A Career in Commercial Mathematics

Joe Forbes
10 May 2011
Set up Biarri in January 2009
Involved with optimisation companies for 10 years primarily managing sales and marketing
‘Translator’ between mathematicians and business people
Roles at Opcom, Carmen Systems and Boeing
Before commercial mathematics

✔️ Management consultant in Australia, Asia, UK and US
✔️ Transport manager with the United Nations
✔️ Australian Army Officer
✔️ Bachelor of Arts from UNSW (RMC Duntroon)
✔️ MBA from UWA
The need for a quantitative capability

- Data is ubiquitous and cheap
- The analytical ability to utilise that data is scarce
- Biarri was established to provide analytics and optimisation to help business operate more efficiently
- We use operations research to solve complex business problems at an affordable price
Accessible Optimisation

Models for decision support: Insight, Collaboration, Analysis

Quantitative Models
Business analytics and custom models...

Web Apps
Optimisation tools for planning and scheduling...
What we Want

✅ Commercial Mathematicians
✅ Mathematical modelling, statistics, optimisation and simulation to arrive at optimal or near optimal solutions to complex problems
✅ Achieve improvement goals using scientific methods
Aim was to make optimisation available to more businesses
Put in place a team of experts: mathematicians, computer scientists, designers, industry and commercial specialists, developers and analysts
See some examples . . .
Ben Hollis

Optimisation Guru

✓ Modelling, Design and Development
✓ PhD

Ben is an optimisation guru.

Education

✓ Ph.D. (Operations Research) Candidate, University of Queensland, Australia
✓ B.Sc. Hon. (Physics) 1st class, University of Queensland, Australia, 1999
✓ B.Sc. (Physics) University of Queensland, Australia, 1999

Areas Of Expertise

✓ Senior Consultant / Lead Software Engineer
✓ Pure and applied Operations Research. Specific techniques include:
  ✓ Vehicle and Crew Scheduling
  ✓ Train Scheduling
  ✓ Vehicle Routing
  ✓ Linear and Integer Programming
  ✓ Delayed Column Generation
  ✓ Column Generation acceleration techniques
  ✓ Techniques for solving large Integer Programming formulations
  ✓ Dynamic Programming
  ✓ Meta-Heuristics
Loki Davison

Computer Scientist

- Design and Development
- Bachelor of Computer Science (Honours)

Education

- Monash University | Bachelor Of Computer Science (Honours)
  Thesis: Synthesis Of Electronic and Ethnic Drums
- University of Ulm | Diplom Informatik (Exchange)
  Awarded Baden-Württemberg Scholarship by the German Ministry of Science and Research
  Language of tuition: German.
- Monash University | Bachelor of Computer Science
  Awarded Merit and Equity Scholarship
  Studied natural languages for all free electives

Relevant Professional Experience

- 2008 | Senior Computer Scientist - TaguchiMail
- 2006 | Computer Scientist - IntrepidTravel
- 2005 | Computer Scientist - HostExchange
- 2003 | System Administrator/Programmer - Advancen
- 2002 | System Consultant - Christian Blind Mission International
- 2001 | System Administrator/Programmer - Northeast Telecommunications Cooperative
Chris Forbes

Senior Optimisation Consultant

- Modelling and Planning
- Bachelor of Science (Mathematics)

Profile

Education

- B.Sc. (Mathematics), University of Queensland, 2010
- B.Sc. Hons (Mathematics), University of Queensland, 2011 (current)

Professional Background

- Software Engineer
- Pure and applied Operations Research
- Data Visualisation
- Data Analysis

Relevant Professional Experience

- Schweppes: Nightly vehicle routing and scheduling for East Coast Australia deliveries.
- NBN: Extension of formulation and optimisation of the layout of cable and location of hubs
- Ausenco: Optimisation of the earthworks and tracklaying schedule for the railway between Alpha Coal Mine and Abbot Point
Steven Donaldson
Senior Optimisation Consultant

- Modelling and Planning

Education
- Bachelor of Mathematics, Queensland University of Technology (2010)
- Bachelor of Information Technology, Queensland University of Technology (2010)

Professional Background
- Software Engineer
- Applied Operations Research
- Data Visualisation
- Advanced Excel Modelling and Visualisation
- Data Analysis

Relevant Professional Experience
- Schweppes: Nightly vehicle routing and scheduling for East Coast Australia deliveries.
- Queensland Rail: Optimisation of yield and maintenance.
- Transmax: Optimisation of on-ramp / traffic-light metering, capable of minimising the congestion on motorways.
- Queensland Cotton: Seasonal scheduling of transports to export locations over a transport network.
Advice

✔ Tools of the trade
✔ Work on your T
✔ Passionate about the power of mathematics
Questions

WE WANT YOU!

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