

ANL488

Business Analytics Applied Project

Pre-semester Briefing 29 Nov 2022

Agenda

- Introduction
- Using Data from Data Sponsors
- Using Data from Company
- Supervisors Profile
- List of Projects for Jan 2023 semester
- Enhance Your Resume
- Question & Answer

Introduction

Focus of ANL488

- Conceptualise and conduct a business analytics project of relevance to what is practiced in industry.
- Utilise knowledge and skills learnt in a project environment and apply appropriate data mining techniques for generating useful inputs for business decision making.



ANL488

- 10 CU
- Two full semesters but can be finished in one, provided standards are met
- Contact your assigned supervisor regularly
- Meet at least 5 times (excluding the presentation)
- Plagiarism is not tolerated
- Adhere to all timelines
- Handbook will be sent out together with the briefing slides. It can also be found in ANL488 L group in Canvas once is available. Pls check for new version at the start of the semester.

Mode of Communication

- Use SUSS email to communicate with their supervisors and staff of the University.
 - Any changes to the Course, its outline and project submission timelines will be posted on the Canvas. It is the student's responsibility to be aware of the information.*
 - Students should take note of all announcements made in the Canvas, via emails and in seminar*.
 - Expect to spend at least 15 hours per week for this course.
- * From now till 23 Jan 2023, communication will be via email till Canvas for ANL488 is accessible.

Assessment Components

Component	Description	Weightage
OCAS	Project Proposal Report	20%
OES	Oral Presentation (Zoom)	20%
	Final Report (ONLY ONE-TIME SUBMISSION ALLOWED)	60%

To gain at least a PASS (or credit) students have to:

- a. Achieve at least 40% for the Project Proposal Report
- b. Achieve at least 40% for Oral Presentation and Final Report

All marks contribute to a single final rank score, from which a Letter Grade will be awarded as the Course Result.

Types of Project

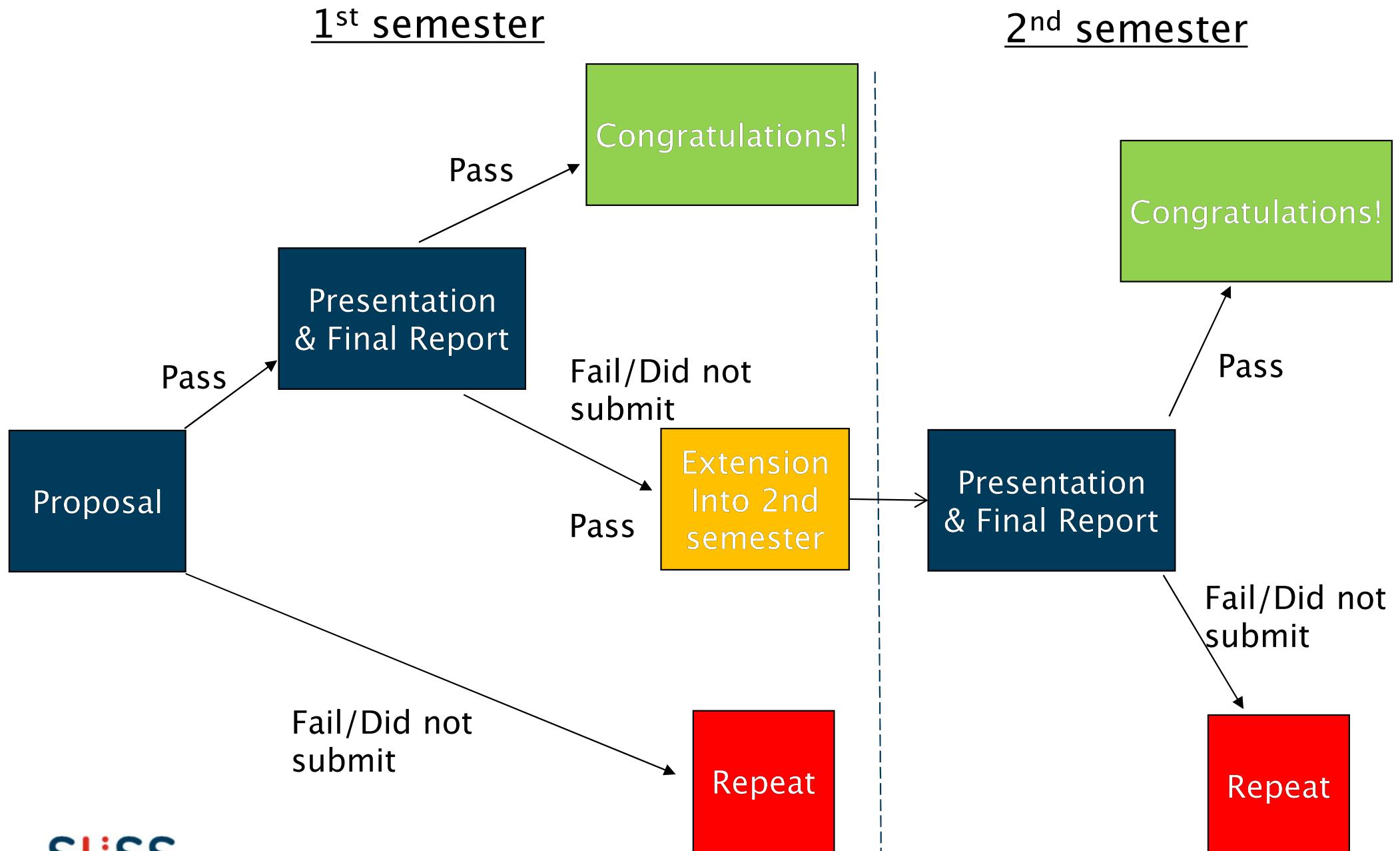
- Application and implementation

Use one or more data mining techniques taught in the business analytics programme (e.g., association, clustering, predictive modelling, web mining and text mining etc.), or combining various techniques into a data mining solution for a specific problem.

- Development of new analytical methodology.

Proposed topic must be related to one or more of the topics discussed in the programme, and not simply a summary of the materials covered in classes or the provided readings. The objective of such a project is to go beyond the class materials and examine one of the topics in a much more in-depth manner.

Flow



Role of Supervisor

- Provide academic guidance and direction.
- Not to enforce English or grammar standards.
- Can extend advice to the student but it is up to the student to accept such advice (students should consider the supervisor's advice seriously)



Role of Student

- Responsible for the final outcome of student's own project.
- All citations, references and fieldwork as well as the project are the sole responsibility of the student.
- Ensure that all copyrights are properly observed and where necessary, appropriate permissions are granted. This includes seeking permission from any authorised person(s) or organisation for the use of data by using the Non-Disclosure Agreement(NDA) found in Appendix D of the ANL488 Student Handbook.
- Submit your NDA to your supervisor/Mechelle by noon, **13Feb2023**. If an official introductory letter from SUSS on your intent to get data is required, email Mechelle (mechelle@suss.edu.sg) to get official letter signed by HoP.
- Adhere to timelines.

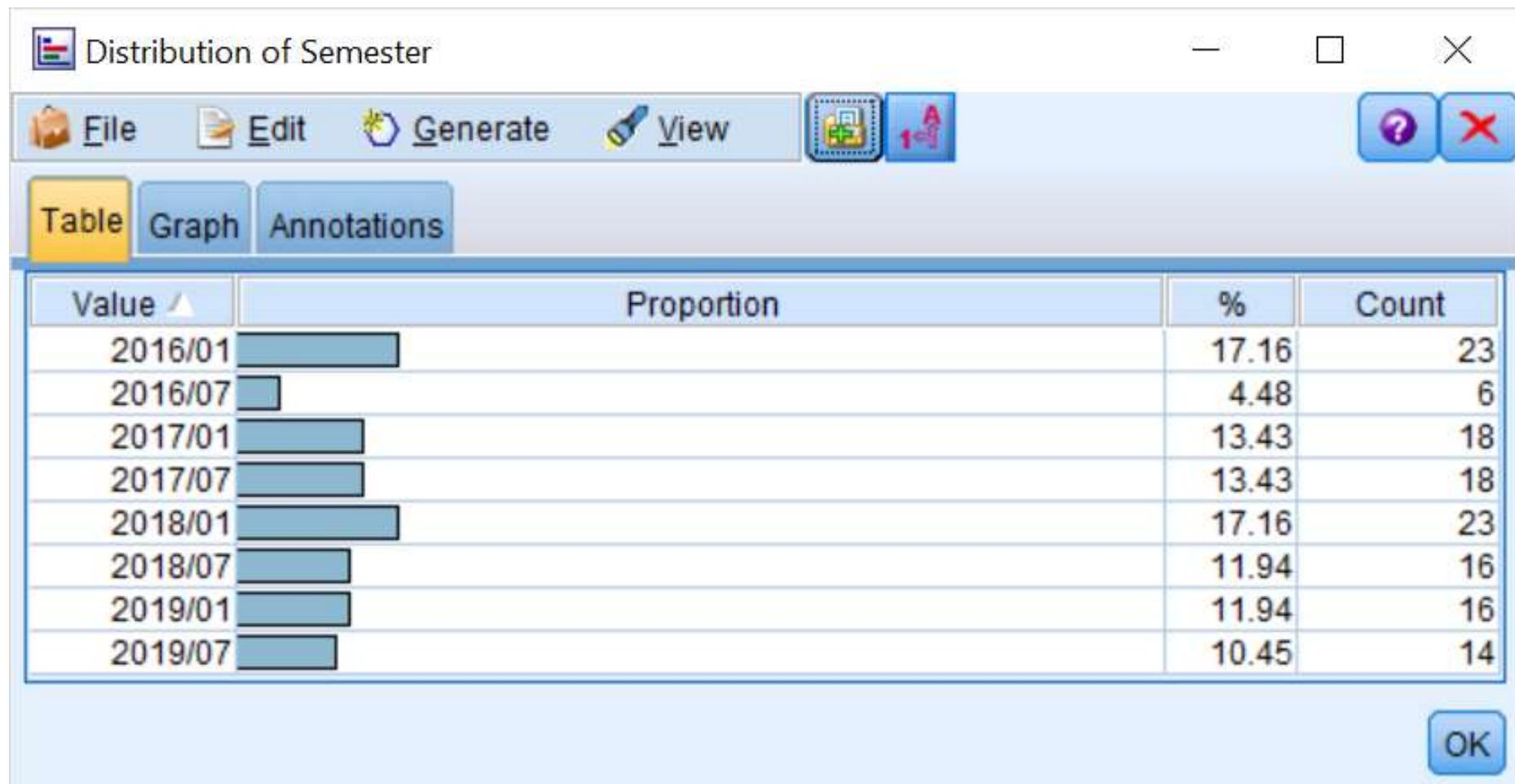
Final Report Requirements

- No more than 10,000 words (40 pages at 250 words per page)
- Double-spaced
- Times New Roman font at 12 cpi
- Include all references and sources
- Indicate the total number of words written in (brackets) at the bottom of the last paragraph of the last chapter, but before the References
- Paragraphs justified (format)
- Number each page, table and figure
- APA referencing style (refer to ANL311/312 iSG)

