17
AMSI
OPTIMISE
MATHEMATICAL INNOVATION

AMSI OPTIMISE

EVENT REPORT

26–30 JUNE 2017
MONASH CONFERENCE CENTRE
MELBOURNE CBD

Optimise 2017 would like to thank the following sponsors for their support:

AMSI Optimise 2017

Symposium Inspiring Industry and Research Collaboration

Monash University | 26-30 June 2017

FOREWORD

Optimisation is becoming an increasingly crucial element of industry that can help growth and profitability across a range of sectors. Using mathematics, optimisation is also the practise of improving processes to their optimal capacity.

AMSI Optimise, the Institute's newest flagship networking and research training event, was launched in 2017 to strengthen mathematical optimisation research collaboration and its applications across industry. Held at the Monash Conference Centre in Melbourne from 26-30 June 2017, the inaugural event was attended by 108 academics, students and people from industry.

> "Expanding our popular flagship training events with the new AMSI Optimise symposium has strengthened research-industry collaboration and provided opportunities for the next generation of specialists."

Professor Geoff Prince
AMSI Director

The first three days of the Optimise 2017 program was an industry focused conference covering the applications of optimisation to utilities, applications in transport and supply chain optimisation and practical optimisation tools. The last two days of the week-long event was reserved for a more traditional workshop allowing for academics to submit talks.

The symposium featured international guest speakers, expert and end-user talks, tutorials, collaboration showcases and industry challenge sessions. Attendees heard from 16 national speakers, 20 workshops presenters and 3 featured international speakers including Professor Steve Wright (University of Wisconsin-Madison, USA), Professor Roberto Cominetti (Universidad Adolfo Ibáñez, Chile) and Professor Alejandro Jofré (Universidad de Chile, Chile).

In addition to the scientific program, a number of networking events were held to foster collaboration between industry and academia. These included the Business Breakfast on day 1 – which was opened by Dr Amanda Caples, Victoria's Lead Scientist – a conference dinner on day 2 and welcome drinks on day 3 which marked the end of the three-day conference and start of the academic workshop.

*AMSI Optimise 2017 was jointly funded by the Australian Mathematical Sciences Institute and the Australian Government's Department of Education and Training, with support from Monash University, MAXIMA, BHP Billiton Foundation through the CHOOSE**MATHS** program, AMSI Intern and Optym. AMSI Optimise is part of the Institute's Securing Australia's Mathematical Workforce project.*

DIRECTOR'S REPORT

Professor Andreas Ernst
Monash University

AMSI Optimise 2017 is a new annual event designed to bring together people from industry, academia and students with an interest in the use and development of mathematical optimisation.

Optimisation is becoming increasingly important in a range of context from strategic planning, to operational decision support and in the context of data mining and analytics. Optimisation is also somewhat unusual within the university context with researchers in this area spread across mathematics, computer science, engineering departments and business schools. AMSI Optimise fills an important gap in Australia by bringing together a broad range of practitioners, researchers and students with interests in optimisation.

The event has set out to achieve the aims of:

- Promoting awareness of the potential for optimisation and its applications particularly with industry
- Providing some training for postgraduate students and motivation for them to learn more about optimisation
- Exchange of ideas amongst optimisation researchers from different discipline backgrounds
- Networking to enable more collaborative research in this area, particularly between university optimisation researchers and industry

This is an ambitious set of goals, particularly for the first event that was organised at relatively short notice. However, the response to this inaugural event has been tremendous with significantly more participants than originally anticipated.

There were many highlights from this Optimise 2017 including:

- Three strong international speakers that discussed the application of optimisation to energy markets, public transport and data mining. The speakers provided both overviews of their research that was accessible to industry and students, as well as more in-depth talks on the advances in the underlying mathematics
- Many presentations by industry on the benefits of optimisation and lively panel discussions with the audience allowed for a good exchange of ideas and better understanding of where benefits can be gained with optimisation.

