SAMUEL ARONEY

I am a joint author of 3 journal articles {64 total citations} in biochemistry and molecular biology. I have worked in a wide range of research environments, from the biochemistry focussed diabetes laboratory at the Queensland Alliance for Agriculture and Food Innovation, through the plant and bacteria investigations at the Department of Plant Sciences, Oxford University, to the statistical analyses at the Australian Centre for Ecogenomics. I have also constructed a 4000 line analytical dashboard[1] with underlying database during an internship with the Zooniverse[2] community science enterprise associated with the Department of Physics, Oxford University. I am currently completing a DPhil on bacterial chemotaxis at the University of Oxford funded by a Clarendon Award.

I am seeking a Postdoctoral Researcher position in microbiology, molecular biology and genomics. I am keen to join a research team and undertake laboratory work in these fields. I am also interested in continuing to use my programming skills for automated statistics and image analysis.

View this CV online with links at *AroneyS.github.io*

EDUCATION

2021 | 2016

DPhil, Microbiology

Department of Plant Sciences — University of Oxford
Supervisor: Prof Philip Poole

- Role and regulation of chemotaxis and motility in *Rhizobium leguminosarum*
- Interdisciplinary Bioscience Doctoral Training Partnership (BBSRC)

2016 | 2015

B.S., Honours (First Class)

Australian Centre for Ecogenomics — University of Queensland
Supervisor: Prof Gene Tyson

- Investigating bacterial chemotaxis towards marine pollutants

2015 | 2012

B.S., Biochemistry and Molecular Biology

School of Chemistry and Molecular Biology — University of Queensland

PUBLICATIONS

2020

Lifestyle adaptations of Rhizobium from rhizosphere to symbiosis[3]

Proceedings of the National Academy of Sciences (USA) (2020)

- Authored with Rachel M. Wheatley, Brandon L. Ford, Li Li, Hayley E. Knights, Raphael Ledermann, Alison K. East, Vinoy K. Ramachandran and Philip S. Poole.

2015

A Rapid Extraction Method for Glycogen from Formalin-fixed Liver[4]

Carbohydrate Polymers (2015) 118:9-12

- Authored with Mitchell A. Sullivan, Shihan Li, Bin Deng, Cheng Li, Eugeni Roura, Benjamin L Schulz, Brooke E Harcourt, Josephine M Forbes and Robert G Gilbert.

CONTACT

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LANGUAGE SKILLS

- R
- Bash
- Ruby
- Python
- SQL

The source code is available on github.com/AroneyS/cv.

Last updated on 2021-07-09.

2014

Changes in Glycogen Structure over Feeding Cycle Sheds New Light on Blood-Glucose Control[5]

Biomacromolecules (2014) 15:660-665

- Authored with Mitchell A. Sullivan, Shihan Li, Frederick J. Warren, Jin Suk Joo, Ka Sin Mak, David I. Stapleton, Kim S. Bell-Anderson, and Robert G. Gilbert.

MAJOR PRESENTATIONS

2020

Strategically navigating through the soil: the integrated sensory systems of the legume symbiont Rhizobium leguminosarum

Sensory Transduction in Microorganisms Conference — Ventura, CA

- Presentation and Poster for the Gordon Research Conference on Sensory Transduction in Microorganisms.

2018

Role and regulation of chemotaxis and motility in the Rhizobium-legume symbiosis

Department of Plant Sciences — University of Oxford

- DPhil Transfer of Status presentation at the Department of Plant Sciences.

2016

Investigating bacterial chemotaxis towards marine pollutants

School of Chemistry and Molecular Biology — University of Queensland

- Honours seminar presentation at the School of Chemistry and Molecular Biology.

RESEARCH EXPERIENCE

2021 | 2017

Rhizobial Motility Researcher

Philip Poole Laboratory
Department of Plant Sciences — University of Oxford

- Determining the role of flagellar-based motility and chemotaxis in the symbiosis of *Rhizobium leguminosarum* with Pisum sativum (pea plant).
- Characterising the influence of the metabolic potential of the environment, especially through the phosphor-transferase system, on the swimming ability of *Rhizobium leguminosarum*.

2019

Software Development Intern

The Zooniverse
Department of Physics (Astrophysics) — University of Oxford

- Software development for The Zooniverse, a community science website established by the Department for Astrophysics.
- Developed a GraphQL based statistical database[6] of users and visitors to the website in Ruby, Bash and Python.

2017

Synthetic Biology Researcher

Philip Poole Laboratory
Department of Plant Sciences

University of Oxford

- Characterising nitrogen-fixation ability of Pseudomonas stutzeri and genetically modified Pseudomonas fluorescens Pf-5 and SBW25.

2017

Plant Biochemistry Researcher

Andrew Smith Laboratory
Department of Plant Sciences

University of Oxford

- Sequencing Portulaca oleracea with Oxford Nanopore MinION technology. This plant performs both CAM and C4 photosynthesis.
- Extracted and analysed the activity of various phosphoenolpyruvate carboxylases from C3 and CAM photosynthetic plants.

2016 | 2015

Metagenomics Researcher

Australian Centre for Ecogenomics

University of Queensland

- Used the newly developed in-situ chemotaxis assay (ISCA) device to capture bacteria that display chemotaxis towards environmentally relevant compounds, including poly(ethylene terephthalate) degradation products and pesticides (diuron and atrazine).
- Then analysed the captured microbes using culture-independent methods (e.g. 16S rRNA gene amplicon and metagenomics) to provide the microbial population attracted by each individual chemoattractant and their metabolic potential.

2016

Graduate Research Assistant

Australian Centre for Ecogenomics

University of Queensland

- Compared small sea water samples before and after homogenisation to provide metagenomic data of the microheterogeneity of microbial life at such volumes.

