ALYCE CHRISTINE RUSSELL

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Academic Qualifications

2014 – **Master of Biostatistics**
Macquarie University (a centre for the Biostatistics Collaboration of Australia)
Anticipated completion late-2022 (currently completing part-time)
Key Skills: Completed units covering SAS, Stata and R programming, data collection and management, probability and distribution theory, differential and inferential calculus, linear algebra, statistical inference, linear regression theory and modelling, bioinformatics

2015 – 2019 **Doctor of Philosophy (Medical Science)**
Edith Cowan University
Thesis Title: Quantifying the Heterogeneity of the Immunoglobulin G N-Glycome in a Healthy Ageing Australian Population: the Busselton Healthy Ageing Study
Description: This data-driven thesis was submitted for review on 29/07/2019, and presents a thorough investigation of how numerous genetic, transcriptomic and cellular environmental variables (clinical measures and health behaviours) associate with immunoglobulin G N-glycosylation
Key Skills: R programming language (scripting, reproducible research, implementation on PC and cloud/high-performance computing via virtual machine depending on the size of data), project management, deriving variables from questionnaire data, experimental design (blocking 96-well N-glycan experiment), N-glycan laboratory work, quality control of N-glycan, genotype and RNA-Seq data, GWAS, RNA-Seq alignment pipeline (in collaboration with the University of Sydney Bioinformatics Group), data normalisation and transformation, exploratory analyses, data visualisation, multiple regression modelling, multivariate statistics (canonical correlation analysis and orthogonal two-way partial least squares regression), critical presentation of data through publications and presentations

2013 – 2015 **Master of Science (Human Biology)**
Edith Cowan University
Thesis Title: The N-Glycosylation of Immunoglobulin G as a Novel Biomarker of Parkinson's Disease
Description: A population-based case-control study using the immunoglobulin G N-glycome to classify Parkinson's disease presence, as well as attempting to differentiate between different Parkinson's subtypes
Key Skills: R programming language (scripting, reproducible research, implementation on PC), exploratory analysis, data visualisation, parametric and non-parametric statistical tests, multiple logistic regression, critical presentation of data through publications and presentations

2007 – 2012 **Bachelor of Science (Biomedical Science), Minor Human Genetics**
Edith Cowan University

Summary

- Medical Scientist specialising in biostatistics & bioinformatics (accredited on completing MBiostat in 2022)
- Research focused on suboptimal health status in ageing, with subjective & objective variants of the construct
- Demonstrated project management skills by concurrent involvement in several projects at any given time
- Expertise spans from collecting biological samples & executing laboratory protocols through to implementing complex modelling techniques & visualisations
- Proficient coder in R, Stata & SPSS, as well as prior experience using SAS
- Skilled in Windows & Linux OS, with experience running scripts on cloud/high-performance computing resources
- Established research track record with evidence of upward trajectory: h-index = 9, 66.7% (10 of 15) peer-reviewed publications are among the top 10% most cited & seven are in Q1 of journals in their field
- Received 2019 Research Medal for School of Medical and Health Sciences, given to the highest performing higher degrees by research graduate for the year
- Instrumental in co-founding R-Ladies Perth (WeAreRLadies rotating curator 14th-18th April 2020), running regular free R programming workshops, seminars & networking events to industry professionals & academics alike
- Guest lecturing & sessional tutoring at Edith Cowan University since 2013

Curriculum Vitae – Alyce Russell

Employment History

Nov 2019 – **Postdoctoral Research Fellow – AIBL Study of Ageing**
Edith Cowan University/Sarich Neuroscience Research Institute
Key Skills: Reproducible research (RMarkdown), bioinformatics, cross-sectional and longitudinal modelling, feature selection, data cleaning, documentation, extractions and deriving composite variables from standardised questionnaires (R) and using published formula; liaising with AIBL researchers about available data resources; producing HTML reports for industry partners; co-supervision

