AMSI BIOINFOSUMER A SYMPOSIUM IN BIOINFORMATICS

2-6 DECEMBER 2019 CHARLES PERKINS CENTRE - THE UNIVERSITY OF SYDNEY

EVENT REPORT







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AUSTRALIAN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY SOCIETY

















AMSI BioInfoSummer 2019

Symposium in Bioinformatics

The University of Sydney | 2-6 December 2019

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FOREWORD

Bioinformatics is an exciting discipline analysing and simulating both the structures and processes of biological systems. It is a constantly evolving field that offers researchers and students a wide breadth of opportunities. Since its first iteration in 2003, AMSI BioInfoSummer has brought together people from all disciplines to share current research and developments in bioinformatics. As one of five premier flagship events hosted each year around Australia it forms part of the Securing Australia's Mathematical Workforce: 2016-2020 agreement between AMSI and the Department of Education.

"AMSI BioInfoSummer is the leading training event in the rapidly-growing interdisciplinary field of bioinformatics, focused on building Australia's mathematical and computational biology research capability"

> Professor Tim Brown AMSI Director

The five-day program includes a combination of networking events, hands-on workshops and specialist lectures from international experts and Australia's top scientists. AMSI BioInfoSummer allows attendees to develop their bioinformatics skills, national networks and employability, and nurtures the collaborations between the mathematics, statistics, biological and computational disciplines.

AMSI BioInfoSummer 2019 was jointly funded by the Australian Mathematical Sciences Institute and the Australian Government's Department of Education, with support from The University of Sydney, Charles Perkins Centre, Australian BioCommons, Children's Medical Research Institute, The Westmead Institute for Medical Research, the Australian Bioinformatics and Computational Biology Society (ABACBS) and the BHP Foundation through the AMSI Choose Maths program.

DIRECTORS' REPORT



Professor Jean Yang Dr Ellis Patrick The University of Sydney

AMSI BioInfoSummer returned to Sydney in December 2019 and was again co-hosted by the University of Sydney's School of Mathematics and Statistics together with the Charles Perkins Centre (CPC). The CPC is an established centre specially designed to support and foster multidisciplinary research making it the ideal venue to host the five-day symposium.

BioInfoSummer 2019 was part of a series of

bioinformatics events held over 10 days at the CPC which included joint sessions with the BioC Asia conference on Days Four and Five. Amongst big players in the field, BioInfoSummer was followed by the joint International Conference on Genome Informatics (formerly known as Genome Informatics Workshop or GIW) and the Australian Bioinformatics and Computational Biology Society's (ABACBS) annual conference.

The local organising committee ensured that the program was of high quality and included speakers from a variety of scientific backgrounds as well as good representation of early- and mid-career researchers. Due to the proximity with the International Conference, we were fortunate to secure nine international (an increase from five in 2018) and 19 national speakers, drawing participants from 42 different universities and research institutes. With an active and growing community of bioinformatics-orientated researchers, this year's conference had the largest number of registrants to date with well over 200 participants. Furthermore, women represented over half of both the conference speakers and attendees.

Similar to previous years' models, following the morning presentations we offered parallel hands-on lab workshops tailored to various discipline backgrounds with nearly all of the lab sessions utilising a cloud computing platform. We were fortunate to have a team of outstanding local volunteers who ensured that the 16 afternoon lab sessions ran smoothly and effectively.

In a first for BioInfoSummer, this year we were able introduce computational students to molecular biology by using virtual reality to enable the students to fly through and explore protein structures. We are very grateful to the School of Medical Science for providing over 24 VR headsets for such a unique and rewarding afternoon. Special thanks to Professor Philip Poronik who is a leader in biological education. This together with the use of a cloud computing platform placed BioInfoSummer as a leader in integrative learning experience with digital technology. The feedback received was overwhelmingly positive so this aspect is certainly something to continue in future BioInfoSummer events.