- A large number of students attended the event to learn about optimisation, be inspired by what can be done and network with potential future employers or PhD supervisors
- The large number of social events, including the opening breakfast, conference dinner and evening drinks session provided many opportunities for networking
- A higher than expected turnout for the technical workshop shows that the larger AMSI Optimise event can serve as an anchor to attract a slightly larger number and greater variety of optimisation researchers than some other recent events in this space.

While it will take some time to see the longer-term effectiveness of this event in promoting new partnerships and greater involvement of students and industry in optimisation, the first event made a promising start.

PROGRAM

MONDAY 26 JUNE

Utilities

Electricity
Telecommunications
Water networks

TUESDAY 27 JUNE

Logistics

Transport
Supply Chain Optimisation

WEDNESDAY 28 JUNE

Optimisation Practice

Hands on sessions

THURSDAY 29 JUNE

Research Workshops

Routing
Radiotherapy
Scheduling
Continuous Optimisation

FRIDAY 30 JUNE

Research Workshops

Healthcare
Stochastic Mixed-Integer Programming (MIP)
Applications

SPEAKERS

SPEAKER	TITLE	ORGANISATION
Professor Roberto Cominetti	Optimisation and games in transportation	**Universidad Adolfo Ibáñez, Chile**
	Optimal convergence rates for Karnoselskii-Mann fixed-point iterations	
Professor Alejandro Jofré	Stochastic optimisation and game theory on energy markets	**Universidad de Chile, Chile**
	Workshop plenary	
Professor Steve Wright	Some optimisation problems in electrical power systems	**University of Wisconsin-Madison, USA**
	Optimisation in data analysis: survey and recent developments	
Dr Geoffrey Brent	Optimisation applications at the Australian Bureau of Statistics	**Australian Bureau of Statistics**
Dr Rodolfo García-Flores	Optimisation for the livestock industry in northern Australia	**CSIRO**
Dr Hamideh Anjomshoa and Dr Olivia Smith	Case Study: South African health worker allocation	**IBM Research Australia**
	Workshop on the Case Study	
Professor Maria Garcia de la Banda	Better support for computational optimisation problem modellers	**Monash University**
Professor Mohan Krishnamoorthy	Operations research: for and with industry	
Dr Ross Gawler	Optimisation in deregulated electricity markets: Australian experience	**Monash Energy Materials and Systems Institute (MEMSI)**

SPEAKER	TITLE	ORGANISATION
Ashwin Zade	Simulation-guided optimisation algorithms for real-time train scheduling	**Optym**
Professor Xiaodong Li	Seeking multiple solutions: multi-modal optimisation using niching methods	**RMIT University**
Professor Peter Stuckey	Automatic logic-based benders decomposition with MiniZinc	**The University of Melbourne & CSIRO Data61**
Dr Hamish Waterer	Evaluating the impact of maintenance on the throughput capacity of Australian coal chains	**The University of Newcastle**
Professor Guoyin Li	Some recent advances in polynomial optimisation	**The University of New South Wales**
Dr Michael Forbes	Electric vehicle routing	**The University of Queensland**
Mahes Maheswaran	Water supply optimisation	**Water NSW**

HANDS ON SESSIONS

TITLE	SESSION LEADER
Constraint programming	Dr Guido Tack **Monash University**
Integer programming	Professor John Hearne **RMIT University**

"The quality of the talks was amazing"