2015

Undergraduate Researcher

Advanced Study Program in Science (ASPinS)
Centre for Advanced Imaging

University of Queensland

- Wrote code in R to estimate individual false-discovery rates across NMR metabolomics data split into columns along the ppm.
- This allowed the amelioration of the multiple testings problem, without relying on a uniform FDR assumption.

2014

Research Assistant

Queensland Alliance for Agriculture and Food Innovation

University of Queensland

- Compared the glycogen extracted through the traditional sucrose-gradient method to that extracted from formalin fixed samples.

2013

Undergraduate Researcher

Advanced Study Program in Science (ASPinS)
Queensland Alliance for Agriculture and Food Innovation

University of Queensland

- Testing the amount and structure of glycogen in mouse livers at different times after eating through an assay, size-exclusion chromatography and transmission electron microscopy of extracted glycogen.

TEACHING EXPERIENCE

2020 | 2019

In vitro enzyme kinetics

Department of Plant Sciences

University of Oxford

- Demonstrating for *In vitro* enzyme kinetics practical, focussing on the kinetics of alcohol dehydrogenase.

2020

Statistics and Data Management

Doctoral Training Centre

University of Oxford

- Demonstrating for Statistics and Data Management intermediate course, a broad overview of scientific statistics focussing on statistical modeling.

2019 | 2017

Programming for Life Scientists

Doctoral Training Centre

University of Oxford

- Demonstrating for the programming module using the languages Python and C.

2019

Plants and People

Department of Plant Sciences

University of Oxford

- Tutorials about the role of motility and chemotaxis in the soil and in the rhizobium-legume symbiosis.

2016 | 2015

Analysis of Scientific Data

Faculty of Science

University of Queensland

- Demonstrating for Analysis of Scientific Data (STAT1201), focussing on experimental design, data modelling and statistics.

2015 | 2014

Inorganic, physical and organic chemistry

School of Chemistry and Molecular Biology

University of Queensland

- 1st Year inorganic, physical and organic chemistry peer-assisted study sessions (CHEM1090/CHEM1100).

2015 | 2014

Chemistry and Statistics tutoring

Faculty of Science

University of Queensland

- Drop-in tutoring at the Science Learning Centre for 1st Year Chemistry and Statistics.

I enjoy helping students on their journey from their current state of knowledge to new and deeper understanding about a topic.

OTHER ACTIVITIES

2020

Certificate course in Developing Learning and Teaching

Staff and Educational Development Association — University of Oxford

- The award is aligned to the UK Professional Standards Framework (UKPSF) for Teaching and Supporting Learning in Higher Education, at Descriptor 1.

2020 | 2019

Graduate Safety Representative

Department of Plant Sciences — University of Oxford

- Departmental graduate safety representative for safety committee meetings and graduate student contact.
- This has involved managing the Department's response to the COVID-19 crisis and determining the safest way to return to work.

AWARDS AND SCHOLARSHIPS

2020 | 2016

Brasenose Oxford-Australia Clarendon Scholarship

University of Oxford

- A highly prestigous scholarship selectively offered for graduate study at the University of Oxford.

2020

Brasenose Studentship Fund

University of Oxford

- Provided funding to travel to California to present my research at the Sensory Transduction in Microorganisms Conference.

2020

Vice-Chancellor's Education Award

University of Oxford

- Award received for demonstrations given in the Programming for Life Scientists course.
- The course offers high level training in computer programming to a highly diverse cohort of graduate students at Oxford University.

2016 | 2015

UQ Honours Scholarship

University of Queensland

- A competitive scholarship to support students undertaking the Honours program at the Unversity.

2015 | 2012

UQ Excellence Scholarship

University of Queensland

- A highly competitive full scholarship for top-ranked students entering the University.

2014 | 2013

UQ Summer Research Scholarship

University of Queensland

- A competitive scholarship to support undergraduate student participation in the University's Summer Research Program.

2013 | 2012

UQ Summer Research Scholarship

University of Queensland

- A competitive scholarship to support undergraduate student participation in the University's Summer Research Program.

PUBLIC ENGAGEMENT

2020

Perspectives: Electronic Learning Resource

Oxford University Press — Oxford, United Kingdom

- Interviewed about the underwater agricultural research centre, Nemo's Garden, for a series of videos made available through the Perspectives electronic learning resource.

2019

Science short: Bacterial World

Museum of Natural History — Oxford, United Kingdom

- Interactive presentation about the bacterial symbiosis in root nodules aimed at non-expert adults.

2018

Super Science Saturday: People and Planet

Museum of Natural History — Oxford, United Kingdom

- Organizing and running a 'Root-nodules' stall for families, to help them understand the fixation of nitrogen by bacteria in pea plants.

2017

Inside Cells Day

Museum of Natural History — Oxford, United Kingdom

- Presentation about 'Fertilizers and the Environment' to A-level High School Students.

I enjoy engaging with the public and helping them to understand science. This is not only personally rewarding, but also important for improving public perceptions of science.

REFEREES

Prof Philip Poole

Department of Plant Sciences — University of Oxford

Prof Gail Preston

Department of Plant Sciences — University of Oxford

Prof Gene Tyson

School of Biomedical Sciences — Queensland University of Technology

LINKS

1: https://github.com/zooniverse/zoo-stats-api-graphql
2: https://www.zooniverse.org/
3: https://doi.org/10.1073/pnas.2009094117

4. https://doi.org/10.1016/j.carbpol.2014.11.005
5. https://doi.org/10.1021/bm401714v
6. https://github.com/zooniverse/zoo-stats-api-graphql