A number of social events were also held to complement the scientific program including catered networking breaks, themed lunches and a welcome reception. The Fast forward poster presentations are always a highlight of the BioInfoSummer program with 27 students and early-career researchers in 2019 taking up the challenge of sharing their research in under 90 seconds. The Careers Evening included a lively panel discussion on the different career pathways available in the mathematical sciences while Professor Rafael Irizarry's inspiring public lecture on the various applications of statistics reinforced the power and impact of maths now and into the future.

Overall, BioInfoSummer 2019 was an outstanding success, providing a high quality and cutting-edge learning experience for everyone involved.

EARLY-CAREER RESEARCHER PROFILE



Seizing the opportunity to learn from influential bioinformaticians at AMSI BioInfoSummer 2019

Nikeisha Caruana

Bio21 Molecular Science and Biotechnology Institute, The University of Melbourne

Employing proteomic and transcriptomic techniques focusing on changes within the mitochondrial proteome, Dr Nikeisha Caruana has

made significant progress in dataset integration enabling detailed analyses with an interdisciplinary basis. In only five months since completing her PhD at La Trobe University, Nikeisha is already respected by peers as a skilled bioinformatician formulating experiments based on sound statistical principles.

Currently working in the Stroud Group at Bio21, Nikeisha is responsible for driving computational proteomics and bioinformatics focusing on systems biology approaches including gene-editing and quantitative proteomics in understanding the assembly of multi-subunit membrane protein complexes.

Having rapidly achieved publication in two impactful research global journals for proteomics, Nikeisha's AMSI Choose Maths travel grant enabled her to enhance an understanding of bioinformatics and an already impressive ability to statistically analyse experimental data. This award encapsulates the multi-disciplinary nature of AMSI, in this instance recognising the importance of data set analysis in biochemistry and molecular biology.

This is not Nikeisha's first successful travel grant application; on two previous occasions she has been awarded one of only ten EMBL Australia travel grants enabling her to visit that multinational laboratory's main campus in Heidelberg, Germany.

Attendance at BioInfoSummer 2019 enabled Nikeisha to reinforce her understanding of bioinformatics and interact with influential researchers and mathematicians.

"The ability to have a varied group of biologists, engineers and statisticians within one area allows for fantastic collaboration and the development of ideas. I met contacts that I hope to count not only as collaborators but also friends in the coming years," Nikeisha explained.

Her ambition to explore single cell 'omics and epigenetic analysis is likely to be realised as the result of this invaluable AMSI-facilitated experience and Choose Maths travel grant.

EARLY CAREER RESEARCHER PROFILE



A personal pursuit of safer pregnancies and reducing pre-term birth through AMSI BioInfoSummer 2019

Alishum Ali Curtin University of Technology

With a double-degree in forensics and medical science, Alishum Ali had an ambition to become a detective. In a sense he now is, utilising his *other* degree. The pre-term birth of his son in 2015 had

Ali searching for answers and failing to find these he turned to mathematics.

As a researcher in bioinformatics and machine learning at Curtin University of Technology in Perth, Ali is designing accurate models to predict risk of premature birth early in pregnancy involving analysis of patient data such as laboratory results, medical history and genetic information enabling precise diagnosis and treatment.

"This conference was heavily focused on the mathematics behind bioinformatic tools, methods and technology. I needed more in-depth understanding on how best to go about analysing my own data and learn new skills. I have learned the foundations of proteomics and RNA sequencing technology that I had little prior knowledge of", Ali confides. "I came out of AMSI [BioInfoSummer] confident to pursue these areas that I need to incorporate in my research to increase clinical translation. Having completed the workshops in statistics and data analysis I have increased my grasp of complex statistical theory and workflows."

So, the biggest win for Ali from AMSI BioInfoSummer? "I increased my network of contacts in the statistics field many folds. We are now exploring collaboration with the University of Queensland for my current project. As a PhD student I have limited funding; if it wasn't for this travel grant, I would have limited my learning to open source information. When you have large data you need to learn from experts interactively to best extract relevant information."