Timelines

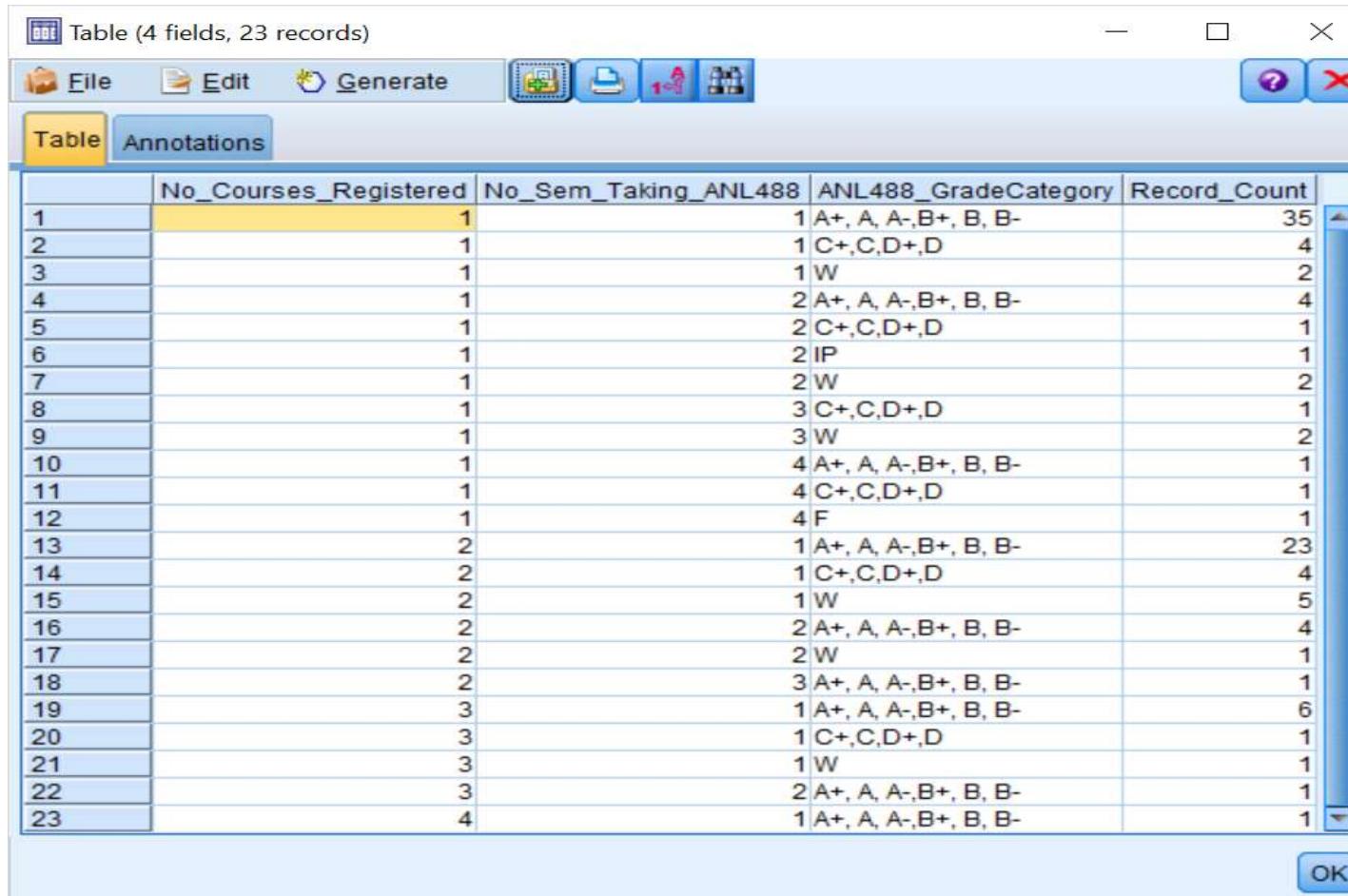
	Dates
Supervisor/Topic Assignment	6 Dec 2022 (Listed Projects) 14 Dec 2022 (General)
1 st Seminar (Week 1):	23 Jan 2023
Proposal (Week 4):	13 Feb 2023, 12 noon
Presentation (Week 9 & 10)	20 to 24 March 2023 (9am to 9pm) Make sure you are available, exact schedule TBC
Final Report Submission (Week 16):	8 May 2023, 12 noon

Some Stats



Some Stats

Table (4 fields, 23 records)



No_Courses_Registered	No_Sem_Taking_ANL488	ANL488_GradeCategory	Record_Count
1	1	1 A+, A, A-,B+, B, B-	35
2	1	1 C+,C,D+,D	4
3	1	1 W	2
4	1	2 A+, A, A-,B+, B, B-	4
5	1	2 C+,C,D+,D	1
6	1	2 IP	1
7	1	2 W	2
8	1	3 C+,C,D+,D	1
9	1	3 W	2
10	1	4 A+, A, A-,B+, B, B-	1
11	1	4 C+,C,D+,D	1
12	1	4 F	1
13	2	1 A+, A, A-,B+, B, B-	23
14	2	1 C+,C,D+,D	4
15	2	1 W	5
16	2	2 A+, A, A-,B+, B, B-	4
17	2	2 W	1
18	2	3 A+, A, A-,B+, B, B-	1
19	3	1 A+, A, A-,B+, B, B-	6
20	3	1 C+,C,D+,D	1
21	3	1 W	1
22	3	2 A+, A, A-,B+, B, B-	1
23	4	1 A+, A, A-,B+, B, B-	1

Tip: Do not overburden yourself with too many modules.

Some Stats

Jul 2020 semester

Number of students in 2nd or more sems = 2

Number of students who finished ANL488 = 2 (100%)

Number of First Attempt students = 58

Number of students who failed/withdrew Proposal = 2 (3%)

Number of students who finished ANL488 = 43 (75%)

Number of students who in 2nd or more sems= 13 (22%)

Jul 2021 semester

Number of students in 2nd or more sems = 11

Number of students who finished ANL488 = 8 (73%)

Number of students who did not finish ANL488 = 3(27%)

Number of First Attempt students = 98

Number of students who failed /withdrew Proposal = 4 (4%)

Number of students who finished ANL488 = 78 (80%)

Number of students who in 2nd or more sems= 16 (16%)

Using Data from Data Sponsors

Data Sponsors

- Business Analytics students with prior working experience
 - Client-stipulated business objective
 - Apply business analytics techniques to existing data
 - Report previously unknown patterns of data to solve business problem
- Project supervision by SUSS full-time or Associate faculty
- Project duration of about 4 months
 - Jan 2023 to Apr 2023 (Final Presentation after Exam period)
- Deliverables
 - Problem Identification
 - Project Methodology
 - Project Proposal Writing
 - Project Planning & Establishing Milestones
 - Analysis and Recommendations
 - Project Report Writing
 - Project Presentation

Benefits

- Project Resources
 - Experienced team of project supervisors to guide the Business Analytics project efforts
 - Student resource to undertake the entire project scope from data preparation to modeling and reporting
 - Student using enterprise-grade analytical tools
- Structured Methodology
 - CRISP-DM; data mining methodology that students will follow and systematically work through to meet the stipulated business objective
 - Structured Mechanics
 - Reporting Protocol
 - Data Security Measures
 - Non-Disclosure Agreement
 - Masked Data

Role of Participating Companies

- Commitment
- Assigned a Liaison Personnel
- Provision of Business Objective
- Facilitate in Business & Data Understanding
- Supply of Data
- Assist in Data Preparation
- Meeting Attendance
- Clear Expectations of Student's Capability & Project Deliverables
- Agreement for Student to Work Remotely on the Project

Critical Milestones

By **31 Jan 2023**

Meeting A

- Defining Project Objectives & Scope
- Reporting Protocol
- Exploratory Discussion of Data
- Administrative Matters (e.g. NDA)
- Release of Data to Student

By **28 Feb 2023**

Meeting B

- Presentation by Assigned Student
 - Project Proposal
 - Project Milestones

By **31 Mar 2023**

Meeting C

- Project Review 1
 - Business Understanding
 - Data Understanding
 - Data Preparation
 - 1st Round of Modeling & Findings

Critical Milestones

By 30 Apr 2023

Meeting D

- Project Review 2
 - Modeling
 - Evaluation
 - Recommendations for Deployment

As data mining process is dynamic & cyclical, discussion on the earlier stages may be required.

By 31 May 2023

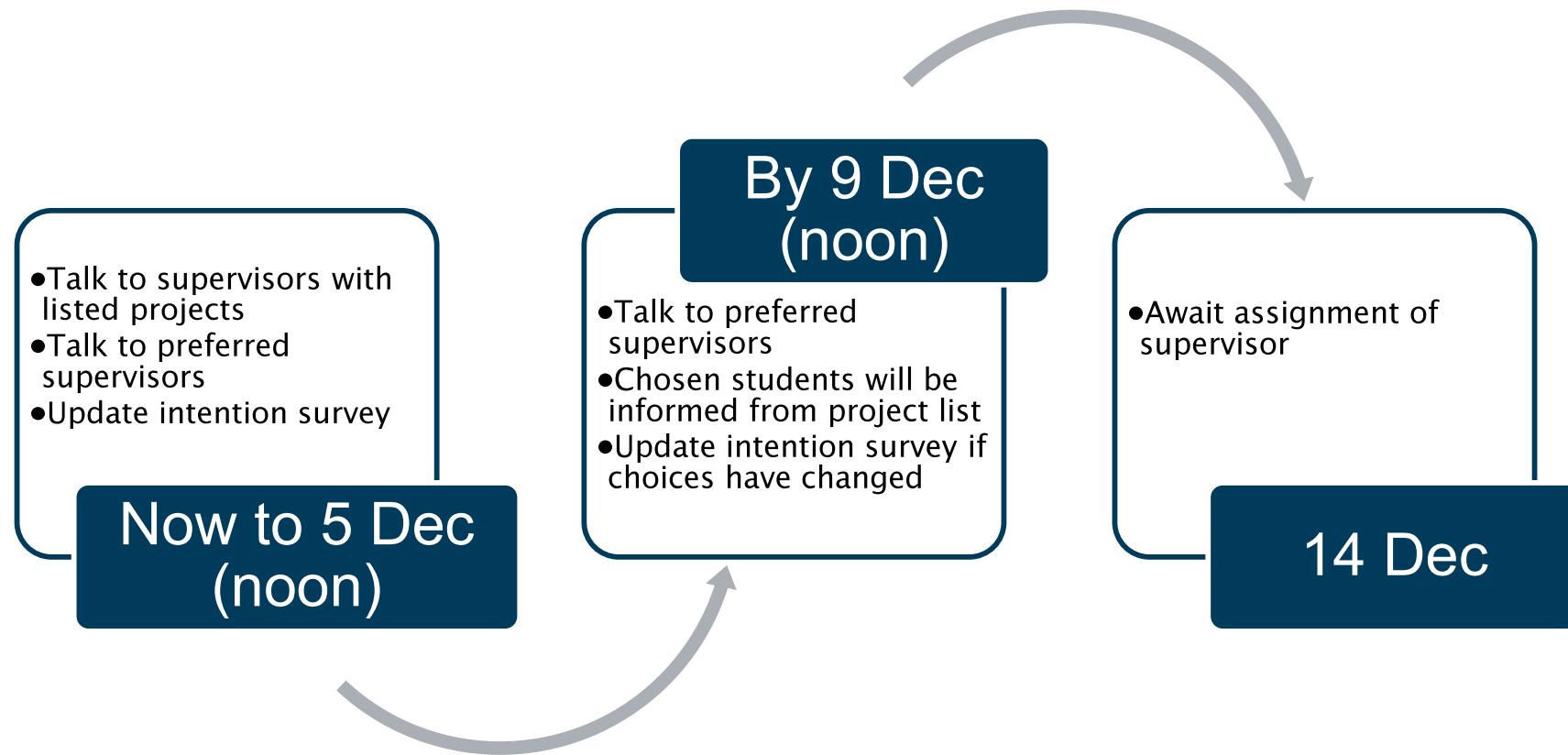
Meeting E

- Final Presentation

Timelines

	Dates
Supervisor/Topic Assignment	6 Dec 2022 (Listed Projects) 13 Dec 2022 (General)
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Proposal Presentation to Data Sponsor	By 6 March 2023
Presentation (Week 9 & 10)	20 to 24 March 2023 (9am to 9pm) Make sure you are available, exact schedule TBC
Final Report Submission (Week 16):	8 May 2023, 12 noon
Final Presentation to Data Sponsor	After Exam Period

Timeline



Note: If you are not registered for ANL488 in Jan 2023, please send email to jesstanwc@suss.edu.sg to get briefing slides, project list, zoom link for this briefing and other material. Otherwise, there is no way to reach you till the paid-up list for Jan 2023 is finalised.