Feb 2014 – **Research Coordinator – Assisting Prof Wei Wang**
Edith Cowan University
Key Skills: Grant and journal article writing, editing and figure design (using Adobe Illustrator, GIMP and R); liaising with research CIs and other collaborators; assisting HDR students with administrative tasks, editing and statistical advice, and co-supervision

Aug 2017 – Nov 2019 **Data Officer – The Raine Study**
University of Western Australia
Key Skills: Data cleaning, documentation, extractions, and deriving composite variables from standardised questionnaires (SPSS and R); liaising with researchers about available data resources; summarising datasets by request for core team members

Feb 2016 – Jan 2018 **Phlebotomist – Nutrition and Exercise Training (NExT) Study**
Edith Cowan University
Key Skills: Designed SOPs for blood collection, and blood and urine processing; collection, processing and storage of blood and urine specimens

Feb 2016 – Aug 2017 **Research Assistant – The Raine Study**
University of Western Australia
Key skills: Perform clinical research testing; anthropometry, blood pressures, spirometry, dual-energy X-ray absorptiometry, tissue sensitivity testing, questionnaire collection, polysomnography (set-up and calibration), phlebotomy when required

Sept 2018 – July 2017 **Phlebotomist – Jamie Oliver Ministry of Food (JMOF) Study**
Edith Cowan University
Key Skills: Designed SOPs for blood collection, and blood and urine processing; trained interns to process blood and urine samples; collection, processing and storage of blood specimens

Publications

Li, X., Wang, H., **Russell, A.**, … & Wang. W. (2019). Type 2 Diabetes Mellitus is Associated with the IgG N-glycome through Putative Pro-inflammatory Mechanisms in an Australian Population. *OMICS.* DOI: 10.1089/omi.2019.0075
Q2 Journal

Russell, A.C., Kepka, A., Akmacic, I.T., Hui, J., Hunter, M., Laws, S.M., Ugrina, I., … & Wang, W. (2019). Why Not Use the Immunoglobulin G N-Glycans as PredictorVariables in Disease Biomarker-Phenotype Association Studies? A Multivariate Analysis. *OMICS.* DOI: 10.1089/omi.2019.0155
Q2 Journal

Russell, A. C., Kepka, A., Trbojević-Akmačić, I., Hui, J., Hunter, M., Laws, S.M., Ugrina, I., … & Wang, W. (2019). Higher Levels of Central Body Fat are Associated with an Increase in Pro-Inflammatory Immunoglobulin G N-Glycans: The Busselton Healthy Ageing Study. *Immunobiol.* DOI: 10.1016/j.imbio.2018.10.002
Q2 Journal

Adua, E., Memarian, E., **Russell, A**., Trbojević-Akmačić, I., Gudelj, I., Jurić, J., ... & Wang, W. (2019). High-throughput profiling of whole plasma N-glycans in type II diabetes mellitus patients and healthy individuals: A perspective from a Ghanaian population. *Arch. Biochem. Biophys.* DOI: 10.1016/j.abb.2018.10.015
Q1 Journal

Garcia, M., Downs, J., **Russell, A.**, & Wang, W. (2018). Impact of biobanks on research outcomes in rare diseases: a systematic review. *Orphanet J Rare Dis*. DOI: 10.1186/s13023-018-0942-z
Q1 Journal

Russell, A.C., Adua, E., Ugrina, I., Laws, S.M. & Wang, W. (2018). Immunoglobulin G Fc N-Glycosylation: Unravelling the Role of Glycosylation in Altering Effector Functions. *IJMS*. DOI: 10.3390/ijms19020390
**** Q1 Journal; IF – 4.183; 22 Citations; FWCI 1.51 ****

Liu, J. N., Dolikun, M., Štambuk, J., Trbojević-Akmačić, I., Zhang, J., Wang, H. …, **Russell, A.,** ... & Liu, D. (2018). The association between subclass-specific IgG Fc N-glycosylation profiles and hypertension in the Uygur, Kazak, Kirgiz, and Tajik populations. *J Hum Hypertens*. DOI: 10.1038/s41371-018-0071-0
Q2 Journal