Ali's supervisor Dr Claus Christophersen notes that his candidate's participation at AMSI BioInfoSummer was dependent upon receiving a travel grant. This is Ali's second attendance at an AMSI-facilitated conference.

"Mathematics is always portrayed as daunting and difficult", observes Ali. "Once you attend BioInfoSummer you see mathematics as enjoyable and engaging. You meet people who can explain difficult concepts in the most absorbable manner. That is valuable."

"I commend the organisers for championing maths and empowering biologists."

PROGRAM

MONDAY 2 DECEMBER

Day 1—Introduction to Bioinformatics

Choose Maths Networking Lunch Welcome Reception

TUESDAY 3 DECEMBER

Day 2—Epigentics / Genomics

Diversity in STEM Lunch Careers Evening

WEDNESDAY 4 DECEMBER

Day 3—Single-Cell Omics

THURSDAY 5 DECEMBER

Day 4—Mass-Spec Analytics

Joint workshop sessions with BioC Asia Poster Session Public Lecture: The Bright Future of Applied Statistics

FRIDAY 6 DECEMBER

Day 5—BioC Asia / Precision Medicine

Joint day with BioC Asia

SPEAKERS

INTERNATIONAL SPEAKERS

SPEAKER	TITLE	ORGANISATION
Helena Crowell	On differential discovery in high- dimensional cytometry data	University of Zurich
Associate Professor Elena Fertig	Defining immune signatures of therapeutic response with non- negative matrix factorisation of bulk and single-cell data	Johns Hopkins University
Dr Shila Ghazanfar	Investigating higher-order interactions in single-cell data with scHOT	Cancer Research UK Cambridge Institute
Associate Professor Joshua Wing Kei Ho	Scalable bioinformatics methods for single-cell data	University of Hong Kong
Professor Rafael Irizarry	Public lecture: The bright future of applied statistics	Harvard University
Dr John Marioni	Understanding cell fate decisions using single-cell genomics	EMBL-EBI, Cambridge University
Professor Martin Morgan	How to advance science using Bioconductor	Roswell Park Comprehensive Cancer Center
Professor Pei Weng	iProFun: An integrative analysis tool to screen for proteogenomic functional traits	Icahn Medical School at Mount Sinai, New York
Ye Zheng	FreeHi-C: high-fidelity Hi-C data simulation for benchmarking and data augmentation	Fred Hutchinson Cancer Research Center

"There is so much interesting work happening both in the country and internationally but you don't often get to hear about it, let alone talk to the people involved."

> Bobbie Cansdale The University of Sydney

NATIONAL SPEAKERS

SPEAKER	TITLE	ORGANISATION
Professor Melanie	Bioinformatics the discipline, versus	The Walter and Eliza Hall
Bahlo	the career	Institute of Medical Research
Professor Kathy Belov	Saving the Tasmanian devil from	The University of Sydney
AO FRSN	extinction	
Dr Lisa Dive	Ethics of precision medicine	The University of Sydney
Dr Saskia Freytag	schex avoids overplotting for large	Harry Perkins Institute of
	single-cell RNA-sequencing datasets	Medical Research
Associate Professor	An introduction to statistics in the	The University of Adelaide
Gary Glonek	omics era	
Dr Mark Larance	Challenges and questions in	The University of Sydney
	proteomics technologies and research	
Ruqian Lyu	COmapR: Genetic length calculation	
	from crossover events	
Associate Professor	Why bulk samples (still) matter for	Australian Institute for
Jessica Mar	gene-expression analysis	Bioengineering and
		Nanotechnology
Dr Helen McGuire	Single-cell analysis with mass	Charles Perkins Centre, The
	cytometry; technology introduction	University of Sydney
	and opportunities in clinical studies	
Dr Andre Minoche	ClinSV: Detection of clinically relevant	Kinghorn Centre for Clinical
	structural and copy number variation	Genomics
	from whole-genome sequencing	
Dr John O'Sullivan	Using multiomic technologies to	The University of Sydney
D. D D	unravel heart failure	
Dr Dana Pascovici	Key ingredients of a data analytical	Australian Proteome Analysis
Du Ctaubau Dadawaan	pipeline with TWT or SWATH	Facility, Macquarle University
Dr Stephen Pedersen	Experiences of a first-time package	University of Adelaide
Accesiete Drefesser	Contributor	Malter and Eliza Hall Justitute
Associate Professor	Pieconductor	of Modical Posoarch
	Accurate identification of mPNA	Molbourno Integrativo
DI HEEJUNG SIIIII	alternative splicing using Oxford	Conomics (MIC) University of
	Nanopore sequencing	Melbourne
Associate Professor	Enigenetics demystified	Garvan Institute of Medical
Claro Stirzakor	L'highereties demystined	Research
Associate Professor	Multidimensional single-cell analysis of	Garvan Institute of fMedical
Alex Swarbrick	the tumour microenvironment	Research
Professor Christine	Rethinking the atlas paradigm: Moving	Centre for Stem Cell Systems
Wells	from descriptive to predictive	
	computational biology	
Dr Pengvi Yang	Computational analysis for biological	The University of Sydney
- 010	discovery from (phospho)proteomic	
	data	