Dr Hamideh Anjomshoa
IBM Research

WORKSHOP TALKS

SPEAKER	TITLE	ORGANISATION
Associate Professor Alexander Kruger	Regularity of mappings vs. transversality of sets	**Federation University Australia**
Dr Davaa Baatar	Minimising the number of apertures in multileaf collimator sequencing with field-splitting	**Monash University**
Joseph Bunton	A Large Neighbourhood Search approach for the Nurse Rostering Problem	
Steven Edwards	Scheduling automated cell staining: an iterative approach	
Dr A. A. N. Perwira Redi	Selective discrete symbiotic organism search for capacitated vehicle-routing problem	
Ilankaikone Senthooran	Modelling a water supply system to generate long-term operating plans	
Belinda Spratt	Reactive Multi-Operating Room Surgical Case Sequencing Problem	**Queensland University of Technology**
Rehan Abdul Aziz	Optimising a Vendor Managed Inventory Problem in the Fuel Industry	**Quintiq**
Professor Andrew Eberhard	Computing high-quality Lagrangian bounds of the stochastic mixed-integer programming problem	**RMIT University**
Dr Vera Roshchina	Open problems in convex optimisation	
Ellie Dillon	A two-stage stochastic programming model for inventory management in the blood supply chain	**The University of Melbourne**
Ashwani Kumar	Optimising patient flow and throughput in a surgical suite	
Associate Professor Russel G. Thompson	Optimising courier routes in central business districts	
Kenneth Young	A hybrid Benders decomposition of the assembly line	
Dr Minh Dao	Linear convergence of projection algorithms	**The University of Newcastle**
Scott Lindstrom	Regularising with Bregman-Moreau envelopes	
Dr Michelle Dunbar	Mathematics in medicine: optimising image acquisition and cancer treatment in radiotherapy	**The University of Sydney**
Associate Professor Regina Burachik	An approach for the convex feasibility problem via monotropic programming	**University of South Australia**
Dr C. Yalçin Kaya	Optimal path planning	
Dr Fabricio Olivera	Efficiently Solving Stochastic Mixed-Integer Problems combining Gauss-Siedel and Penalty-Based methods	

PARTICIPANT BREAKDOWN

UNIVERSITY/INSTITUTION

AGL	1
Australian Bureau of Statistics	2
Australian National University	1
Deakin University	2
Defence Science and Technology Group	3
Federation University Australia	2
La Trobe University	1
Macquarie University	3
Monash University	25
Queensland University of Technology	2
RMIT University	14
State Government of Victoria	1
The University of Melbourne	14
The University of New South Wales	3
The University of Newcastle	3
The University of Queensland	1
The University of Sydney	1
Universidad Adolfo Ibanez (Chile)	1
University of Chile (Chile)	1
University of South Australia	2
University of Southern Queensland	1
University of Wisconsin-Madison (USA)	1

INDUSTRY

BHP Billiton	1
Biarri	3
City West Water	1
CSIRO Data61	1
Engie	1
GELI Australia Pty Ltd	3
IBM Research	2
Mark Lawrence Group	1
Opturion	1
Optym	2
Quintiq	2
Strategis Partners	1
Versent	1
WaterNSW	1
Yarra Valley Water	2
TOTAL ATTENDEES	**108**

GENDER

Female	32	29%
Male	74	69%
Undisclosed	2	2%

ATSI STATUS

Yes	0	0%
No	104	96%
Undisclosed	4	4%

STATE/TERRITORY

ACT	2	2%
NSW	12	11%
QLD	6	5%
SA	3	3%
TAS	0	0%
VIC	80	74%
WA	2	2%
International	3	3%

PARTICIPANT TYPE

Academic	27	25%
Agency	9	8%
Early Career Researcher	8	7%
Honours	5	5%
Industry	18	17%
Masters	3	3%
PhD	35	32%
Research Institute	1	1%
Undergraduate	2	2%

RESIDENCY STATUS

Australian Citizen	49	45%
Permanent Resident	15	14%
Student Visa	14	13%
Not an Australian Resident	4	4%
Prefer not to disclose	19	18%
Other	7	6%

It was great "seeing lots of optimisation people in the same place at the same time, from a wide cross section of industries and academia"

Professor Kate Smith-Miles
Monash University

GRANTS

AMSI TRAVEL FUNDING

Travel funding to attend AMSI workshops, meetings and courses is available to students and early career researchers of AMSI Member Institutions who cannot access other support.

In 2017, early career researchers from 2 AMSI Member Institutions were awarded travel funding:

- Minh Dao
  The University of Newcastle

- Kate Helmstedt
  Queensland University of Technology

CHOOSEMATHS GRANTS

CHOOSE**MATHS** Grants are designed to provide full or partial support for Australian female mathematical sciences students and early career researchers to participate in the AMSI Higher Education Flagship programs. The grants support women to build and extend their skills and professional networks by providing financial support to attend and/or assist with caring responsibilities. The Awards are funded by BHP Billiton Foundation and are an initiative of the CHOOSE**MATHS** Project.

