Nathan Hughes

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Personal Statement

I am an extremely driven and motivated PhD student, in all things; I make it my goal everyday to improve upon the last. With a true thirst for knowledge and desire for understanding, it is my long-term goal to pursue a career in academia.

Work History

Sept 2017 - Sept 2018	Doonan Lab - Bioinformatician In this role I analysed and prepared large data sets for publication. Typically working in crop traits and genetics. This involved a lot of collaboration and interaction with different research groups.
May 2016 - Aug 2017	National Plant Phenomics Center - Systems Developer My role at the NPPC was extremely varied. I worked on building and designing a Gravimetrics system for plant phenotyping and data generation, writing image analysis software. A large part of my time was devoted to data analysis and statistical evaluation of data.
Sept 2015 - Current	Aberystwyth University - Demonstrator I was a mentor to first and second year students during their workshops. Specifically I helped to reinforce the knowledge students learn in their lectures.
May - Sept 2013	Belfast Metropolitan College - Systems Specialist I had been employed as an IS advisor/specialist by BMC to implement their multi-campus systems upgrade.
Feb 09 - March 2013	Salto National Gymnastics Center - Gymnastics Coach Sports coach for national level athletes

Education

Oct 2018 - Current	**PhD in Computation Modelling**	
June 2018	**BSc Computer Science**	First Class Honours
May 2014	**BTEC Extended Diploma**	Final Grade: Distinction
March 2012	**Gymnastics Coaching Grade 3**	Final Grade: Pass

Publications

- N.Hughes et al. Non-destructive, high-content analysis of wheat grain traits using X-ray micro computed tomography - https://doi.org/10.1186/s13007-017-0229-8
- F.Cook et al. Barley lys3 mutants are unique amongst shrunken-endosperm mutants in having abnormally large embryos - https://doi.org/10.1016/j.jcs.2018.04.013
- N.Hughes et al. Modelling effects of domestication in *Triticum* through novel computer vision techniques - Currently work in progress

Research Experience

My experience has been primarily focused on genomic and phenotypic research in plant science. Specifically computer vision analysis and QTL mapping of seed and grain traits. Additionally I have designed and built automated systems specifically for gathering and generating gravimetric data.

Skills

Research Skills:	Statistical Analysis, Research Methods, Image Analysis, Academic Writing
Experience:	Machine Learning, Artificial Intelligence, Data Modelling
Programming Languages:	C/C++, Python, R, Java, MATLAB, BASH, LaTeX, Haskell, Ruby, HTML, PHP, Perl

Awards

Genetics Society Research Grant 2017	**Recipient**
UK-RAS Field Robotics Contest 2016	**3rd place**
Aberystwyth Excellence Scholarship	**Recipient**

Talks

FOSDEM	**Lightning Talk** | https://fosdem.org/2017/schedule/
BCS	**Show and Tell** | http://midwales.bcs.org/show-and-tell-events/
Aberystywth U	**Bioinformatics workshop** | www.users.aber.ac.uk/msn/abw/

Self-driven Projects

Biology of the cell course	Having fallen in love with biology whilst studying computer science at university, I have started a small project to make a openly available crash-course style of notes for anyone from a non-biology background. I contribute to it quite regularly and plan to complete full series of biology information (https://github.com/SirSharpest/Bio-Cramming)
Image analysis software	As a side project I have started building a Rubik's cube solver which uses OpenCV and AStar IDS to provide instructions for a user to complete a cube puzzle. This is in early stages but progress can be seen at my GitHub which is updated regularly (https://github.com/SirSharpest/Rubkis-Cube-Solver)

References

Prof J. Doonan	**Director NPPC** | jhd2@aber.ac.uk
Dr H. Dee	**Senior Lecturer** | hmd@aber.ac.uk
Dr C. Sauze	**Data Manager NPPC** | cos@aber.ac.uk
Mr P. Greenwood	**BMC Project Manager** | PGreenwood@belfastmet.ac.uk