28 speakers

15 female 13 male



"I was impressed by the number of female presenters at the conference, it's helpful to see females in higher positions who can advise young researchers like me."

> Natasha Bradley The University of Adelaide

WORKSHOPS

TITLE	WORKSHOP PRESENTER
Biology in the metaverse – a Virtual Reality tour	Professor Philip Poronnik, Jim Cook, Professor Peter Thorn, The University of Sydney
Enter the tidyverse with R and RStudio	Kevin Wang, Dr Garth Tarr, The University of Sydney
Introduction to UNIX and RNA-seq processing	Dr Kitty Lo, Dr Dario Strbenac, The University of Sydney
Open-data resources for human genomics research	Associate Professor Jason Wong, University of Hong Kong Dr Rebecca Poulos, Children's Medical Research Institute
3D genomics and long-range gene regulations	Ye Zheng, Fred Hutchinson Cancer Research Center
Single-cell RNA-seq analysis	Hani Kim, Yingxin Lin, University of Sydney Dr Shila Ghazanfar, Cancer Research UK Cambridge Institute
Single-cell RNA-seq data analysis on the cloud	Associate Professor Joshua Ho, University of Hong Kong
Gene expression analysis with RNA-Seq data using R	Associate Professor Jessica Mar, Dr Atefeh Taherian Fard, Huiwen Zheng, Australian Institute for Bioengineering and Nanotechnology
Imputation and data quality control for proteomics data	Professor Pei Weng, Icahn Medical School at Mount Sinai, New York
Computational analysis for biological discovery from (phospho)proteomic data	Dr Pengyi Yang, The University of Sydney
R and Bioconductor for genomic analysis	Professor Martin Morgan, Roswell Park Comprehensive Cancer Center
Introduction to proteomics	Dr Ben Crossett, David Maltby, Angela Connolly, Sydney Mass Spectrometry, University of Sydney
Building a Bioconductor package	Dr Peter Hickey, Walter and Eliza Hall Institute for Medical Research Dr Saskia Freytag, Harry Perkins Institute of Medical Research
Differential discovery in high-dimensional cytometry data	Helena Crowell, University of Zurich
Fluent genomics: A plyranges and tximeta case-study	Stuart Lee, Monash University, Walter and Eliza Hall Institute for Medical Research
Reproducible bioinformatics	Dave Tang

"I enjoyed seeing what is happening in the field, learning about new tools and resources. It inspired me to start thinking about what research is possible for me to focus on once I finish my undergrad."