Adua, E**., Russell, A.**, Roberts, P., Wang, Y., Song, M., & Wang, W. (2017). Innovation Analysis on Postgenomic Biomarkers: Glycomics for Chronic Diseases. *OMICS*. DOI: 10.1089/omi.2017.0035
Q2 Journal

Russell, A.C., Simurina, M., Garcia, M.T., Novokmet, M., Wang, YX., … & Wang. W. (2017). The N-glycosylation of immunoglobulin G as a novel biomarker of Parkinson's disease. *Glycobiology*. DOI: 10.1093/glycob/cwx022
**** Q1 Journal; IF – 4.194; 59 Citations; FWCI 5.42 ****

Wang YX.[#], Adua, E.[#], **Russell, A**.[#], Roberts, P., Ge, S., Zeng, Q., & Wang, W. (2016). Glycomics and its application potential in precision medicine. *Science*. DOI: 10.1126/science.354.6319.1601-b
[#]Contributed equally to the work

Yan, N., Zhou, Y., Wang, YX, Wang, A., Yang, X., **Russell, A**., … & Wang, W. (2016). Association of Ideal Cardiovascular Health and Brachial-Ankle Pulse Wave Velocity: A Cross Sectional Study in Northern China. *J Stroke Cerebrovasc*. DOI: 10.1016/j.jstrokecerebrovasdis.2015.08.031
Q1 Journal

Russell, A., Drozdova, A., Wang, W. & Thomas, M. (2014). The Impact of Dementia Development Concurrent with Parkinson's Disease: A New Perspective. *CNS Neurol Disord Drug Targets*.
DOI: 10.2174/1871527313666140917122739
Q2 Journal

Wang, W., **Russell, A**. and Yan, YX. (2014). Traditional Chinese medicine and new concepts of predictive, preventative and personalized medicine in diagnosis and treatment of suboptimal health. *EPMA*.
DOI: 10.1186/1878-5085-5-4
**** Q1 Journal; IF – 4.661; 58 Citations; FWCI 4.13 ****

Wang, Y., Wu, L., Yu, X., Zhao, F., **Russell, A.,** Song, M. & Wang, W. (2013). The Expected Number of Background Disease Events during Mass Immunization in China. *PLoS ONE*. DOI: 10.1371/journal.pone.0071818
Q1 Journal

Wu, J., Zhang, L., …, **Russell, A.** & Wang, W. (2013). The genetic contribution of CIDEA polymorphisms, haplotypes and loci interaction to obesity in a Han Chinese population. *Mol Biol Rep*. DOI: 10.1007/s11033-013-2671-7
Q2 Journal

Presentations

Sept 2018	10th Western Australian Young Statisticians Workshop, Perth, Australia – poster
May 2018	Science on the Swan, Fremantle, Australia – poster
May 2017	12th Jenner Glycobiology and Medicine Symposium Translational Glycobiology: From Bench to Bedside, Dubrovnik, Croatia – poster & oral
Sept 2015	COMBIO-2015, Melbourne, Australia -- oral
Jul 2015	ASMR WA Scientific Symposium, Bentley, Australia – oral
Aug 2014	RSSSO 2014 Symposium, Mediterranean Institute of Life Sciences, Split, Croatia – oral
Jun 2014	Capital Medical University, Beijing, China – invited seminar
May 2014	ISCTM, organised by Chinese Academy of Engineering & NIH, Shanghai, China – oral

Grants and Awards

2019 **School of Medical and Health Sciences Research Medal Recipient**
Edith Cowan University
The Research Medal is awarded annually by each school to the highest achieving student graduating from a research higher degree