Using Data from Company

Data From Company

- Company's data is best analysed by its own staff
- No concern of transmitting (or revealing) data to external party
- Analysis can be carried out within the company
- The student (also the staff) knows the business context (hence more productive)
- Company contributes to society by allowing for SUSS students to work on an industry-relevant projects
- The project will be guided by supervisors who have real-world analytics experience

Benefits

Students (staff in the company) will be in a better position to provide the benefits.

Possible Benefits:

- Help shape customer behaviours
- Improve profit by increasing response rate
- Put in place fraud detection technology that leads to fraud deterrence
- Leads to a better understanding of customer requirements
- Identify key issues faced by customers

Data

Potential data sources from the Company:

- Customer call log
- Customer sales transaction data
- Customer records
- Machine instrumentation data
- Factory production data

Safeguarding of the Data

- Use less sensitive data if needed, e.g., Queuing data
- Dedicated student will work on the data, generate the models and report the results to the supervisor
- Assigned supervisor does not need a copy of the data
- Mocked data that contain fictitious data can be used for the purpose of project discussion
- Not a need to submit the actual dataset as part of the project submission
- Final report will be read by your supervisor, second marker, and may sometimes be read by external examiners, who are all academics
- Final report can also be embargoed so that no members of the public can access the report



Supervisors Profile

Full-Time Faculty : Dr Carmen Lee

Email: carmenleekh@suss.edu.sg



Research Areas:

- Data Mining: Association, Clustering, Classification
- Text Mining: Topic modelling, Sentiment analysis

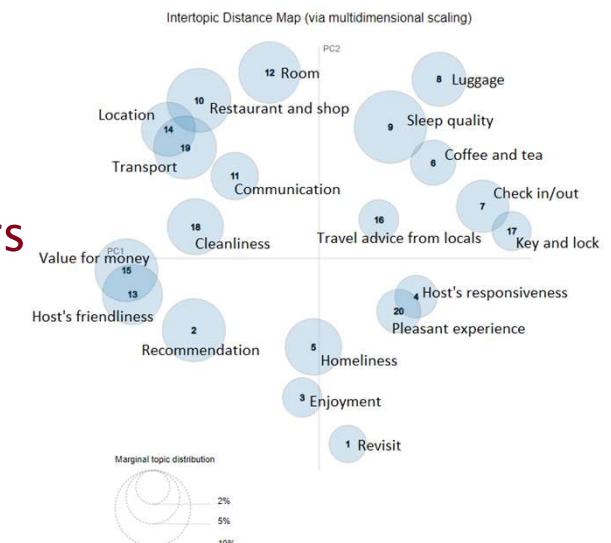
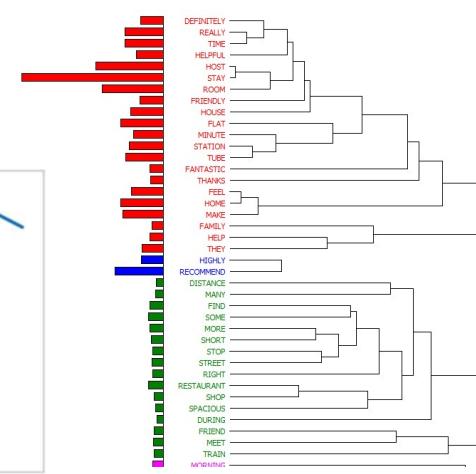
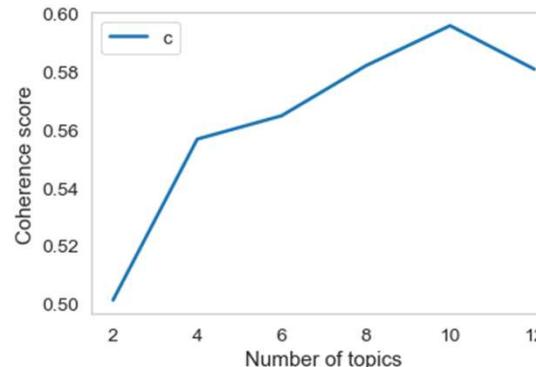
Research Projects/Initiatives:

- Application of data mining in manufacturing/service sectors
- Analysing user-generated content such as online reviews
- Social media analytics

Conversant in IBM SPSS Modeler, and Python programming.

Teach/Taught ANL303 and ANL305.

Available on Wednesdays or by appointment.



Full-Time Faculty : A/P James Tan

Email: jamestansc@suss.edu.sg

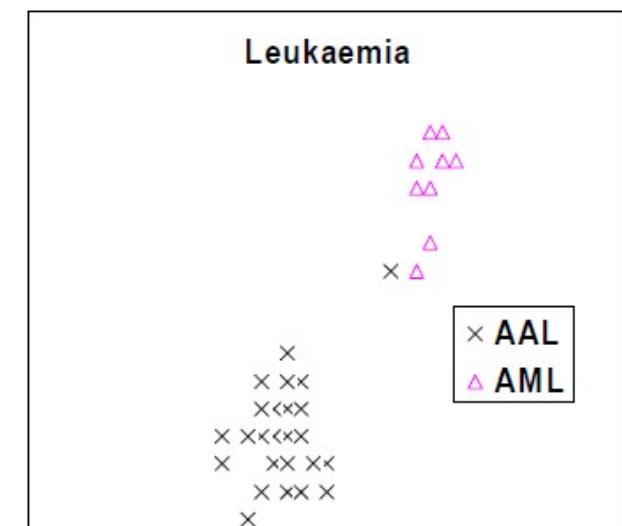
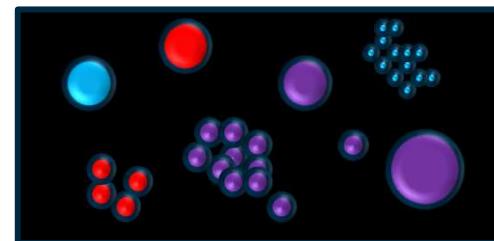
Research Areas:

- Business Analytics – Data Mining



Research Projects/Initiatives:

- Applications of data mining
- Data Visualisation
- Data Stream Mining for Anomaly Detection
(Research with collaborators from CSIRO, Australia)
- Fast Anomaly Detection in Evolving Data Streams
(Funded by US Air Force of Scientific Research)
- Ensemble of Stable and Unstable Learners
(Funded by Monash University)



Conversant in IBM SPSS Modeller. Taught ANL303/305/307/311.

Full-Time Faculty : Dr Jess Tan

Email: jesstanwc@suss.edu.sg



Research Areas:

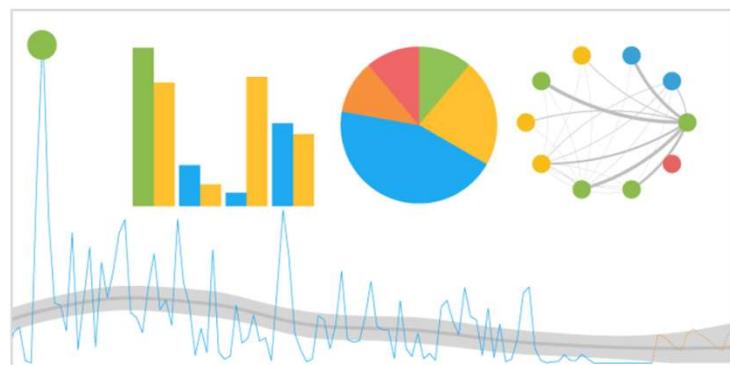
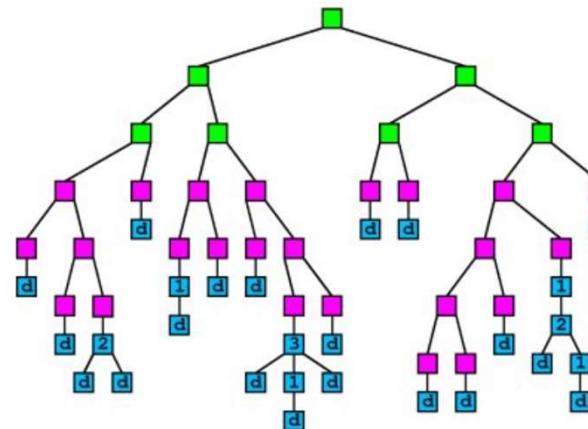
- Learning Analytics
- Business Analytics – Data Mining

Research Projects/Initiatives:

- Applications of Data Mining
- Analytics for Social Good
- Learning Analytics
- Data Visualisation
- Data Warehousing

Conversant in IBM SPSS Modeller, SAS Programming and SAS Enterprise Miner. Teach ANL310.

Available on Wednesday night or by appointment.



Full-Time Faculty : A/P Lee Yew Haur

Email: leeyh@suss.edu.sg



Research Areas:

- Business Analytics – Data Mining, Text Mining and Web Mining

Research Projects/Initiatives:

- Application of Data Mining in the Manufacturing Sector
- Application of Text Mining in Customer Relationship Management
- Web Usage Mining of Students Behaviour in Blackboard

Conversant in both IBM SPSS Modeller and SAS Enterprise Miner. Taught ANL311/315.

Only meets on Monday night.



A screenshot of the SAS Enterprise Miner software interface. The top menu bar shows icons for file, edit, view, analyze, mining, and help. Below the menu is a toolbar with icons for mining tasks. The main window is divided into several panes. On the left, there is a 'Comments (22)' pane listing numbered entries. Entry 8 contains the text: 'quicker. Had to wait sometime for food at buffet.' Entry 9 contains the text: 'More wi-fi availability. Non slip mat in bathtub. The Executive Club is great value and make you feel exclusive.' To the right of these is a 'Text Preview' pane displaying a summary of the comments, highlighting specific words like 'quicker', 'wi-fi', 'Executive', 'seating place', 'lobby', 'waiting', 'value', 'non', 'slip', 'mat', 'bathtub', 'Executive', 'Club', 'great', 'value', 'make', 'you', 'feel', 'exclusive', 'seating', 'place', 'at', 'the', 'lobby', 'while', 'waiting', 'either', 'to', 'be', 'picked', 'up', 'or', 'while', 'check', 'in', 'time', 'present', 'lobby', 'has', 'only', 'two', 'seats', 'taken', 'most', 'of', 'the', 'time', 'recognise', 'returning', 'guests', 'and', 'immediately', 'welcome', 'through', 'previous', 'records', 'either', 'upgraded', 'and', 'or', 'recognised', 'to', 'build', 'long', 'term', 'returning', 'guests', 'Free', 'internet', 'should', 'be', 'available', 'and', 'easily', 'accessible', 'to', 'all', 'hotel', 'rooms', 'as', 'it', 'is', 'none', 'way', 'of', 'life', 'hotel', 'need', 'to', 'be'. The text preview pane also includes a scroll bar and a status bar at the bottom.

Full-Time Faculty : Dr Liu Wenting

Email: wentingliu@suss.edu.sg

Research Areas:

- Business Analytics
- Machine Learning
- Statistical Analysis
- Optimisation Modelling
- Knowledge Management



Research Projects/Initiatives:

- Application of Machine Learning in Consumer Research
- Application of Optimisation Modeling in Pricing Strategy

Conversant in R, Python and KNIME platform.

Only meets on Friday.

Full-Time Faculty : Dr Karl Wu

Email: karlwuky@suss.edu.sg



Research Areas:

- Statistics – Statistical Modelling, Generalised Linear Models, Joint Mean and Dispersion Effects Models and Time Series Analysis.

Research Projects/Initiatives:

- Application of joint mean and dispersion effects models in social science, medical and environmental studies.
- Application of time series analysis and generalized linear models in longitudinal medical and biological studies.
- Programming of R packages for statistical analysis.

Conversant in IBM SPSS, SAS and R.

Only meets on Wednesday night.