> Dominique Ellison Western Sydney University

PARTICIPANT BREAKDOWN

UNIVERSITY/INSTITUTION	
Australian National University	1
Central Queensland University	1
Children's Cancer Institute	1
Children's Medical Research Institute	1
CSL Innovation	2
Curtin University of Technology	2
Deakin University	2
Edith Cowan University	1
European Bioinformatics Institute	2
Flinders University	2
Fred Hutchinson Cancer Research Center	1
Garvan Institute of Medical Research	6
Harry Perkins Institute of Medical	1
Research	
Harvard University	1
Icahn Medical School at Mount Sinai	1
James Cook University	2
Johns Hopkins University	1
La Trobe University	2
Macquarie University	4
Monash University	6
Other	2
Peter MacCallum Cancer Centre	1
RMIT University	2
Roswell Park Comprehensive Cancer	1
Center	
St Vincent's Institute of Medical Research	3
Swinburne University of Technology	1
The Children's Hospital at Westmead	1
The University of Adelaide	11
The University of Hong Kong	4
The University of Melbourne	9
The University of New England	1
The University of New South Wales	17
The University of Newcastle	3
The University of Queensland	9
The University of Sydney	93
The University of Western Australia	2
University of Cambridge	1
University of Tasmania	2
University of Technology Sydney	5
University of Wollongong	1
University of Zurich	1
Victor Chang Cardiac Research Institute	1
Walter & Eliza Hall Institute of Medical	12
Research	
Western Sydney University	3

GENDER		
Female	129	57%
Male	95	42%
Undisclosed	2	1%

ABORIGINAL AND TORRES STRAIT ISLANDER		
Yes	1	1%
No	223	98%
Undisclosed	2	1%

STATE/TERRITORY		
ACT	1	1%
NSW	137	61%
QLD	10	4%
SA	14	6%
TAS	2	1%
VIC	40	18%
WA	9	4%
International	13	5%

PARTICIPANT TYPE		
Academic	37	16%
Agency	0	0%
Early-Career Researcher	37	16%
Graduate Certificate	1	1%
Honours	13	6%
Industry	2	1%
Masters	21	9%
PhD	67	30%
Research Assistant	0	0%
Research Institute	14	6%
Undergraduate	34	15%

RESIDENCY STATUS		
Australian Citizen	144	64%
Not an Australian Resident	17	7%
Permanent Resident	22	10%
Student Visa	33	14%
Work Visa	2	1%
Other	8	4%



30 universities**12** research institutes

GRANTS

AMSI TRAVEL GRANTS

AMSI Travel Grants support undergraduate and postgraduate students to build and extend their skills and professional networks by providing travel support to assist them to attend AMSI Higher Education Flagship programs.

In 2019, 10 students from eight AMSI Member Institutions were awarded AMSI travel grants:

- Alishum Ali Curtin University of Technology
- Tahsien Ali Hussein Al-Quraishi
 Deakin University
- Jiahao Diao
 University of Tasmania
- Shane Fernandez
 The University of Sydney (remote WA student)
- Owen Holland
 Deakin University

- Shingyan (Anthony) Kwong The University of Adelaide
- Sasdekumar Loganathan The University of Queensland
- Robert Qiao
 Flinders University
- Joel Robertson RMIT University
- Albert Christian Soewongsono University of Tasmania



"I am very grateful to AMSI for providing financial assistance for travel and accommodation as it allowed me to attend all sessions and be fully immersed in the proceedings."

> Joel Robertson RMIT University

AMSI CHOOSEMATHS GRANTS

AMSI Choose Maths Grants support female mathematical sciences students and early-career researchers to build and extend their skills and professional networks by providing financial support towards travel, accommodation and/or caring responsibilities to assist them to attend AMSI Higher Education Flagship events.

AMSI Choose Maths Grants are an initiative of the AMSI Schools Choose Maths Project funded by the BHP Foundation.







"It was thrilling to be surrounded by other women achieving in STEM."

