

# Kevin Y.X. Wang

*Statistician and Data Scientist*

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## Education

- 2016–2019 **Doctor of Philosophy in Science**, *University of Sydney*.
- Research in statistics and bioinformatics.
  - PhD thesis is titled "A Statistical Framework for Incorporating Multi-Omics Technologies for Precision Medicine". This thesis mainly develops methods to enable prediction of patient clinical outcomes using genomics data under a rigorous statistical framework.
- 2012–2015 **Bachelor of Science (Adv. Mathematics) (Hon. I)**, *University of Sydney*.
- Major in statistics and financial mathematics.
  - The Honours thesis examines the effect of different measures of association in human brain connectivity modelling utilising functional MRI data.

## Experience

- 2019–2020 **Research Associate**, *University of Sydney*.
- Developed a clinically implementable prediction model using genomics data.
  - Provided analytical insights about genomics data to clinicians and biologists.
  - Developed and maintained open-sourced R software packages.
  - Designed and hosted cloud-based workshops.
- 2016–2019 **Postgraduate Teaching Fellow**, *University of Sydney*.
- Authored lecturing materials for courses at both undergraduate and postgraduate level with strong positive student feedback.
  - Delivered lectures (200+ students) and tutorials, covering 15 different courses, including statistics, mathematics and data science.
  - Mentored and trained new statistics tutors.

## Skills

- R Highly proficient in writing research level scripts. Professional in using `tidyverse` and `shiny`. Author of the `scMerge` Bioconductor package as well as the `APES` and `mcvis` packages.
- Applied statistics Highly experienced at the research level. Specialisation in regression-type problems.
- git Highly proficient. Experiences in R package development with unit testing, continuous integration and coverage testing.
- docker Proficient in building docker images and deployment through Google Cloud.
- python Working knowledge in writing basic scripts. Released the `mcvispy` package.

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## Volunteering

- 2016-Present **Outreach volunteer**, *University of Sydney*.
- Delivering seminars and hands-on workshops for high school and university students.
  - Previously a board member of the School Outreach committee.
- 2017 **President**, *Sydney University Mathematics Society*.
- Oversee finances of the Society and negotiating corporate sponsorships for three years.
  - Organising speakers for industry and academic seminars and social events.
  - Management of social media accounts, operations and sales of merchandise.
- 2015 **President**, *Sydney University Statistics Society*.
- Established the Statistics Society in 2014. Responsible for all social and career events during 2015, including an industry workshop with SAS.

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## Internships

- 2016 **Charles Perkins Centre Summer Research Scholarship in Bioinformatics**, *University of Sydney*.
- *A Shiny implementation for differential variability analysis via a network approach.* Supervised by Prof. Jean Yang and Prof. Graham Mann.
- 2015 **Summer Research Scholarship in Mathematical Statistics**, *Australian National University*.
- *Frequentist model selection and model averaging techniques.* Supervised by Prof. Alan Welsh and Dr. Garth Tarr.
- 2013 **Winston Charitable Foundation Internship in Mathematical Biology**, *University of Sydney*.
- *Spread of the Varroa Mite among different castes of honey bee hives.* Supervised by Prof. Mary Myerscough.

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## Honours and Awards

- 2019 **Statistical Society of Australia**, *JB Douglas Award (joint runner-up). Eight universities in NSW nominate their top statistics PhD student to compete for the annual research presentation prize. AUD 250.*
- 2019 **Statistical Society of Australia**, *Golden Jubilee Travel Grant. Nation-wide competitive funding for international conference attendance in 2019 for a statistics PhD student. AUD 1,000.*
- 2018 **Sydney Bioinformatics Research Symposium**, *Best poster presentation at the conference by a student. AUD 50.*
- 2017 **International Biometric Society - Australasian Region**, *Best student talk at the conference. AUD 500.*
- 2017 & 2018 **Australian Bioinformatics & Computational Biology Society**, *Travel scholarship to ABACBS annual conference. AUD 250.*
- 2016-2019 **Australian Postgraduate Award**, *For the duration of PhD program at the University of Sydney. AUD 26,288 p.a.*
- 2015 **International Biometric Society - Australasian Region**, *Awarded to the top biostatistics student currently undertaking a Honours program. AUD 1,500.*

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## Publications

- 1 **Wang, K.Y.X.**, Tarr, G., Yang, J.Y.H., Mueller, S. **2019**. Fast and approximate exhaustive variable selection for generalised linear models with APES, Invited paper to *Australia & New Zealand Journal of Statistics*, 61 (4) 445-465.
- 2 Lin, Y., Ghazanfar, S., **Wang, K.Y.X.**, Gagnon-bartsch, J.A., Lo, K.K., Han, Z., Ormerod, J.T., Speed, T.P., Yang, P., Yang, J.Y.H. **2019**. scMerge: Leveraging factor analysis, stable expression and pseudo-replication to merge multiple single-cell RNA-seq data, *Proceedings of the National Academy of Sciences of the United States of America*, 116 (20) 9775-9784.
- 3 Pires da Silva, I., **Wang, K.Y.X.**, Wilmott, J.S., Holst, J., Carlino, M.S., Park, J.J., Quek, C., Wongchenko, M., Yan, Y., Mann, G., Johnson, D.B., McQuade, J.L., Rai, R., Kefford, R.F., Rizos, H., Scolyer, R.A., Yang, J.Y.H., Long, G. V, Menzies, A.M. **2019**. Distinct molecular profiles and immunotherapy treatment outcomes of V600E and V600K BRAF-mutant melanoma. *Clinical Cancer Research*, 25 (4) 1272-1279.
- 4 **Wang, K.Y.X.**, Menzies, A.M., Silva, I.P., Wilmott, J.S., Yan, Y., Wongchenko, M., Kefford, R.F., Scolyer, R.A., Long, G. V, Tarr, G., Mueller, S., Yang, J.Y.H. **2019**. bcGST - an interactive bias-correction method to identify over-represented gene-sets in boutique arrays. *Bioinformatics*, 35 (8) 1350-1357.
- 5 Strbenac, D., **Wang, K.Y.X.**, Wang, X., Dong, J., Mann, G.J., Mueller, S., Yang, J.Y.H. **2019**. Melanoma Explorer: a web application to allow easy reanalysis of publicly available and clinically-annotated melanoma omics datasets. *Melanoma Research*.

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## Presentations

- Workshop
- 2020 February - Workshop instructor at Cornell University "*Single-cell RNA-Seq analysis from beginning to end*"
  - 2019 December - BioinfoSummer hosted by Australian Mathematical Science Institute. Invited workshop instructor for "*Enter the Tidyverse with R and RStudio*"
  - 2019 November - Charles Perkins Centre, University of Sydney. "*Single-cell RNA-Seq analysis from beginning to end*"
  - 2019 June - Hong Kong University. Invited workshop instructor for "*Single-cell RNA-Seq analysis using scMerge*"
  - 2018 September - Joint International Society for Clinical Biostatistics and Australian Statistical Conference. Invited workshop instructor for "*Fast algorithms and modern visualisations for feature selection*"

- Invited talk
- 2019 International Conference on Econometrics and Statistics

- Contributed talks
- 2019, 2017 International Biometrics Society - Australasian Region Conference
  - 2018 Australian Bioinformatics & Computational Biology Society Conference
  - 2018 Joint Statistical Meeting
  - 2017 International Conference in Robust Statistics
  - 2016 Australian Statistical Conference