Dr Tristan Kleinschmidt
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7th September 2020

RE: Job Application – Principal Decision Support,

Dear Sarah & Nanda,

I am writing to signal my interest in filling the role of Principal Decision Support in the Maritime & Supply Chain Excellence team in Singapore. I am currently working in Singapore with Boston Consulting Group's (BCG) advanced analytics team BCG GAMMA.

I joined BCG GAMMA 18 months ago as part of the acquisition of Australian-based The Simulation Group (TSG). During my 7 years with TSG, I worked primarily with commodity clients, using discrete-event simulation to support key investment decisions and focus productivity improvements. This modelling support extended to many global BHP projects, including:

- Project A8 and Inner-Harbour Debottlenecking (IHD) investment evaluation projects within Western Australia Iron Ore,
- Evaluation of the Spence copper concentrator and mine-to-port logistics in Chile, and
- Mine capital expansion and monthly planning support for BMA Coal operations in Central Queensland.

Over the 7 years with TSG I developed skills across the full lifecycle of supply chain analytics projects. I was able to develop my technical skills in software such as AnyLogic and R, Tableau and Spotfire, and master the model technical lifecycle (data analysis, model development, model validation and scenario analysis), as well as demonstrate my array of consulting skills.

Prior to the transfer to BCG GAMMA, I was regional consulting projects lead at TSG. My promotion to this role in late 2018 was built on a foundation of delivering influential outcomes for BMA Coal (Caval Ridge expansion) and the Spence Growth Option project. In the case of the Caval Ridge expansion, I was able to demonstrate the need to reallocate capital expenditure in order to release capacity of the coal processing plant which was adopted as part of the approved expansion.

My current role as Consultant & Senior Data Scientist with BCG GAMMA has sharpened my focus on the business value derived from data science, and broadened my perspective on where value can be generated (volume, cost, safety, on-time performance etc.).

It has also provided the opportunity to expand my data science skillset to complement my deep simulation expertise with mathematical optimization and machine learning. During this time, I have delivered market models to understand medium-term evolution of market prices based on rational supply and demand actors, as well as sales & operations planning models; both used mixed integer programming optimization methods in either Python or AIMMS. I have also delivered machine learning solutions for predicting the arrival date of bulk carriers at their next load port.

I pride myself on my consulting skillset – I consider myself a Consultant first, and a Data Scientist second. It has been commented a number of times that I am able to articulate complex analytical concepts and outcomes in easy to understand ways, in a way that many of my peers are unable to. Consequently, I have been asked to present on the power of data science to a wide range of stakeholders, from operations personnel (analytics outcomes), middle and senior management (data science training) through to members of the executive team (proposals for state-of-the-art tools).

I enjoy working with a variety of stakeholders across the business (engineering, operations, study teams, marketing), and embed this in the way I engage on projects. Uncovering how supply chains really work, what the real constraints are, and what an ideal world looks like are all key to defining – and documenting – the analytical solution to follow. Involving the key stakeholders to ensure model validity builds credibility in the final outcomes. Having everyone involved throughout the development of insights/tools creates a sense of ownership and empowers end-users to lead change in the business.

My demonstrated communication skills and rapport building have enabled me to develop long-lasting relationships with former clients. I have been fortunate to work with a number of BHP teams during my time with both BCG GAMMA and TSG. I will be happy to provide a formal list of projects I have been involved in and a list of key contacts for you to follow up with.

Having worked in the mining & minerals area for 8 years, I am also fully appreciative of the safety culture embedded within BHP. I was part of the Supply Chain Analytics team in WAIO when the Samarco dam failed in 2015 and saw first-hand how seriously BHP takes its safety culture. This was an eye-opener for me, and I am now cognizant of safety considerations associated with operations being modelled, and likewise the impact of any analytical deployments developed.

I believe my professional and personal attributes – along with my existing experience with the BHP portfolio – will fit in seamlessly and enable me to hit the ground running. Having delivered simulation, optimization and machine learning use cases across the full mining

value chain, I am in a unique position help leverage the full spectrum of advanced analytics to deliver competitive advantage to BHP and to drive continued innovation.