Megan Coomer The University of Melbourne

In 2019, 21 female students and early-career researchers from 11 AMSI Member Institutions were awarded AMSI Choose Maths grants:

- Natasha Bradley The University of Adelaide
- Nikeisha Caruana
 The University of Melbourne
- Jeryn Chang The University of Queensland
- Megan Coomer
 The University of Melbourne
- Dezerae Cox
 The University of Melbourne

- Seyedehmahsa (Mahsa) Mousaviderazmahalleh
 Curtin University of Technology
- Marzieh Rahmani Moghadam La Trobe University
- Ariane Mora The University of Queensland
- Pei Qin (Sabrina) Ng The University of Adelaide

- Rebekah D'Cruze
 The University of Western
 Australia
- Gunjan Dixit
 Australian National University
- Nhi Hin
 The University of Adelaide
- Monique Jordan University of Wollongong
- Nitika Kandhari
 Monash University
- Rachel Laattoe
 Flinders University

- Tenielle Porter Edith Cowan University
- Natalie Thomas
 Monash University
- Bin Wang Monash University
- Haoyu Yang
 The University of Melbourne
- Yue You The University of Melbourne
- Huiwen Zheng The University of Queensland

The recipients got to find out more about the AMSI Choose Maths program and meet other grant winners and female attendees at a networking lunch held on Monday 2 December.



"Being able to see the participation and achievement of women with maths, particularly within a scientific context has been crucial in directing me to a more statistical and maths-based job. I feel supported within the community and pushed to achieve more."

> Nikeisha Caruana The University of Melbourne

PROGRAM EXTRAS

WELCOME LUNCH AND EVENING RECEPTION

Following the opening lecture from Professor Melanie Bahlo on the many guises of bioinformatics training and careers and the predicted future trends of the discipline, a catered networking lunch was held to welcome participants. Day One ended with an evening drinks reception to provide another opportunity for attendees and speakers to meet, share ideas and build networks.



"AMSI BioInfoSummer 2019 provided me with a fantastic platform to network with different researchers of various backgrounds and expertise. The conversation sparked some new ideas for my research and motivated me to venture out of my comfort zone in bioinformatics."

> Pei Qin (Sabrina) Ng The University of Adelaide

DIVERSITY IN STEM LUNCH

AMSI Research and Higher Education Program Manager Chloe Pearse kicked off this catered networking session on Day Two with a presentation on unconscious bias and diversity in STEM. Conference attendees were challenged to think about and discuss over lunch the importance of diversity and how they could encourage it in practice.



CAREERS EVENING

A panel event to showcase career opportunities in bioinformatics and provide a forum for discussion around different career pathways was held on Tuesday night. Attendees heard about the APR.Intern program from Business Development Manager Maria Galanis. Panel facilitator Rebecca Poulos then asked each of the following panellists to share their experiences in the mathematical sciences before inviting questions from the audience:

- Dr Rebecca Poulos, Children's Medical Research Institute (facilitator)
- Dr Brett Laydon, Optiver Asia Pacific
- Dr Kitty Lo, The University of Sydney
- Associate Professor Jason Wong, University of Hong Kong
- Elena Zotenko, Garvan Institute of Medical Research

"The careers night and diversity of roles across the panel members really opened my eyes to the options that are available to statisticians and mathematicians."

> Shane Fernandez The University of Sydney

POSTER SESSION

Conference registrants had the opportunity to share their research with the bioinformatics community by submitting a poster and participating in the ever-popular Fast Forward talks. Poster presenters were each allocated a maximum of 90 seconds to spruik their poster to the delegation and encourage people to visit them at their poster during the Q&A session that followed for further discussions.

Twenty-seven mathematical scientists entered the poster competition with most also taking on the challenge of the Fast Forward presentations. A panel of judges determined two winners for the hotly-contested best Fast Forward presentation, while Best Poster was chosen by public vote.

BEST FAST FORWARD PRESENTATION (FIRST PRIZE)

Dr Nikeisha Caruana The University of Melbourne

Integration of omics techniques identifies extensive mitochondrial biogenesis after endurance training of human skeletal muscle.



BEST FAST FORWARD PRESENTATION (SECOND PRIZE)

Hope Tanudisastro The University of Sydney

What ExACtly do we know about functional constraint on renal genes associated with ESRF?