2017 – 2018 **Exploring the Potential for Intervening in the Rise in the Prevalence of Chronic Disease in South-West Australia** – $64,954.90
Funding Body: Western Australia Primary Health Alliance (WAPHA)-South-West
Investigators: Wang, W., **Russell, A.**, Mosdell, B., Ge, S., Li, X. – ECU
James, A., Hunter, M., Hui, J., Bucks, R. – UWA
Straker, L. – Curtin

2015-2018 **Australia Postgraduate Award** – $92,925.00
Edith Cowan University

2017 **SMHS Research Collaboration Travel Grant –** $2,000
School of Medical and Health Sciences, Edith Cowan University
A travel grant that contributed towards funding a month-long visit to the Sydney Precision Bioinformatics Group, University of Sydney, Sydney, Australia

2017 **Government of Western Australia China Scholarship –** $3,000
Edith Cowan University
A travel grant that contributed towards funding a month-long laboratory internship in College of Life Science, University of Chinese Academy of Sciences, Beijing, China

Postgraduate Research Supervision

2018 – **Doctor of Philosophy**
Edith Cowan University
Candidate: Zheng Gou
Supervisors: Prof Wei Wang, Prof Tony Blazevich, Dr Alyce Russell
Thesis Title: Effects of Short-term Reduced Activity and Subsequent Exercise Training with and without Nutritional Supplementation on Health Status in Middle-aged Women

2018 – **Doctor of Philosophy**
Edith Cowan University
Candidate: Yulu Zheng
Supervisors: Prof Wei Wang, Prof Rob Eikelboom, Dr Alyce Russell
Thesis Title: Inflammation and Hearing Status in Adults with Type 2 Diabetes Mellitus and Prediabetes: A Population-based Study

2019 – **Doctor of Philosophy**
Edith Cowan University
Candidate: Monique Garcia
Supervisors: Prof Wei Wang, Dr Lois Balmer, Miss Alyce Russell
Thesis Title: The Nathan Model: A New Model of Care Designed to Optimise the Management of Rare Diseases in Children

Teaching Experience

2014 – **Guest Lecturer (Edith Cowan University)**

- Advances in Human Biology (MSc) - discussing my research (assessable)
- Clinical Biochemistry - discussing my research
- Medical Genetics – introducing statistical methods
- Advanced Biomedical Techniques - discussing my research (assessable)
- Developmental Biology - epigenetics (assessable)

2013 – 2017 **Sessional Tutor (Edith Cowan University)**

- Biostatistics (MPH)
- Essential Mathematics (UniPREP)
- Statistical Research Methods

- Human Molecular Genetics
- Human Genetics
- Forensic Genetics
- Human Structure and Function
- Systems Physiology
- Applied Microbiology
- Fundamental Biomedical Techniques
- Advanced Biomedical Techniques

Professional Service

2019 **Peer-Reviewed for Experimental Gerontology**
Elsevier, IF – 3.224

2018 **Peer-Reviewed for EC Neurology**
ECronicon, IF indeterminate

2015 **Vice Chancellor's Student Advisory Forum**
Edith Cowan University
Student Member representing the School of Medical Sciences

2015 **Student Representative for the Vice-Chancellor's Investiture Ceremony**
Edith Cowan University
Nominated as the student representative of the former Faculty of Health, Engineering and Science, for the Vice-Chancellors Investiture Ceremony

Other Related Service

2019 – **ResBaz 2019 & 2020 Conference**
Role: Committee Member, Workshop Instructor
Location: Curtin University of Technology, July 2-4, 2019

- Helped run the data structuring, R programming and reproducible research workshops
- Organised and chaired the career panel as part of the social events
- Contributed to organisational/planning decisions

2019 **CHOOSEMATHS WA – Australia Mathematical Sciences Institute**
Role: Invited Guest Speaker
Location: Edith Cowan University

- Discuss how mathematics education in high school and beyond has prepared me for my career
- Introduce biostatistics and data cleaning in the medical sciences.
- Aided with running hands-on

2018 – **R-Ladies Perth**
Role: Co-Founder, Organiser and Workshop Instructor
Locations: Edith Cowan University, Curtin University, Murdoch University, Pawsey Supercomputing Training Facility, Harry Perkins Institute of Medical Research