My curriculum vitae has been included with this letter. I look forward to receiving discussing my application with you. I can be contacted on +65 9771 9781 or at kleinschmidt_tf@yahoo.com.au.

Yours sincerely

Dr Tristan Kleinschmidt

Dr Tristan Friedrich KLEINSCHMIDT

NATIONALITY Australian

DATE OF BIRTH 30th of December 1983

CONTACT INFORMATION
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SKILL HIGHLIGHTS

- Problem solving: find the right tool and approach to solve the problem
- Communication: simplify complexity, make it actionable
- Enablement: insights are only part of the consulting framework
- Team management: build a community

DATA SCIENCE SKILL SUMMARY

- Discrete-event simulation (DES): 8yrs experience delivering DES for capital and operational decisions, primarily in mining & minerals
- Mathematical optimization: three projects using mixed integer programming in industrial goods
- Machine learning (ML): one project delivered using ML pipelines for arrival prediction of bulk carriers

PROFESSIONAL EXPERIENCE

Consultant and Senior Data Scientist *February 2019 – Current*

BCG Gamma, The Boston Consulting Group, Singapore

- Gamma SEA lead for Industrial Goods and Augmented Analytics topics
- Discrete-event simulation of beneficiation plant: identified co-commitments to deliver volume targets for a $70m investment
- Machine learning prediction of bulk carrier arrival time at load port: 5-15% precision increase over existing model
- Medium-term market price discovery for commodity market using mixed integer programming: potential $90m profit increase
- Integrated sales and operations planning optimization for pulp and paper mills, palm oil refineries: identified up to 10% margin improvement

Principal Consultant *2012 – 2019*

The Simulation Group, Brisbane/Perth, Australia

- Simulation consulting projects regional team lead
- Copper concentrator design verification: defined maintenance and 3rd-party logistics requirements to achieve production targets for multiple $2b+ greenfield projects
- Volume risk assessment of iron ore and coal capital projects: identified more robust infrastructure and product strategies worth additional $400m+ NPV
- Capital expansion planning and operational improvements across iron ore, coal, copper and aluminium mining and processing, as well as public rail networks and brick making facilities

Project Officer *2010 – 2012*

Airports of the Future Project, Queensland University of Technology, Brisbane, Australia

- Managed collaboration of 30+ global research partners investigating the future of air travel
- Secured $900k to establish Integrated Command & Control Facility for Large-Scale Critical Infrastructure Management
- Team awarded 2011 Engineers Australia QLD Division Engineering Excellence Award for R&D
- Published 3 peer-reviewed journal articles & 5 international conference papers, including research focus on airport passenger simulation using agent-based modelling

DATA SCIENCE SOFTWARE SKILLS

- Languages: Python, Java, C/C++
- Simulation: AnyLogic, ARENA
- Optimization: Python (PuLP, pyomo), AIMMS, Gurobi
- Machine Learning: Python, sci-kit learn
- General: Git, SVN, Matlab, R, Tableau, SQL

Education

Doctor of Philosophy (Elec Eng) *2006 – 2010*

Queensland University of Technology, Brisbane, Australia

- Dissertation Title: *"Robust Speech Recognition using Speech Enhancement"*
- Principal Supervisor: Professor Sridha Sridharan
- Associate Supervisor: Dr Michael Mason
- Key Research Areas: Automotive Speech Recognition and Speech Enhancement

Graduate Certificate in Research Commercialisation *March 2008 – June 2008*

Queensland University of Technology, Brisbane, Australia

Master of Engineering Science (Computer & Communications) *February 2005 – January 2006*

Queensland University of Technology, Brisbane, Australia

Bachelor of Engineering (Electrical & Computer) with First Class Honours *February 2002 – July 2005*

Queensland University of Technology, Brisbane, Australia
Awarded the QUT University Medal, 2006.

Hobbies & Community

- parkrun volunteer, St Lucia (QLD) & Bishan (Singapore) parkruns, 2018 – 2020.
- Running
- Travel
- Photography

Professional Referees

Referees available on request