BEST POSTER (FIRST PRIZE)

Nhi Hin The University of Adelaide RNA-seq analysis in a zebrafish model of Alzheimer's disease highlights the importance of iron homeostasis





PUBLIC LECTURE

A free evening lecture, open to the public and accessible to Year 10 students and above, was held on Day Four of BioInfoSummer. Over 150 people listened to "The Bright Future of Applied Statistics" by Professor Rafael Irizarry from Harvard University. Professor Irizarry provided several examples of how statistics and statistical modelling are being used to tackle current challenges and uncover critical insights needed to reshape our world and how we live in it, including some from his own research in genomics and estimating the effects of Hurricane María in Puerto Rico.



"The public lecture delivered by Prof. Irizarry was particularly inspiring for young scientists."

> Robert Qiao Flinders University

FREE PUBLIC LECTURE AS PART OF AMSIBIOINFOSUMMER19

THE BRIGHT FUTURE **OFAPPLIED** STATISTICS

PROFESSOR RAFAEL IRIZARRY HARVARD UNIVERSITY

6PM – 7.30PM THURS 5 DEC CPC AUDITORIUM THE UNIVERSITY OF SYDNEY

REGISTER BIS.AMSI.ORG.AU/PUBLIC-LECTURE















AMSI BIOINFOSUMMER 2019 | UNIVERSITY OF SYDNEY 2-6 DECEMBER

FEEDBACK



Forty-two per cent of attendees at AMSI BioInfoSummer 2019 completed the online survey to provide their feedback and comments on the event.



In rating their overall experience at the event on a scale of 1 to 10, where 1 is poor and 10 is excellent, the respondents' average rating was 8.4

BIOINFOSUMMER WAS OF A HIGH STANDARD		
Strongly Agree	57%	
Agree	36%	
Neutral	6%	
Disagree	0%	
Strongly Disagree	0%	
Prefer not to Say	1%	

BIOINFOSUMMER WAS WELL-ORGANISED

Strongly Agree	62%	
Agree	31%	
Neutral	5%	
Disagree	1%	
Strongly Disagree	0%	
Prefer not to Say	1%	

THE PRESENTATIONS WERE PROFESSIONAL AND ENGAGING

Strongly Agree	56%	
Agree	36%	
Neutral	7%	
Disagree	0%	
Strongly Disagree	1%	
Prefer not to Say	0%	

I FOUND THE SOCIAL EVENTS A GOOD **OPPORTUNITY TO NETWORK** Strongly Agree 41% Agree 33% Neutral 15% Disagree 2% Strongly Disagree 1%

8%

THE CONTENT PRESENTED WAS RELEVANT TO MY STUDY/PROFESSION

Strongly Agree	33%	
Agree	48%	
Neutral	15%	
Disagree	1%	
Strongly Disagree	2%	
Prefer not to Say	1%	

I WOULD RECOMMEND BIOINFOSUMMER **TO OTHERS** Strongly Agree 65% 28% Agree Neutral 6% Disagree 0% **Strongly Disagree** 0%

1%

Prefer not to Say

Prefer not to Say



"I have made lifelong connections that will be invaluable as I progress with further studies into the fascinating field of bioinformatics."

> Chiara Folland The University of Western Australia

MEDIA RELEASE

What are the Odds? Why the Future is Bright for Statistics

Book Now! Public Event on Thursday, 5 December

Monday 2 December 2019

From winning the jackpot to meeting our doppelganger or rolling a six, we've all wondered what are the odds? Harvard University statistician and Australian Mathematical Sciences Institute (AMSI) BioInfoSummer (BIS) 2019 Public Lecturer Professor Rafael Irizarry will explore how statistics power our ability to shape and better the world.

"We all understand the role of statistics in understanding chance or the odds of a strange event, but this measurement revolution has been at the heart of so many 21st-century accomplishments. From saving our planet to delivering better healthcare, forecasting weather and optimising industry processes, statistics are an essential tool across so many areas," says Professor Irizarry.