In 2017, 2 female PhD students from an AMSI Member Institution were awarded CHOOSE**MATHS** grants:

- Busayasachee Puang-Ngern
  Macquarie University

- Khushboo Singh
  Macquarie University

"I am thankful for receiving a CHOOSE**MATHS** Grant as without this funding I would not have had the opportunity to attend AMSI Optimise. I think the best part of this event was gaining new connections."

Busayasachee Puang-Ngern
Macquarie University

PROGRAM EXTRAS

OPENING BUSINESS BREAKFAST

AMSI Optimise was opened by Dr Amanda Caples, Victoria's Lead Scientist, at the symposium's business breakfast held in Collins Quarter on Monday 26 June. The opening also featured a brief welcome from Professor Geoff Prince (AMSI), Professor Mohan Krishnamoorthy (Monash University) and Professor Kate Smith-Miles (MAXIMA).

"AMSI's Optimise conference is a fantastic opportunity for industry to connect with optimisation experts and together solve key business problems and identify new ways to drive efficiency."

Dr Amanda Caples
Victoria's Lead Scientist

POSTER SESSION

A poster session was held on the second day of the conference to give participants an opportunity to showcase their research to the audience and build their networks.

Seven abstracts were submitted for the poster competition from which attendees voted via a dynamic online poll to determine the winner of the Best Poster;

- **Shan (Dora) He, Monash University**
  Reducing electricity cost by better demand management

CONFERENCE DINNER

The conference dinner was held at Burma Lane restaurant on Tuesday 27 June. The relaxed setting allowed Optimise 2017 attendees to mix easily and develop new relationships across academia and industry.

NETWORKING DRINKS

To mark the end of the three-day conference, and as a welcome to the academic workshop part of the event, a networking session was held on Wednesday evening at the conference venue. This provided attendees an opportunity to mingle with the speakers and other participants and informally discuss ideas and future collaboration.

"I enjoyed the opportunity to network with PhD students, postdocs, and people in the industry. I was able to develop a better understanding of the pathways I should take after completing honours next year"

Phillip Luong
**Monash University**

FEEDBACK

67%

Sixty-seven per cent of attendees at AMSI Optimise 2017 completed the online survey to provide their feedback and comments on the event.

8.4

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.
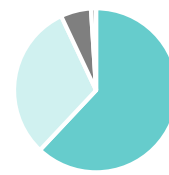
AMSI OPTIMISE WAS OF A HIGH STANDARD

Strongly Agree	60%
Agree	37%
Neutral	3%
Disagree	0%
Strongly Disagree	0%
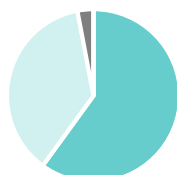
AMSI OPTIMISE WAS WELL ORGANISED

Strongly Agree	62%
Agree	31%
Neutral	6%
Disagree	1%
Strongly Disagree	0%

THE PRESENTATIONS WERE PROFESSIONAL AND ENGAGING

Strongly Agree	45%
Agree	46%
Neutral	9%
Disagree	0%
Strongly Disagree	0%

I FOUND THE SOCIAL EVENTS A GOOD OPPORTUNITY TO NETWORK

Strongly Agree	58%
Agree	28%
Neutral/didn't attend	14%
Disagree	0%
Strongly Disagree	0%
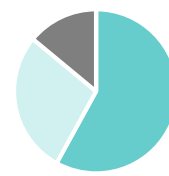
THE CONTENT PRESENTED WAS RELEVANT TO MY STUDY/PROFESSION

Strongly Agree	35%
Agree	49%
Neutral	16%
Disagree	0%
Strongly Disagree	0%
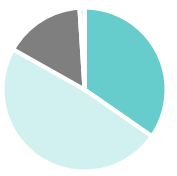
I WOULD RECOMMEND OPTIMISE TO OTHERS

