in plant tissues and modulate intercellular connectivity amongst a variety of cellular processes, 2021.01.13.426415. 🔗 doi:10.1101/2021.01.13.426415

4 **Hughes, A.**, Morris, R. J., & Tomkins, M. (2020). PyEscape: A narrow-escape problem simulation implementation. *Journal of Open Source Software*.

5 **Hughes, A.**, Fradgley, N., Oliveira, H., Corke, F., Cockram, J., Doonan, J. H., & Nibau, C. (2019). Grain depth increases during early domestication in small grain cereals. *The Plant Journal*.

6 Cook, F., **Hughes, A.**, Nibau, C., Orman-Ligeza, B., Schatlowski, N., Uauy, C., & Trafford, K. (2018). Barley lys3 mutants are unique amongst shrunken-endosperm mutants in having abnormally large embryos. *Journal of Cereal Science*, *82*, 16–24.

7 **Hughes, A.**, Askew, K., Scotson, C. P., Williams, K., Sauze, C., Corke, F., … Nibau, C. (2017). Non-Destructive, High-Content Analysis of Wheat Grain Traits Using X-Ray Micro Computed Tomography. *Plant Methods*, *13*(1). 🔗 doi:10.1186/s13007-017-0229-8

Skills

Languages	▐ Strong reading, writing, and speaking competencies for English.
Coding	▐ Python, R, C/C++, C#, MATLAB, BASH, Java, PHP, SQL, LaTeX, Perl, Lisp, Ruby, Haskell.
Software Engineering	▐ Mobile development (iOS/Android), Game development (Unity, SDL, SFML), Computer vision, Machine learning, Desktop applications, Git, Open source
Databases	▐ MySQL, PostgreSQL, SQLite.
Web Dev	▐ HTML, CSS, JavaScript, Django, Flask.
Misc.	▐ Academic research, teaching, training, consultation, data visualisation, LaTeX typesetting and publishing.

Miscellaneous Experience

Awards and Achievements

2022	▐ **DigiEduHack Climate Change Contest**, Finalist.
2019	▐ **UK Open Source Award**, 1st Place.
2017	▐ **Genetics Society Research Grant**, Recipient.
2016	▐ **UK-RAS Field Robotics Contest**, 2nd Place.
2014	▐ **Aberystwyth Excellence Scholarship**, Recipient.

Research Talks

2022	▐ **International Conference on Arabidopsis Research**. Research presentation.
	▐ **Mendel Early Career Symposium**. Poster presentation.
	▐ **Pint of Science**. Public engagement talk.
2018	▐ **Genetics Society**. Grant outcome presentation.
2017	▐ **FOSDEM**. Main stage talk.
	▐ **British Computer Society**. Inter-discipline Talk.