Full-Time Faculty : Dr Priyanka Gupta

Email: priyanka@suss.edu.sg



Research Areas:

- Empirical modelling, retail competition, spatial econometrics, digital marketing, customer satisfaction, survey data analysis

Research Projects/Initiatives:

- Retail price competition analysis in the carbonated soft drinks category
- Impact of automation in consumer products distribution operations
- Understanding the differences between customer satisfaction measures

Conversant in STATA, Matlab, R and SPSS.

Meeting- Wednesday 4:30PM – 6:30PM

Thursday 10:30AM – 12:30PM

Full-Time Faculty : Dr Ren Jing

Email: jingren@suss.edu.sg



Research Areas:

- Business Analytics – Data Mining, Text Mining
- Machine Learning, Recommendation
- Social Media

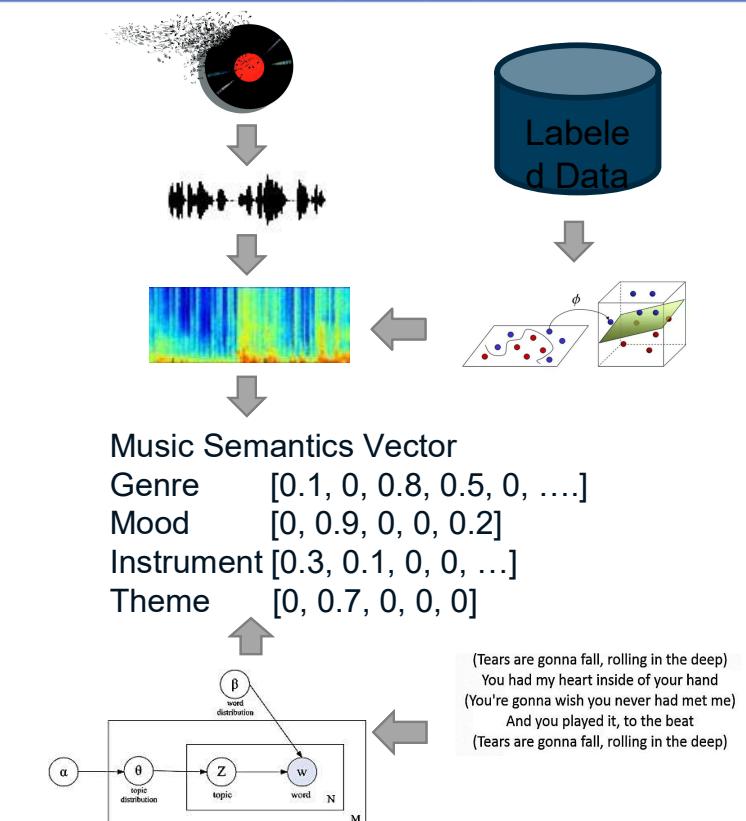
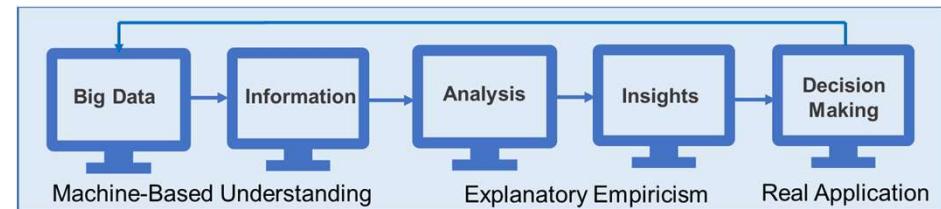
Research Projects/Initiatives:

- Combination of Machine Learning and Econometrics in Social Media Analysis and Recommendation
- Application of Data Mining and Text Mining in Customer Relationship Management

Conversant in machine learning and data analytics tools such as Weka, SAS, R, Teach ANL305/311.

Contact day/time: Monday 4:00 – 7:00 pm

Tuesday 4:00 – 6:00 pm



Full-Time Faculty : Dr Zhang Meilin

Email: zhangmeilin@suss.edu.sg

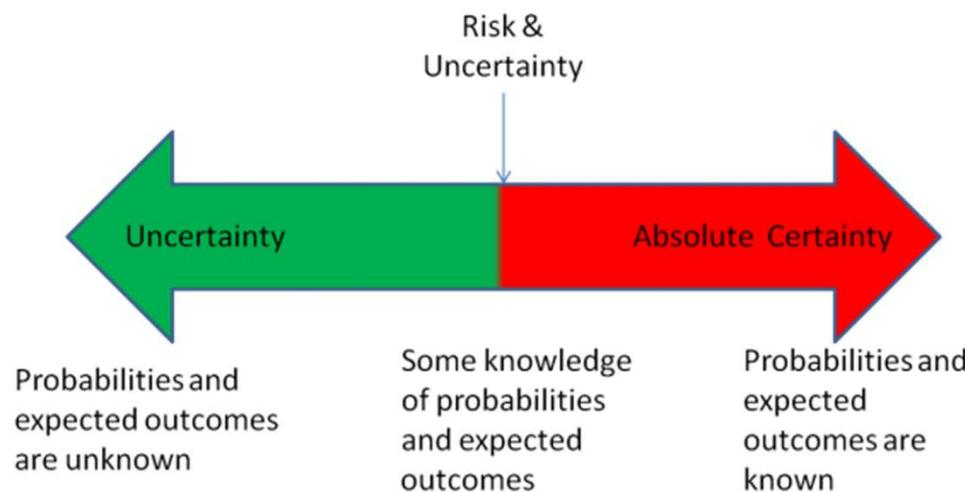


Research Areas:

- Decision Making under Uncertainty, Healthcare Analytics, Robust Optimization, Large Scale Computation
(Conversant in R, Python, Matlab, Cplex, Stata, SAS, MySQL, C++)

Research Projects/Initiatives:

- Adaptive Robust Linear Optimization (dynamic/multi-stage decision making)
- Robust Repositioning for Vehicle Sharing
- Patient Flow Control for Emergence Department (ED)/Frequent Returning ED patients
- Resource Allocation under Uncertainty (e.g., hospital wards, sharing vehicles)



Full-Time Faculty : Dr Zhang Yimiao

Email: yzhang@suss.edu.sg



Research Areas:

- Business Analytics – Data Mining and Text Mining
- Online Consumer Behavior
- User-generated Content

Research Projects:

- Attention in social media: Strategies to sustain users' attention
- Online reviews: Impacts on consumer perception changes and transaction failures
- Quantifying the value of online influencer endorsement on product sales

Relevant Tools:

IBM SPSS Modeller, IBM SPSS Statistics, Python

Taught ANL311

Normally only meet in the daytime by appointment

Associate: Mr. Adam Wong

Email: adamwong002@suss.edu.sg



Research Areas:

- Learning Analytics
- Business Analytics – Data Mining and Text Mining

Research Projects/Initiatives:

- Learning Analytics
- Data Visualisation
- Business Analytics – Data Mining and Text Mining

Conversant in IBM SPSS Modeler, R Programming. Teach ANL203, ANL303, ANL310

Available on Wednesday or by appointment.

Associate: Dr Alex Lum

Email: alexlum002@suss.edu.sg



Research Areas:

- Impact of Technology on Jobs and Skills
- Employment and Workforce Skills
- Regression Analysis and Forecasting

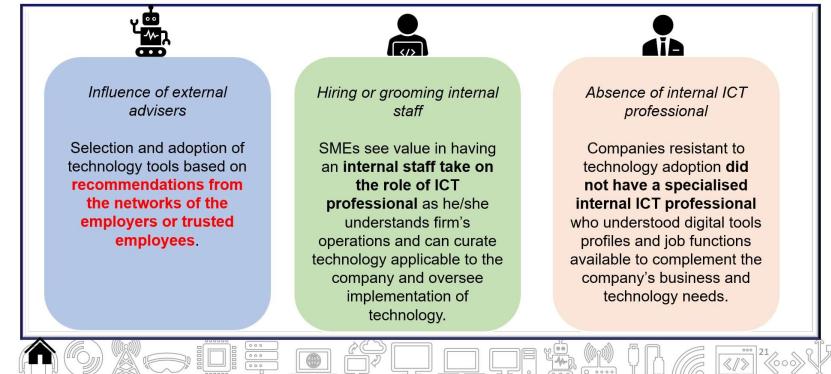
Research Projects/Initiatives:

- Employment and Workforce Skills in Transport and Transport-related Sectors
- Workers in Transition – analysing skills requirements in the Public Sector
- Impact of Technology Adoption in Small and Medium Enterprises

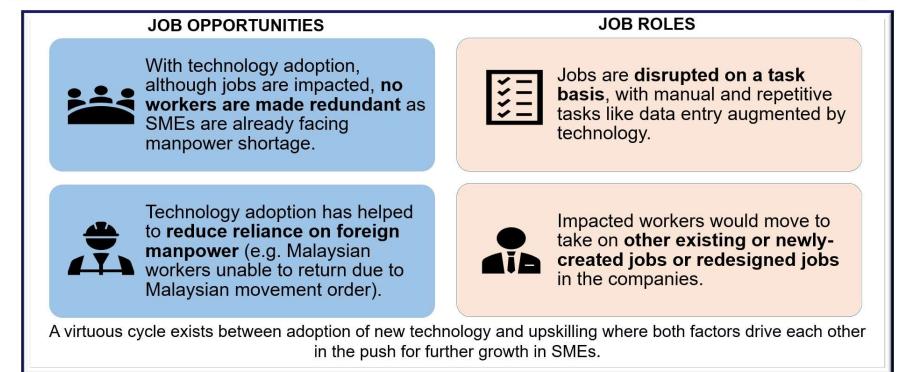
Conversant in IBM SPSS Modeller, Python and Tableau.

Only meets on Monday night.

ROLE OF CHANGE AGENTS IN TECHNOLOGY ADOPTION



JOB OPPORTUNITIES AND JOB ROLES AFTER TECHNOLOGY ADOPTION



Associate: Dr Benedict The

Email: BenedictThe001@suss.edu.sg

Head, Analytics & Business Intelligence, SATS Ltd.



Research Areas:

- Data Analytics & Business Intelligence
- Data Mining & Machine Learning
- Pattern Recognition & Digital Image Processing
- Behaviour Analysis & Cognitive Science



Research Projects/Initiatives:

- Share of voice & consumer sentiment in Social Media Analytics
- Intelligent Character Recognition & Extraction in Automated Forms Processing
- Eye Tracking & Discourse Analysis in Learning Analytics

Skilled in IBM SPSS Modeller, R, Python, Power BI and Tableau. Taught ANL303v

Able to meet for discussions on weekday evenings.

Associate: Dr Chris Ho

Email: jhho003@suss.edu.sg



Research Areas:

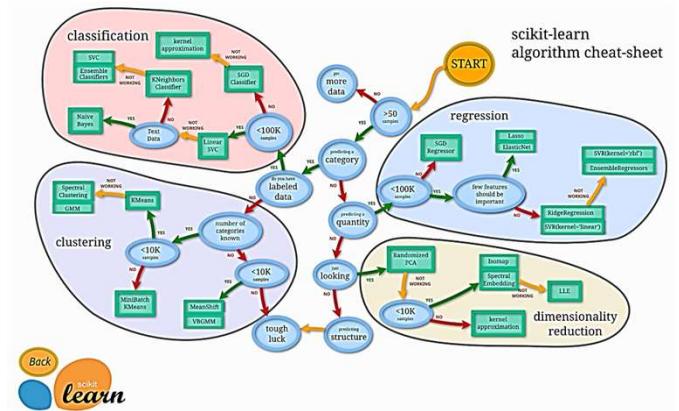
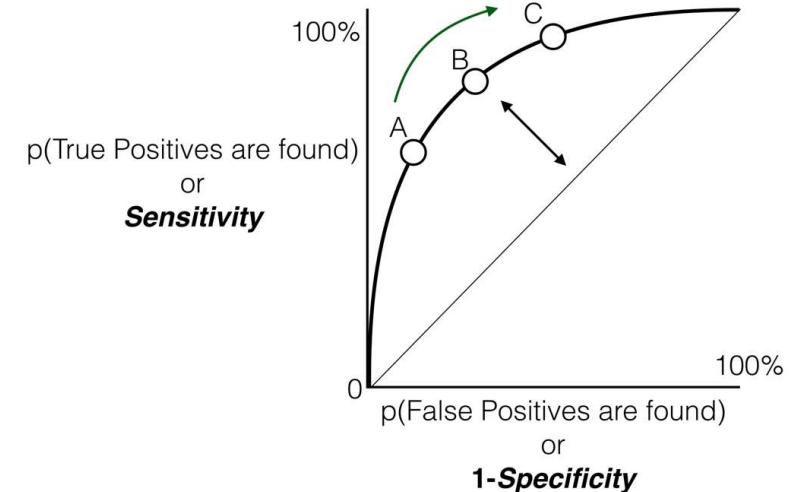
- Business analytics/statistics
- Data/text mining & processing
- Data visualization & reporting
- Machine learning/Artificial intelligence
- Association analysis/predictive modelling
- Entrepreneurship

Research Projects/Initiatives:

- Time-series prediction & analysis
- Product revenue
- Market pricing
- Stock movements
- Operations management
- Demand forecasting
- Process scheduling
- Resource optimization
- Sentiment analysis/Product recommendations, e.g. e-commerce, movies
- Entrepreneurship
- Value proposition/Product-market fit
- Market research & segmentation
- Go-to-market strategy/Stakeholder analysis
- Business model & plan/Pitch deck

Conversant in Python, R, MATLAB, Tableau. Taught ANL201/ANL251

Only meets on Mon to Sat mornings.