Professor Irizarry will draw on his own work in the Department of Biostatistics at Harvard University to bring to life statistics and its role in discovery as we respond to unprecedented advances in digital technology and a data-reliant world.

"In this data-driven era of science, statistics and statistical methods are incomparable in their power to tackle current challenges and uncover critical insights needed to reshape our world and how we live in it," he said.

Free to attend, this event is open to audiences from high-school students to 100. Join Professor Irizarry from 6pm, Thursday, 5 December at the University of Sydney. Register: <u>bis.amsi.org.au/public-lecture/</u>

AMSI Director Professor Tim Brown said the Institute was delighted to welcome Professor Irizarry to Australia for this exciting public event as part of BIS 2019.

"Rafael is a leader in his field and a brilliant communicator. AMSI is excited to provide Australians with the opportunity to engage with the power of statistics through the impact and value of this field with so many implications for all of us," said Professor Brown.

This public lecture is part of the 2019 AMSI BioInfoSummer (BIS) hosted by the University of Sydney from 2 – 6 December. One of AMSI's most popular research training events, its themes include epigenetics/genomics, single-cell omics, mass-spec analytics and BioCAsia/precision medicine.

Aimed at undergraduate and graduate students, researchers and professionals in related fields, BIS offers an intensive five-day program of presentations and workshops headlined by Australian and international bioinformatics leaders. Attendees also benefit from a range of

exciting extras including the popular welcome reception, networking opportunities, a careers evening, poster competition and the public lecture.

Delivered as part of AMSI's Australian Government Securing the Australian STEM Workforce program, BIS was made possible by event sponsors including AMSI, the Australian Government Department of Education, The University of Sydney, the Charles Perkins Centre, Australian BioCommons, The Children's Medical Research Institute, the Westmead Institute for Medical Research, BHP Foundation and the Australian Bioinformatics Computational Biology Society.

For more information: bis.amsi.org.au

COMMITTEES

AMSI wishes to acknowledge the generous donation of time and scientific advice by the following committees—without their contribution this event would not have been a success:

STANDING COMMITTEE

- Matt Ritchie (Chair)
 Walter and Eliza Hall Institute of Medical Research
- Nicola Armstrong
 Murdoch University
- Tim Brown Australian Mathematical Sciences Institute
- Mike Charleston
 University of Tasmania
- Angela Coughlin (Secretary)
 Australian Mathematical Sciences
 Institute
- Gary Glonek The University of Adelaide
- Ville-Petteri Makinen
 South Australian Health and
 Medical Research Institute

ORGANISING COMMITTEE

- Bobbie Cansdale The University of Sydney
- Angela Coughlin Australian Mathematical Sciences Institute
- Mengbo Li
 The University of Sydney
 Kitty Lo
- Kitty Lo
 The University of Sydney

 Ellis Patrick (AMSL BiolofoS)
- Ellis Patrick (AMSI BioInfoSummer 2019 Event Director)
 The University of Sydney

- Jessica Mar The University of Queensland
- Alicia Oshlack
 Murdoch Children's Research Institute
- Tony Papenfuss
 Walter and Eliza Hall Institute of Medical Research
- Ellis Patrick The University of Sydney
- Chloe Pearse
 Australian Mathematical
 Sciences Institute
- David Powell
 Monash University
- Jean Yang The University of Sydney
- Chloe Pearse
 Australian Mathematical
 Sciences Institute
- Rebecca Poulos
 Children's Medical Research Institute
- Lake-Ee Quek
 The Unviersity of Sydney
- Jean Yang (AMSI BioInfoSummer 2019 Event Director)
 The University of Sydney

CHARLES PERKINS CENTRE THE UNIVERSITY OF SYDNEY 2-6 DECEMBER

A SYMPOSIUM IN BIOINFORMATICS

THEMES

INTRODUCTION TO BIOINFORMATICS EPIGENETICS / GENOMICS SINGLE CELL OMICS MASS SPEC ANALYTICS BIOCASIA / PRECISION MEDICINE

REGISTER BIS.AMSI.ORG.AU







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