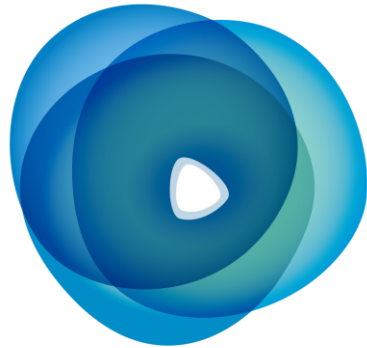


An Innovative University and Industry Collaboration



AMSIIntern

Biarri Applied Mathematics Conference

Professor Geoff Prince  
AMSI Director

November 2012

# AMSI Intern

AMSI Intern is an internship program run by AMSI for its member universities.

A postgraduate student is placed with a business/agency to work on a project for the duration of 4-5 months, with the support of an academic mentor.

Interns can come from any discipline to help fill the knowledge gap and provide a fresh perspective on a business problem.

# AMSI Intern

AMSI Intern is designed to build links between universities and those in industry, business and government seeking high-end analytical expertise.

AMSI Intern is set up to service small-to-medium enterprises as well as government and large organisations.



# Contact

AMSI Intern Manager:

**Cate Ballard**

[e: cate@amsi.org.au](mailto:cate@amsi.org.au)

t: 03 9035 5037

m: 0422 518 465

[www.amsiintern.org.au](http://www.amsiintern.org.au)



# Past Projects



AMSI Intern has facilitated recent projects with:

- Biarri
- Bass Coast Shire Council
- Show Works Creative Solutions
- Barden Fabrications
- CSIRO

see [amsiintern.org.au](http://amsiintern.org.au)

# Internship Project: DSTO

## Modelling the Influence of Scheduling Policies on the Success of Military Air Mobility Operations

- **Intern:** Olivia Smith, University of Melbourne
- **Mentor:** Dr Heng-Soon Gan
- **Duration:** 5 months
- **Purpose:** This internship was a scoping exercise to determine the effectiveness of new OR methods in the quantitative analysis of military airborne logistics by the Air Operations Branch of DSTO.



# Internship Project: DSTO

## Work Plan

*Phase 1:* Project familiarisation, initial scoping and investigation of software options: 0.5 months

*Phase 2:* Data acquisition: 0.5 months

*Phase 3:* Model development, implementation and testing, and informal mid-project review: 2.5 months

*Phase 4:* Generate results: 0.5 months

*Phase 5:* Write report and present findings: 1 month

# Internship Project: DSTO

The internship resulted in a software implementation of a conceptual Idealised Control Centre model; an optimisation model that can be tuned to represent different scheduling policies, and a simulation framework for testing the long-term performance of those scheduling policies.

Uptake by DSTO?: shhh!



# Biarri Projects

## 1. Quantitative Investment scoping

**Intern:** Leonard Winata, RMIT University

**Academic mentor:** Dr. Melih Ozlen

**Duration:** 4 months

**Purpose:** to conduct a review of the available literature on quantitative investing which will be used to inform strategic business direction decisions within Biarri. The intern has an applied mathematics background with some software engineering experience. It will be an opportunity for the intern to apply these skills to assist in strategic business direction decision making.

# Biarri Projects

## 2. 4G Network roll-out efficiency

**Intern:** Selva Murugesan, La Trobe University

**Academic mentor:** A/Prof. David Tay

**Duration:** 4 months

**Purpose:** The primary objective of the project is determine if network roll-out plans can be optimized to minimise capital expense whilst ensuring services levels are maintained.

# Biarri Projects

## 3. Australia Post parcel network

**Intern:** David Scerri, RMIT University

**Academic mentor:** Prof. Lin Padgham

**Duration:** 14 weeks

**Purpose:** The Australia Post network needs to be re-designed to handle a predicted doubling in volumes over the next 7 years that is being driven by the increase in e-commerce activity.

# Biarri Projects

## Work plan

- 25 June - 29 June: Assist project team to build model of 10-15 candidate parcel delivery network designs, generate output results and analyse
- 2 July - 20 July: Build models to test variants of 2-3 shortlisted candidate network designs, generate output results and analyse
- 23 July - 13 August: Build models of various network design scenarios likely while transitioning to final selected network design, generate results and analyse
- 16 August - 28 September: Refine model interface, implement as web application and hand over to client

# MISG

## Mathematics and Statistics in Industry Study Group

A joint venture with ANZIAM

[www.mathsinindustry.com](http://www.mathsinindustry.com)

# AMSI Workshops

**One of AMSI's Flagship Research and Higher Education programs.**

**[www.amsi.org.au/research-a-higher-education/workshop-programs/call-for-proposals](http://www.amsi.org.au/research-a-higher-education/workshop-programs/call-for-proposals)**

# Maths of Planet Earth 2013

**!The public relations opportunity of the decade!**

**We invite your participation:**

**[www.mope.org.au/](http://www.mope.org.au/)**





# Questions ?



## **Geoff Prince**

Phone: (03) 8344 1776

Email: [director@amsi.org.au](mailto:director@amsi.org.au)