Strongly Agree	62%
Agree	28%
Neutral	10%
Disagree	0%
Strongly Disagree	0%
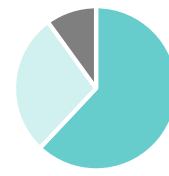
EARLY CAREER RESEARCHER PROFILE

Optimising the Future with Mathematics

Dr Michelle Dunbar
ACRF Image-X Institute, University of Sydney

Going into AMSI Optimise 2017, Postdoctoral Research Fellow, Dr Michelle Dunbar was already familiar with the field through her work with the ACRF Image-X Institute at the University of Sydney.

Dunbar attended the Australian Mathematical Sciences Institute's newest research training and networking event, to network and discover more about the field and industry collaboration.

"I was drawn to the chance to share my work and hear about similar research and solution approaches. Discussions were helpful and insightful as to which type of projects industry are looking to collaborate and also their expectations," she says.

The event was a minefield of cutting-edge ideas and novel approaches that she hopes to apply to her own work.

"Attending this conference led to discussions about algorithmic techniques with other researchers and students. It also helped to give me some solution ideas in my own work," she says.

As well as transport scheduling, Dunbar has applied machine learning techniques to improve disease detection and diagnosis and improve cancer imaging for treatment. With optimisation firmly on the industry radar, she believes impacts of the growing research area are set to expand.

"In all the sectors I have applied optimisation there appears to be a number of key areas in which it will play a role in the future: managing uncertainty, leveraging additional degrees of freedom for state-of-the-art technology and addressing problems conventional approaches are unable to handle," she says.

With exciting changes on the horizon, Dunbar hopes to continue her engagement with AMSI Optimise into the future. She anticipates a number of key impacts within the field over the next five years as focus shifts to address risk of human and machine error and embrace online opportunities.

"I think we'll see a move to robust optimisation to mitigate against operational and human uncertainty, as well as online optimisation such as on-demand transport services and greater

use of prospective solution approaches for patients e.g. real-time tumour tracking and treatment, and also faster solution times," she says.

AMSI Optimise could not have come at a better time, according to Dunbar, with existing and emerging challenges demanding a platform to fuel discussion and collaboration as industry and academia strengthen innovation ties.

"With challenges to navigate such as use of propriety software, clearer communication with industry and their preference for heuristic and easy to use software solutions, close and regular discussion is required for successful collaboration. AMSI Optimise offers a space for this."

SPEAKER PROFILE

Professor Stephen Wright, from the University of Wisconsin, Madison (USA) was one of the keynote speakers at AMSI Optimise 2017, delivering two plenary presentations during the week-long event.

CAN YOU TELL ME A LITTLE ABOUT YOURSELF AND YOUR RESEARCH BACKGROUND?

My research is in algorithms for computational optimisation, and their applications to many areas, including engineering, control, data science, and computational biology. Optimisation problems arise wherever there is some mathematical model of a situation, and something to be minimised or maximised. In science, the model is often dictated by physical principles, such as the energy associated with the conformation of molecules in a cell; a prediction of the diffraction pattern observed when an x-ray beam is trained on a crystal, or the differential equations that model the dynamics of the atmosphere. Physical principles are the basis of models in engineering applications too, but here we

must also model the effects of possible human decisions. An example here is the power flow in an electrical power grid, and how this is affected by changes in demand or by the construction of new capacity in various parts of the grid. In data science, the model is often based on statistical principles, such as when we seek the "most likely" state of an observed system, given the observations that have been made about that system. I have worked on many applications of this kind. But I also work on more fundamental questions, such as the mathematical properties of the methods that are used to solve these problems – how rapidly they find a solution, how much computation and data movement they require, and so on. I have also worked on software for solving certain key classes of optimisation problems, including linear programming and quadratic programming.

CAN YOU TELL ME A LITTLE ABOUT YOUR RESEARCH AND IN PARTICULAR, ITS IMPORTANCE TO ENERGY APPLICATIONS?