Associate: Mr Chua Poh Chai

Email: pcchua02@suss.edu.sg

LinkedIn: <https://www.linkedin.com/in/pohchaichua/>



Research Areas:

- Financial Analytics – Portfolio Analytics, Credit Risk Analytics, Stress Testing and Scenario Analysis
- Text mining and Sentiment Analysis

Research Projects/Initiatives:

- Early Warning Systems
- Credit Risk Assessment
- Sentiment Analysis
- Network Relationship Effects/ Knowledge Graphs

Skilled in Python and IBM SPSS Modeler.

Able to meet by appointments.

Associate Faculty: Clement Tan

Email: clementtan005@suss.edu.sg

Specialities:

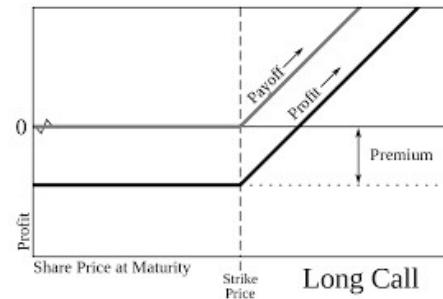
- Derivatives Pricing and Structuring
- Quantitative Research
- Risk Analytics

Projects/Initiatives:

- Quantitative Trading
- Commodities Risk Modelling
- Market Microstructure

Conversant in Python, R and SQL. Teaches ANL201, ANL252.

Available on Monday nights or by appointment



Associate: Dr Goh Shao Hung



Email: shgoh015@suss.edu.sg

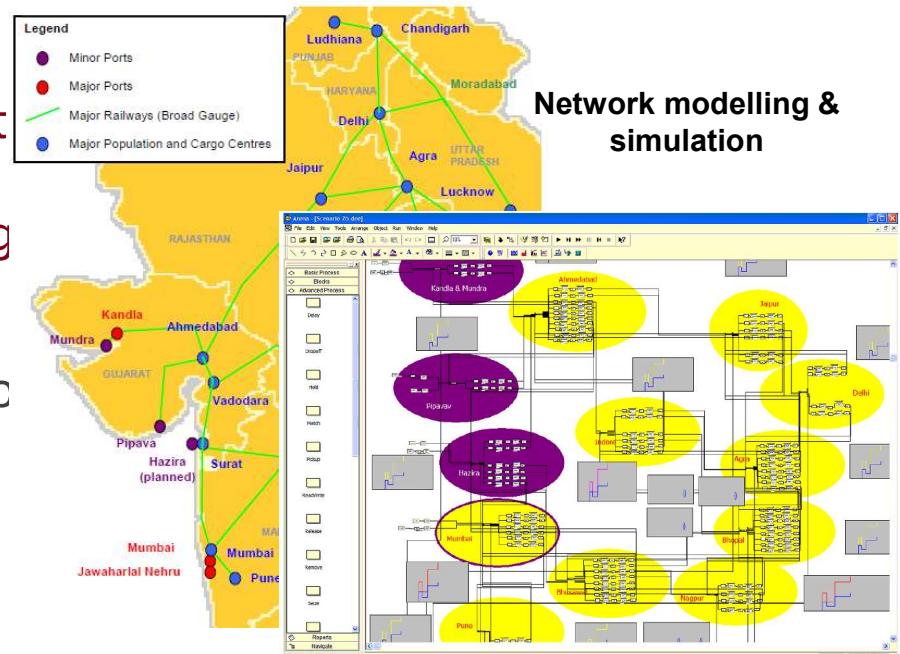
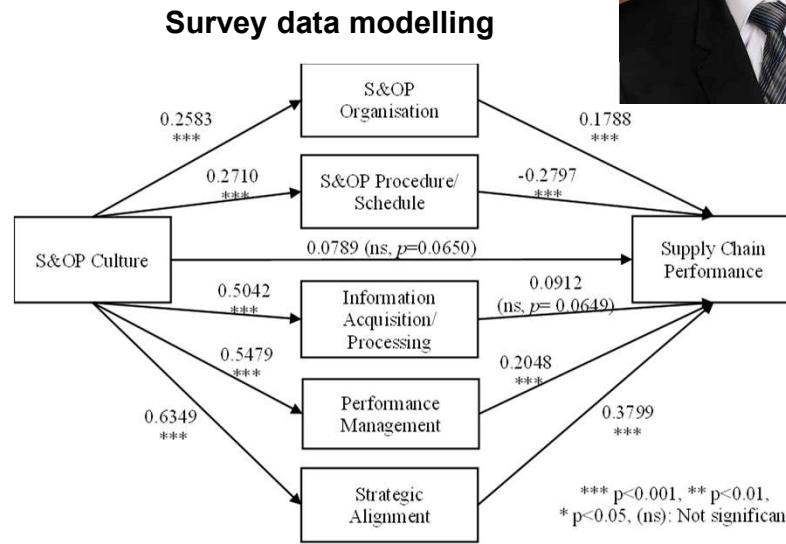
Research Areas:

- Optimisation
- Simulation
- Forecasting
- Statistical learning
- Survey design & analysis

Research Projects/Initiatives:

- Network optimization and revenue management in container shipping
- Text mining and thematic analysis in contract manufacturing industry
- Large-scale survey design and data modelling in sales & operations planning (S&OP)

Taught Applied Operations Research, Analytics for Decision-Making, Operations Management



Associate: Dr How Meng-Leong

Email: shawnhow001@suss.edu.sg



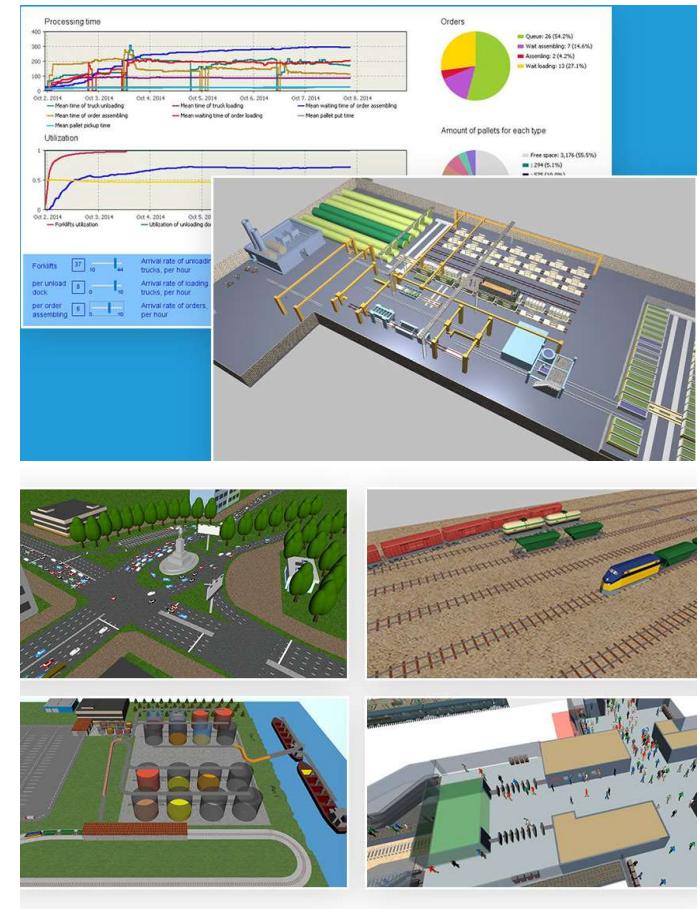
Research Areas:

- Computational Predictive Modeling using System Dynamics (SD)
- 3D Agent-based Modeling (ABM)
- Business Process Modeling (BPM) of Digital Twins of Industries.

Research Projects/Initiatives:

- Computational 3D Simulation for
 - healthcare business processes;
 - cargo and liquid transfer in industries like mining or oil & gas
 - rail transportation;
 - pedestrian flows in airports, stadiums, stations, or shopping malls;
 - car, truck, and bus movement on roads, parking lots, and factory sites; and
 - manufacturing and warehouse processes.

Skilled in Anylogic, Anylogistix, FlexSim & FlexSim Healthcare (the software programs for 3D computational simulations using System Dynamics (SD), Agent-based Modeling (ABM), and Business Process Modeling (BPM))



Associate: Mr Lam Vee Tat

Email: vtlam001@suss.edu.sg



Research Areas of Interest:

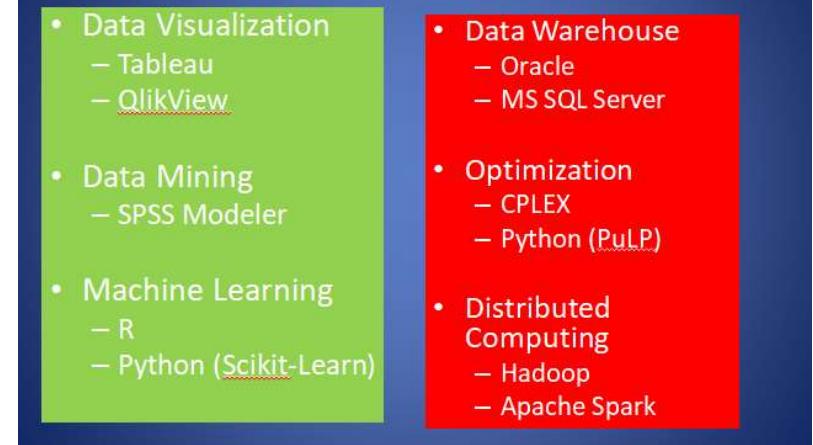
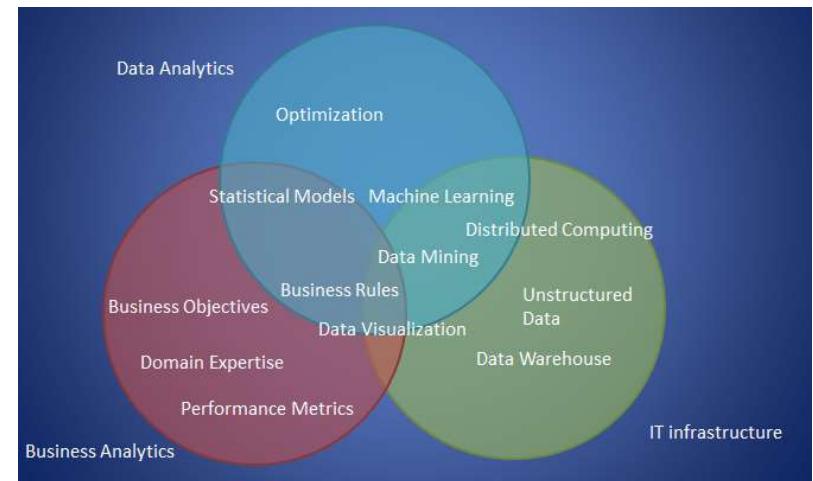
- Business Analytics – Data Mining, Visualization, Statistics
- Optimization, Machine Learning

Projects/Initiatives:

- Detection of Trading Misconduct for Equities Markets
- Regression Models for Energy Prices
- Application of Data Mining for Air Logistics
- Application of OR Techniques for Resource Allocation Problems

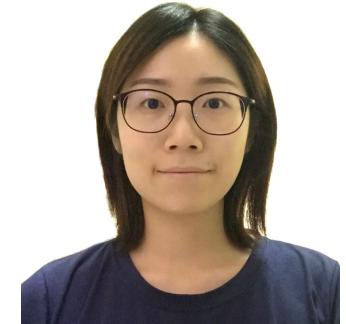
Experienced in Python, R, Tableau, QlikView, SPSS Modeler and VBA.