- Mission: "R-Ladies is a worldwide organisation whose mission is to promote gender diversity in the R community" – R-Ladies Global, rladies.org
- Instrumental in setting up the R-Ladies Perth social platforms
- Run networking & seminar events, as well as R workshops for free, open to all & most published on our YouTube channel or Twitter (@RLadiesPerth)
- @WeAreRLadies rotating curator from the 14th to 18th of April 2020

2016 – 2017 **Beginner R Programming Workshops**
Role: Organiser, Workshop Instructor
Location: Edith Cowan University

- Originally aimed at students within the School of Medical and Health Sciences, they were attended by early career to senior researchers from across the university
- Developed the workshop materials, simulation data and slideshow using R

Professional Development

Jan 2020 **Bioinformatics Study Trip – CSIRO Health and Biosecurity Division**
CSIRO, Herston, Australia
Key Skills: Spent a month setting up RMarkdown pipelines for my postdoctoral research industry project, under team leader Dr James Doecke

Dec 2019 **rOpenSci OzUnconf 2019 – Invite Only and Received One of Four Scholarships**
University of Sydney, Sydney, Australia
Key Skills: Spent a week working with others skilled in R on real-life projects

Dec 2018 **BioInfoSummer 2018 – Australian Mathematical Sciences Institute**
University of Western Australia, Perth, Australia
Key Skills: Completed several workshops in R programming

July 2018 **useR2018 Conference – R Foundation**
Brisbane Convention and Exhibition Centre, Brisbane, Australia
Key Skills: Completed several workshops in R programming adjacent to the conference

Nov 2017 **Biostatistics Study Trip – Sydney Precision Bioinformatics Group**
University of Sydney, Sydney, Australia
Key Skills: Spent a month learning RNA-Seq alignment pipelines, normalisation methods for 'omics data, and other complex models for integrating multiple 'omics, under team leader Prof Jean Yang

July 2017 **Laboratory Internship – College of Life Science**
University of Chinese Academy of Sciences, Beijing, China
Key Skills: Spent a month learning experimental design and analysis of Drosophila animal models used to explore neurodegenerative disease. I also helped proofing two publications

Dec 2016 **Australian Statistical Conference 2016**
Hotel Realm, Canberra, Australia
Key Skills: Gained exposure to new statistical models and their implementation

July 2016 **Glycobiology Laboratory Internship**
Genos-Glyco Research Laboratory, Zagreb, Croatia
Key Skills: Spent a month in the laboratory performing protocols that isolate, label and quantitate immunoglobulin G N-glycans. These data were derived for my PhD thesis

Dec 2015 **BioInfoSummer 2015 – Australian Mathematical Sciences Institute**
University of Sydney, Sydney, Australia
Key Skills: Completed several workshops in R programming.

Nov 2015 **Phlebotomy Certification**
WA School of Pathology, Perth, Australia
Completed HLTPAT306D – Perform Blood Collection & BSBMED301 – Interpret and Apply Medical Terminology Appropriately.

Aug 2014 **1st Research Summer School in Statistical Omics**
Mediterranean Institute for Life Sciences, Split, Croatia
Key Skills: Completed a summer school program in statistical theory as well as the implementation of these models using 'omics data and the R programming language.

Referees

Prof Wei Wang
Team Leader, Suboptimal Health and Glycomics Group, School of Medical and Health Sciences, Edith Cowan University
Pro-Vice-Chancellor (China), Edith Cowan University
(+618) 6304 3717 wei.wang@ecu.edu.au

A/Prof Simon Laws
Team Leader, Collaborative Genomics and Translation Group, Sarich Neuroscience Research Institute, Edith Cowan University
Associate Dean (Medical and Exercise Sciences), School of Medical and Health Sciences, Edith Cowan University
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(+617) 3253 3697 James.Doecke@csiro.au

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