Applications of optimisation abound in the energy industry. Take just the electrical power grid, optimisation arises in modelling the flow of power in a grid; in deciding how to design the grid to meet projected demand and make it robust to attacks; in scheduling generators to meet anticipated demands (and possibly respond in a reasonable way to unanticipated demands); in determining the locations of failures in the grid from indirect sensor readings; and in designing well-functioning markets for electrical power. I have worked on several of these problems, which are quite challenging from the point of view of optimisation, in part because they must be solved rapidly in order to be of use to grid operators.

CAN YOU EXPLAIN THE ROLE OF MATHS IN OPTIMISATION, AND THE VALUE FOR INDUSTRY WITH REFERENCE TO ENERGY APPLICATIONS?

Optimisation is a mathematical discipline. It builds on the successes of applied mathematics and statistics, in that these disciplines produce useful mathematical models of physical and information systems that can be used as the basis of optimisation models. Optimisation provides a toolbox of techniques to add features to these mathematical models, which allow the models to be used to make decisions or extract information. Optimisation also provides algorithmic techniques for "solving" the resulting models, obtaining answers that are useful to practitioners. Energy applications typically involve models with physical and economic components, with many moving parts that interact in complex ways, and many points at which human decisions play a potential role.

HOW IS THE ENERGY SECTOR LIKELY TO CHANGE IN TERMS OF THE IMPACT OF OPTIMISATION?

Optimisation methods have become highly influential in the research side of the energy sector during the past two decades. In this sector (as in others), engineers and practitioners have become convinced of the usefulness of optimisation as a prism through which to view many of the important problems that arise, and as a source of computational tools for solving these problems. I'm less equipped to say how this influence has propagated into everyday practice, where human factors and other logistical issues arise. For example, in electrical power grids, there are human grid operators that make key decisions regarding shedding load, or regarding bids to supply power to the grid at a certain schedule of prices. In such situations, optimisation tools can play a powerful advisory role, showing the operator the effects of the various decisions they may take and providing them with a "what if" capability.

WHAT RISK DOES AUSTRALIA'S RELATIVELY LOW RATE OF RESEARCH-INDUSTRY COLLABORATION POSE IN TERMS OF HOW WE INNOVATE AND RESPOND TO THE FUTURE?

The optimisation and applied mathematics community in Australia has a great track record in engaging with industry. Several of my colleagues, for example in Newcastle and Brisbane, have been involved in joint projects with the mining and electricity industries, in some cases spanning many years. Such interactions should be encouraged – they help point optimisation researchers toward problem types of practical interest, and thus to guide their fundamental research activities. They can also potentially provide researchers with funding that is sorely lacking the Australian system – funding to support and incentivise students, to support travel to conferences, and to allow them to spend time away from their other academic responsibilities, to engage in the intense, focused intellectual effort that is needed to make significant advances in research.

MEDIA RELEASE

Optimising Australia: The Next Industrial Revolution
Melbourne, Victoria
Monday 26 June 2017

Australia must be ready for the 4th industrial revolution, with the mining, energy and infrastructure sectors set for major change within the next decade, according to Biarri Energy, Mining, and Infrastructure (EMI) Lead and AMSI Optimise speaker, Dan Sutherland.

"We will see more change in the next five years than the past thirty. The challenge for the EMI sectors will be to keep up with the changing environment and new workforce requirements," he says.

This warning comes as optimisation leaders gather in Melbourne to fast-track research-industry collaboration and address practical optimisation challenges at the Australian Mathematical Sciences Institute's (AMSI) newest flagship training event, AMSI Optimise. In its first year, the event includes a three-day conference and two-day workshop.

Launching the event at a business breakfast, Victoria's Lead Scientist, Dr Amanda Caples said now was the time for research and industry to harness the power of innovation and prepare for a rapidly changing future.

"AMSI's Optimise conference is a fantastic opportunity for industry to connect with optimisation experts and together solve key business problems and identify new ways to drive efficiency. The conference will highlight the growing importance of optimisation, lead to new industry research collaborations, and grow our capabilities by providing postgraduate students with opportunities to apply their skills to real-world problems," she says.