Meet on Mondays or Tuesdays.



Associate: Ms Li Jizhi

Email: jzli002@suss.edu.sg



Research Areas:

- Statistical analysis
- Data Mining (Cluster Analysis and predictive modelling)

Research Projects:

- Application of statistical analysis and Cluster Analysis on care-recipients of insurance agency
- Application of Data Mining in education sector/non-profit organization, profiling/prediction of student performance

Conversant in both IBM SPSS Modeller and R.

Taught ANL303/309.

Preferred meeting time is Mon to Thur evening.

Associate: Liew Sing Loon

Email: slliew001@suss.edu.sg

Research Areas:

- Management of Technology
- Decision Analysis



Research Projects/Initiatives:

- Applications of Data Mining
- Marketing Multivariate Analysis
- Project Management

Conversant in IBM SPSS Modeller, JMP, Tableau, MS Power BI

Teach ANL203, ANL303, ANL305, MKT355, BUS353, BUS363



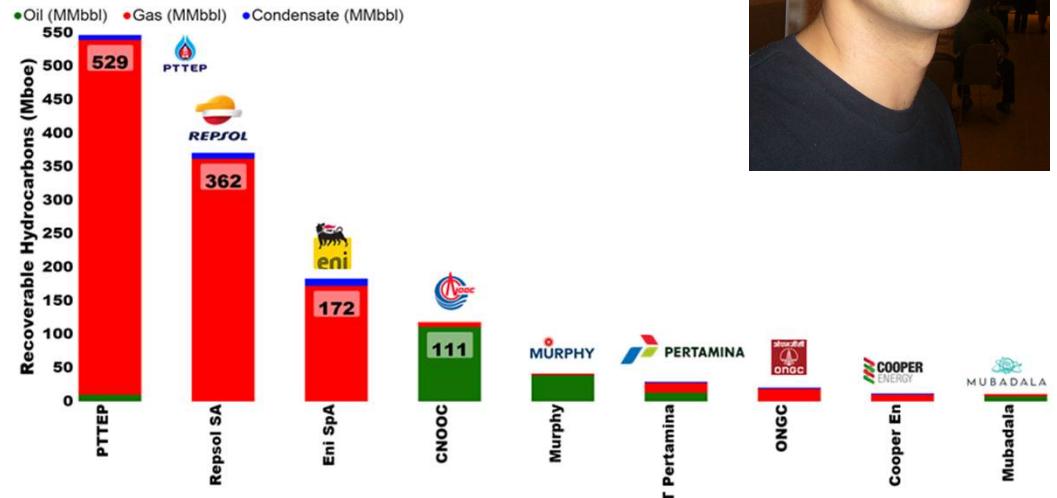
Available on Wednesday night or by appointment

Associate: Dr Munish Kumar

Email: munishkumar001@suss.edu.sg

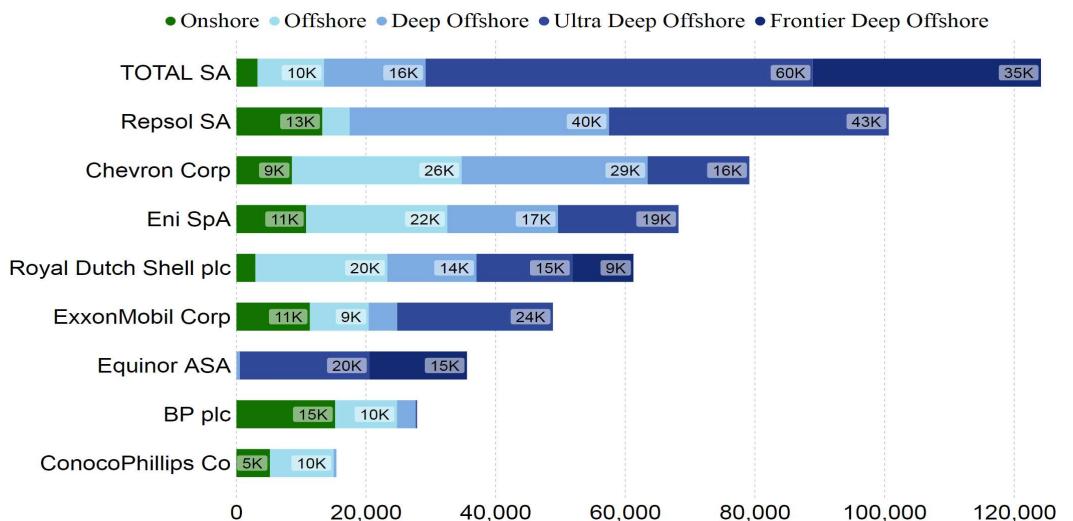


- Academic Qualification:
 - Ph.D. in Physics, Australian National University
- Research Interest/ Projects:
 - Application of Data and visualization in Oil and Gas, Energy, Renewables Sector



Conversant in Power BI & Python. Taught ANL201.

Only available on Monday night.



Associate: Mr Oh Chin Lock

Email: cloh001@suss.edu.sg



Research Areas:

- Business Analytics – Data Mining, AI, Deep Learning
- IoT – Edge AI, Smart Sensors, Cloud Computing

Research Projects/Initiatives:

- Application of Data Mining and AI in Healthcare and Medical/Clinical practice
- Application of AI and IoT in Healthcare, Enterprise Digitalization, Industry 4.0

Conversant in both IBM SPSS Modeller , SAS Studio, Python AI libraries.
Taught ANL303, 305, 307, 315.

Meets on Wednesday/Friday night.

<http://shining-ai.com>

Associate: Mr Paul Seah, CDMP

Email: paulseah002@suss.edu.sg



Specialised Areas:

- Business Analytics – Data Mining, Text Mining
 - Data Strategy and Data Governance

Applied Research Projects/Supervised Projects:

- Application of Data Mining in the Predicting Students' Academic Results
 - Supervised application of Text Mining in Customer Feedback Management

Conversant in IBM SPSS Modeller, Tableau, SAS 9.4 Data Management and SAS Viya.

Taught ANL203

Only meets on Monday night.



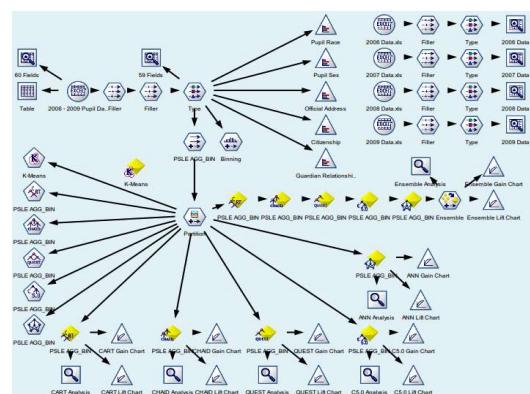
ANALYTICS EDUCATION FORUM 2011

Reach the Next Level of Insight with Data Mining and Text Analytics

The avalanche of public and customer feedback, and burgeoning data from the Web can be overwhelming for businesses. As a large proportion of data exists in unstructured form, many organizations are not equipped with the right tools and skills to capitalize on the rich trove of insights buried in textual, qualitative information. Ride on this new wave of Business Analytics by learning the various applications of data mining and text analytics across industries. Discover how to break down the barriers of unstructured data with text analytics and leverage predictive modeling to reach new level of insight for breakthrough results.

11.05am	Student Showcase Predicting Student Academic Performance with Data Mining Models by Mr. Paul Sean
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In the local educational system, academic performance plays a pivotal role in the student classification process and the pupils' promotion to the next academic level. However, the academic potential of students is affected by numerous factors apart from test and examination scores. This session will share on how data mining models can more accurately predict PSLE aggregate by taking into account non-academic data including student demographics, co-curricular activities, community involvement and behavioral conducts. With greater accuracy in the prediction of academic performance, educators can better address students' learning needs to help them maximize their academic potential.



Associate: Mr Prasanna Rao

Email: prasannasr@suss.edu.sg



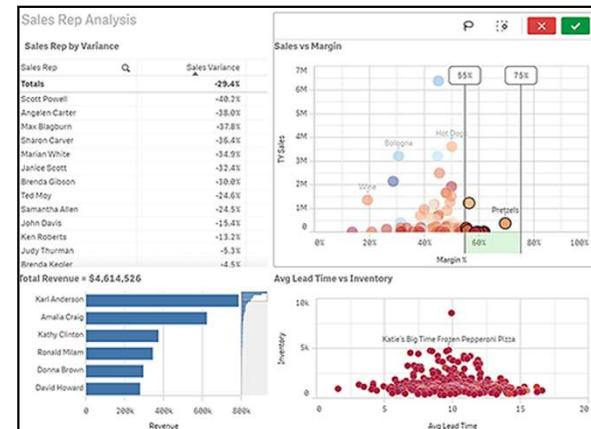
Project Areas:

- Business Analytics – Data Visualization, Dashboard Design and Data Mining

Projects/Initiatives:

- Data visualization and dashboard design for data analysis in various domains using Qlik Sense & Tableau
- Predictive modeling using IBM SPSS modeler
- Data pre-processing using Python

Data Viz & Dashboards

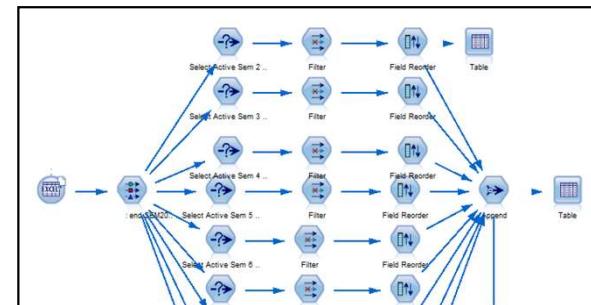


Certifications:

- Tableau Desktop Specialist, QlikView 11 Certified Designer, Data Scientist with Python (AI Singapore)

Only meets on Monday night.

Data Mining



Associate: Solomon Soh Zhe Hong

Email: zhsoh.2015@socsc.smu.edu.sg

Research Areas:

- Reinforcement Learning
- Time-Series Forecasting
- Discrete Optimization



Research Projects/Initiatives:

- Sales Forecasting and Optimization
- Graphical Neural Network in Causal Inference
- Segmentation via unsupervised algorithms

Conversant in Python, Power BI, Power Apps, GCP. Teach Python.

Available on Monday night or by appointment.