For Biarri the future is already colliding with the present, the commercial mathematics company delivers optimisation solutions to industry, most recently, LNG, to increase safety, productivity and revenue while delivering cost and waste reductions.

"As well as logistics solutions such as scheduling to transport load consolidation, our work with EMI often focuses on challenges such as long-term mine design, planning and utilities (e.g. water) flow optimisation," says Dan.

University of Wisconsin-Madison Computer Sciences Professor Stephen Wright, who will also speak at the event, says industry has taken the lead on the optimisation revolution.

 "Engineers and practitioners have embraced optimisation's usefulness as a prism through which to view important problems and the effects of various decisions – a vital 'what if' capability," says Professor Wright.

The beauty of using optimisation for decision making, says Dan, is that it can help change the operating dynamic from "the way it's always been done" to "it's the most efficient way to operate".

This is essential as rapid change and advancement forces us to respond to the unknown at a sprint. For Director of AMSI Professor Geoff Prince, this makes for an exciting time for maths and optimisation and the addition of AMSI Optimise to the Institute's flagship program.

"Optimisation is essential to Australia's future economic competitiveness and security. This much-needed research-industry collaboration platform will drive new innovation and secure future capability," says Professor Prince.

As the Institute's gears up for an expansion of its internship program, this event will also create new opportunities for postgraduate research students to engage with industry.

Jointly sponsored by AMSI, the Department of Education and Training, Monash University, Maxima and Optym, AMSI Optimise is part of the Institute's Securing Australia's Mathematical Workforce project. Other events include, AMSI Summer School, AMSI BioInfoSummer, AMSI Winter School and the Vacation Research Scholarship Program.

Visit: www.optimise.amsi.org.au

MEDIA COVERAGE

AMSI Optimise 2017 received strong media coverage with national TV (Sky Business News), national print (Australian Financial Review and Australian Resources Mining and Agriculture News) and national radio (ABC).

- 26 June 2017 – Sky News Business
  Making business more efficient with math
  www.skynews.com.au/business/business/company/2017/06/27/making-business-more-efficient-with-math.html
- 26 June 2017 – The Australian Financial Review (AFR), Tim Dodd
  New symposium will challenge mathematicians to solve industry problems
  www.optimise.amsi.org.au/wp-content/uploads/sites/52/2017/07/new-symposium-will-challenge-mathematicians-to-solve-industry-problems-afr.com_.pdf
- 28 June 2017 – ABC Radio
  Various bulletins across 17 regional stations and ABC Radio News
  No link available
- 29 June 2017 – Australian Resources Mining and Agriculture News
  AMSI Optimise: Preparing Australia for the Fourth Industrial Revolution
  www.australianresources.com.au/12046/amsi-optimise-preparing-australia-for-the-fourth-industrial-revolution

COMMITTEES

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

STANDING COMMITTEE

- Andreas Ernst
  MAXIMA, Monash University
  Committee Chair
- Regina Burachik
  University of South Australia
- Alysson Costa
  The University of Melbourne
- Simon Dunstall
  Data61 CSIRO & ASOR
- Andrew Eberhard
  RMIT University
- Bernadette Fox
  Australian Bureau of Statistics
- Chris Fricke
  The Simulation Group
- Gary Froyland
  The University of New South Wales
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  Biarri
- Alexander Kruger
  Federation University Australia

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  Australian Mathematical Sciences Institute
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  Australian Mathematical Sciences Institute
- Guido Tack
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  Australian Mathematical Sciences Institute
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  Australian Mathematical Sciences Institute

ORGANISING COMMITTEE

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  MAXIMA, Monash University
  AMSI Optimise 2017 Event Director
- Marianne Johnston
  MAXIMA, Monash University

- Anne Nuguid
  Australian Mathematical Sciences Institute
- Cate Parsons
  Australian Mathematical Sciences Institute
- Guido Tack
  Monash University

NEW IN 2017

OPTIMISE

AMSI

A three-day conference, two-day workshop inspiring industry and research collaboration

26 – 30 JUNE 2017

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