Associate: Dr Tan Khay Boon

Email: tankhayboon@sim.edu.sg



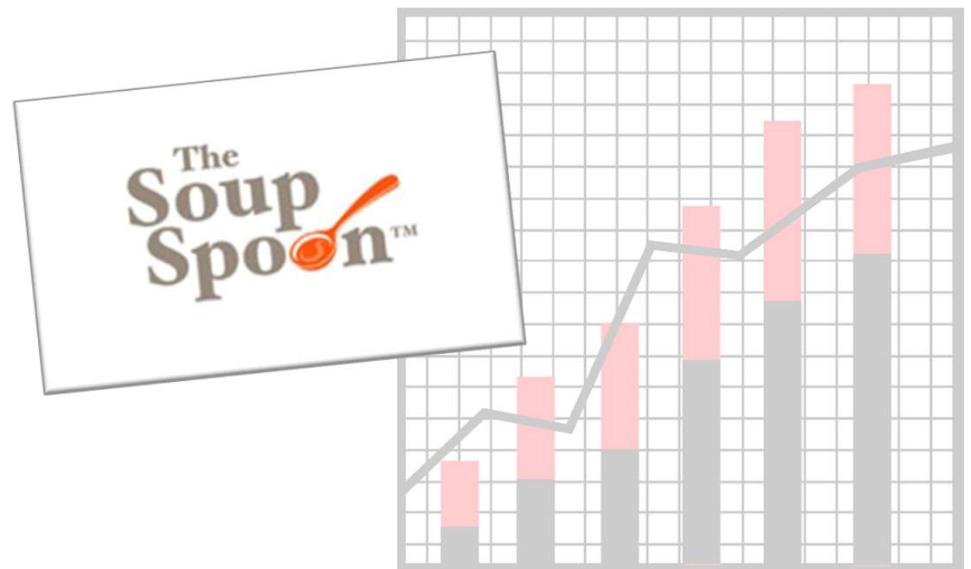
Research Area:

- Role of Financial Sector in Economic Development
- Causal Effect in Econometrics and Time Series Analysis
- Econometric Modelling
- Time Series Forecasting

Research Projects/Initiatives:

- Does Foreign Direct Investment Promote Economic Growth? A Time Series Approach
- Companies Case writing
- Forecast demand and wages

Taught ANL302



Associate: Ms Tang Yoke Wah

Email: ywtang001@suss.edu.sg



Project Areas:

- Business Analytics: Data Mining and Deployment with Data Visualization (Presentation/Dashboard/Reports)
- Data Mining: Statistical Analysis, Cluster Analysis, Predictive Modelling

Projects/Initiatives:

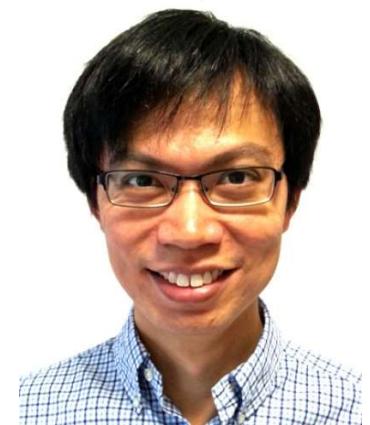
- Application of Data Mining in Education sector: Optimization of resources in a student intervention setting /Prediction of student performance
- Application of Data Mining in e-Commerce: Prediction of Sales
- Application of Data Mining in Marketing: RFM analysis, Customer Segmentation, Prediction of Customer Value

Conversant in IBM SPSS Modeller, Python and R.

Preferred meeting times on Wed-Thurs evenings (*tentative, may be adjusted*)

Associate: Dr Teh Yong Liang

Email: ylteh002@suss.edu.sg



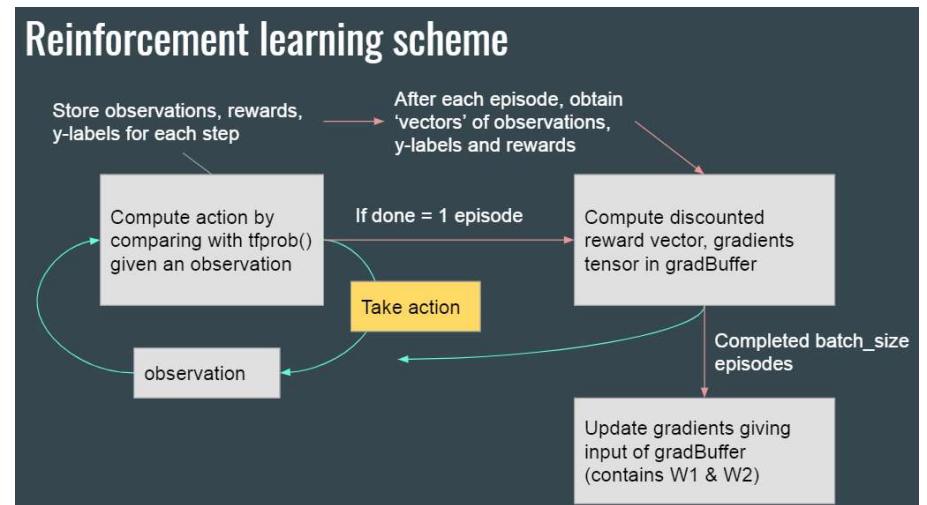
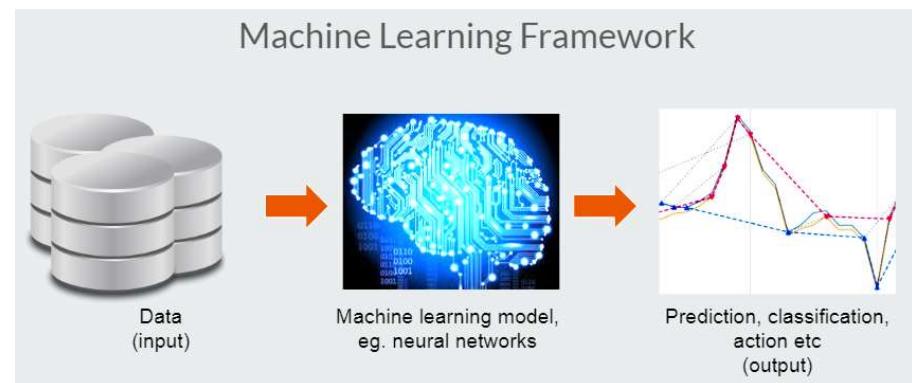
Research Areas:

- Business Analytics, Data Mining, Machine Learning, Mathematics

Research Projects/Initiatives:

- Application of Data Mining in Financial Analysis
- Application of Reinforcement Learning in Automated Trading of Financial Assets
- Application of Machine Learning in Automatic Detection of Illegal Smoking Behavior

Proficient in IBM SPSS Modeller and Python programming. Taught ANL251/303/307.



Associate: Dr Tung Whye Loon

Email: wltung001@suss.edu.sg

Director – Data, AI & Research (SP Digital) at SP Group



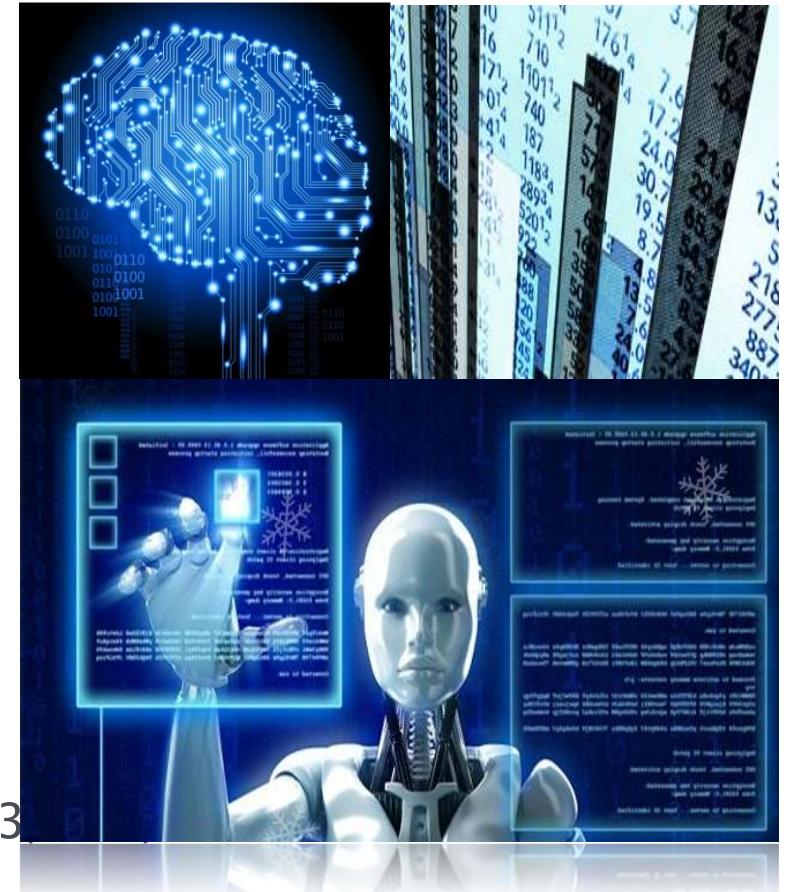
Research areas:

- Data Analytics, Machine Learning, Computational Intelligence & Computational Finance, Location Analytics, Anomaly Detection

Research Projects/Initiatives:

- Application of Data Analytics to Contextual Marketing/Recommender System
- Predictive portfolio optimization & trading systems
- Geo-location analytics, Churn/Attrition analytics

Conversant in Python, IBM SPSS Modeller. Taught ANL303



Associate: Mr Victor Yew

Email: victoryview002@suss.edu.sg

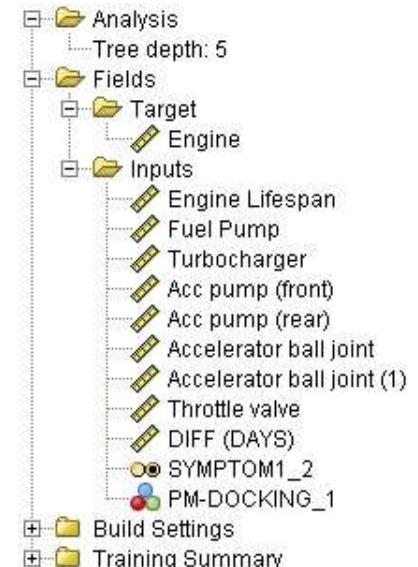


Special Interest on

- Business Analytics : Data Mining, Text Mining and CRISP-DM Framework
- Business Excellence : Lean Enterprise, Six Sigma, Statistics, Triz, BPM and Coaching
- Operational Excellence : Dashboard, Process Optimization, Productivity, Standardization

Research Projects/Initiatives:

- Prognostic Maintenance on Bus Engine System
- Optimization for Treasury Investment
- GrabFood Delivery Solutions:
Food Court Transformation Chronicle
- Smart Education: Service Innovation
- Application of Text Mining on Customer Relationship Management



Conversant in IBM SPSS Modeller, SPSS Statistics, Minitab, RStudio, Tableau Visualization
Lecture & Projects conducted for ANL201, ANL203, ANL305, ANL307, ANL312, ANL488

Associate: Dr Wang Di

Email: dwang003@suss.edu.sg

Research Areas:

- Business Analytics – Data Mining, Predictive Analysis, Financial Forecast



Research Projects/Initiatives:

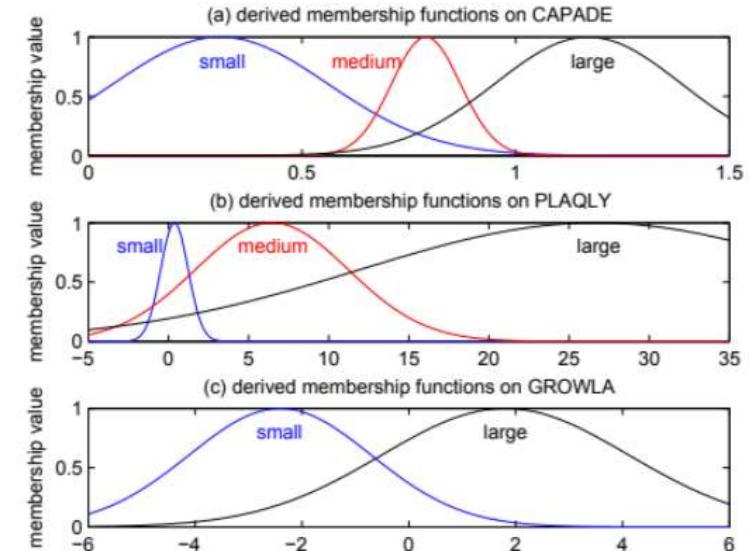
- Application of Data Mining in Health/Medical Areas
- Time Series Mining
- Knowledge Discovery and Representation

Conversant in various programming languages, such as Python, Java, Matlab, C++, etc.

Familiar with various data mining tools, such as Weka, IBM SPSS Modeler, etc.

Taught ANL251 and ANL311

Online meetings on Saturdays or Sundays.



IF PLAQLY is small and GROWLA is large	THEN
IF CAPADE is large and PLAQLY is medium	THEN
IF CAPADE is small and GROWLA is small	THEN
IF CAPADE is medium and PLAQLY is large	THEN

Associate: Mr Yao Renjie

Email: rjyao001@suss.edu.sg



Research Interests:

Interpretability of Artificial Intelligence

Area of expertise:

Big Data, Operation, Machine Learning

Current employment / industry:

Tech Lead, ViSenze

About myself:

I obtained my Bachelor in Huazhong University of Science and Technology, major in Mathematics and double degree in Computer Science. As a Tech Lead in ViSenze, I am leading multiple teams working on Big Data, Machine Learning Platform and Site Reliability Engineering to help company solve problems and mentor young engineers. I believe that help people learn how to learn is more important than knowledge. And we are learning within all our lifetime.

Associate: Ms Yeo May Peng

Email: mpyeo002@suss.edu.sg

Research Areas of Interest

- Business Analytics – Data Mining, Data Analytics and Data Visualisation



Projects/Initiatives:

- Application of Data Mining in the Financial Sector
- Application of Data Analytics in Performance Trend Analysis
- Application of Data Visualisation in Providing Business Insights

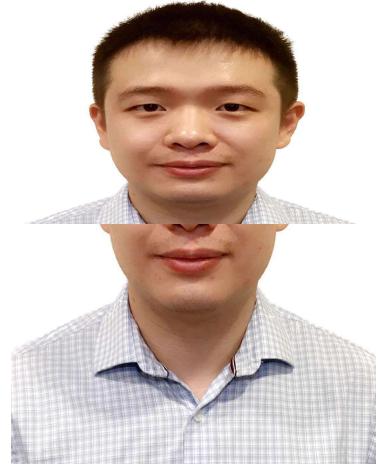
Conversant in Python and Tableau

Instructor teaching ANL201 Data Visualisation for Business

Meets on Tuesday or Friday night.

Associate: Mr Zhang Shuai

Email: sazhang001@suss.edu.sg



Business Focus:

- Digitalization pipeline development
- Business case study
- Analytics project management

Data Science Experience:

- Data processing & analytics – ETL, EDA
- Modelling – Machine learning, deep learning
- Business intelligence – Tableau, PowerBI

Technical Skills:



Programming



BI tools



Data query

Choosing Supervisor

- At least 1 whose area is aligned to what you want to do
- At least 1 associate and 1 FT faculty
- Those supervisors who are less popular will be assigned first

Choosing Topic

- Develop Plan A (e.g., from project list), Plan B (your preferred 1-2 supervisors), Plan C (public data such as Kaggle, UCI), etc
- Avoid topics like “China market equity fund pricing model and forecast” or “What lead to the meteoric rise of Tesla stock?” or “Identifying unemployment trends and helping affected industries during the recession”
- Those using Kaggle data wholesale without modification – an average grade can be expected

Assignment of Supervisor

What you need to do after being assigned your supervisor?
(Taking ANL488 this coming semester)

- Show supervisor your ANL311/312 ECA for comments on how to improve
- Find an appropriate data set by 1st week of Jan 2023 semester
- Conduct a thorough literature review – 3 analytics references
- Improve on technical writing

List of Projects

List of Projects

ANL488 Project List for Jan 2023 Semester

Those interested in any of the projects, please email the respective supervisors with your CV by noon 5 Dec 2022 and cc'ed jesstanwc@suss.edu.sg.

No	Project Title	Supervisor	Description
1	Modelling and Forecasting Time Series	Dr Karl Wu karlwuky@suss.edu.sg	<p>This project focuses on modelling and forecasting time series using preferably ARIMA models (or other techniques that we have learned in ANL317 Business Forecasting). We will conduct a complete time series analysis including examining the properties of the series such as stationarity, seasonality, the periodogram (ACF and PACF), the goodness of fit of the estimated ARIMA models as well as the residuals. Eventually, we will try to obtain a reliable prediction of the future outcomes of the series. If we discover volatility in the time series, we may also try to implement some more challenging models such as the GARCH/ARCH as a complementary element to the conventional ARIMA approach.</p> <p>The time series we are going to work with should be univariate, meaning that it will be a series of a single variable. The series can be either from the fields of social science (e.g. studies on education, observations of political issues), economics (e.g. consumer price index), finance (e.g. stock prices), medicine (e.g. epidemic study) etc. You are also most welcome to suggest a certain field or topic where we can find time series for forecasting. We will be using either SAS Forecast Studio and/or R for this project.</p>
2	Forecasting of industrial property prices	Dr Karl Wu karlwuky@suss.edu.sg	<p>This project involves working with SN Real Estate, a real estate company dealing with the sales of commercial and industrial properties. The company is interested in forecasting the prices of different types of industrial properties using historical data.</p> <p>This project involves modelling time series data of the property prices in the past 20 years. Students should have completed ANL317 Business Forecasting and a good understanding of concepts such as autocorrelation, exponential smoothing, ARIMA, etc. SAS or R can be used for analysis and data visualisation.</p> <p>Students who are working in the same industry as this company may not be selected for this project to avoid any conflict of interest.</p>
			You may propose a possible analytics application in an area of work that you are sufficiently familiar with (business or non-business related). You can use publicly available datasets from open data sources or fictitious data to complete your work. You need to distil a concrete description of the business situation, understand the significant opportunities and challenges based on facts and data. You may propose one or more modeling technique to analyze the datasets and generate insights.

The list will be sent to students who had filled in the intention survey and/or register for ANL488 in Jan 2023.

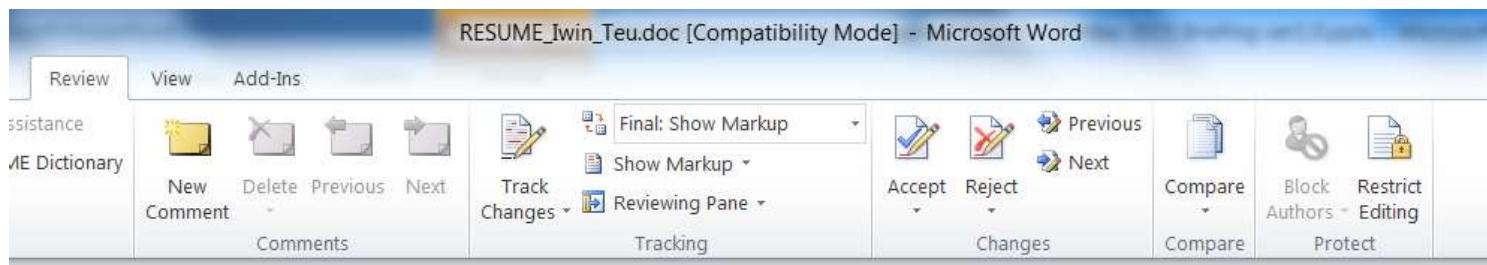
List of Projects

- If you are interested in the listed project, pls email the supervisor in charge along with your CV as well as a short paragraph of why you are interested in that project.
- Based on the information received, the supervisor will select the appropriate student.
- The closing timeline to indicate your interest for the listed projects to the supervisor in charge is 5 Dec 2022 12noon.



Enhance Your Resume

Typical BA Graduate Resume



PERSONAL DETAILS

Gender : Male
Nationality : Singaporean
Age : 28
Marital Status : Married
National Service: Completion on 11th May 2006

CAREER OBJECTIVES

To enhance learning and application of Business Intelligence to different environment and situations

EDUCATION BACKGROUND

Diploma in Information Technology

Jul 00 to Dec 03

Ngee Ann Polytechnic

- Specialise in Software Engineering & Multimedia
- Focus in software programming using JAVA language and Multimedia development using Flash and Adobe Photoshop

Achievements:

- Orientation Leader for FOC in 2002
- Swimming Captain for Ngee Ann Polytechnic
- Waterpolo Member for Ngee Ann Polytechnic

Bachelor of Science Business Analytics

Jan 09 to Dec 11

- Specialise in Business Analytics application using IBM SPSS modeler

Typical BA Graduate Resume

WORK EXPERIENCE

National Service

Computer Aided Instruction Operator (School of Military Intelligence)

Jan 04 to May 06

- Setup and maintenance of LAN and Wireless networks
- Administrating emails and servicing of computers
- Assisting in meetings and presentations
- Projects brainstorming
- Person in Charge of Planning and Liasing with Vendors for the Migration and Allocation of all the computers in School of Military Intelligence(SMI)

Starhub

Technical Support Assistant

Jun 06 to Dec 06

- Troubleshooting PCs and Wireless Network problems over the phone for customers
- Able to handle difficult customers and offer incentives to prevent further disputes judging on case by case basis.

APEC Secretariat

IT Administrator

Jan 07 to Mar 07

- Troubleshooting PCs, Software and Wireless Network problems for diplomats and support staffs within organization and during International Meetings.
- Plan and prepare laptops for Migration in the organization individually

Komatsu Asia & Pacific Pte Ltd

Apr 07 to Current

Senior IT Officer

- Business Application support for ERP system running on IBM Operating system OS/400
- Involved in the planning and testing phase of Komatsu Information Portal development
- Travelled overseas to conduct training sessions for overseas staffs when rolling out Komatsu Information Portal
- Administrator for Websphere Portal Express server
- Troubleshooting PCs, Software and Wireless Network problems for staffs

Typical BA Graduate Resume

CAPABILITIES

- | | |
|----------------------|---|
| Programming: | <ul style="list-style-type: none">• Able to use Action Scripting for Flash MX |
| Administration: | <ul style="list-style-type: none">• Efficiency in helpdesk services, data entry and filing, and presentations |
| Technical Skills: | <ul style="list-style-type: none">• Able to effectively assemble, troubleshoot, and service computers and network infrastructure• Analytical approach to resolving and producing solutions to daily operation issues for ERP system• AS400 Administration and operation support |
| Software Technology: | <ul style="list-style-type: none">• Microsoft Words, PowerPoint, Excel, Access• <u>Websphere</u> Portal Express Administration• IBM SPSS Modeler |
| Personal Traits: | <ul style="list-style-type: none">• Achieved good interpersonal communication skills inherited through daily inter-departmental communication whilst in army and during work experience• Easily adapt to changes in environment |
| Languages: | <ul style="list-style-type: none">• English and Mandarin (spoken: fluent, written: good) |

INTERESTS

Engage in troubleshooting and resolving challenging tasks and situations, coach swimming, travelling overseas

PREFERENCES

Willing to Travel	Yes
Willing to Relocate	Yes
Expected Monthly Salary	<u>c</u>
Availability:	2 months notice
Reason for Leaving Last Job	Change of career due to interest in Business Intelligence field

Ideal Resume

PROJECT / CONSULTANCY SERVICES EXPERIENCE

Extensive experience and advanced knowledge in analytics. Help customers to use analytics to gain critical data-driven insights necessary to drive business performance.

RELEVANT EXPERIENCE:

- As Senior Modeler, implemented **Customer Segmentation and Business Intelligence Solution for a leading provider of Postal Services**
 - Designed and deployed Business Intelligence solution to provide actionable insight to the Management Team for better and informed decision making
 - Performed data enrichment and Customer Segmentation which led to the development of an effective and focused marketing and sales campaign that targeted appropriate customers
 - Also served as technical lead on the project, gathering functional requirements and identifying and resolving data quality issues
 - Equipped information users with the necessary knowledge and skills to support future reporting requirements
- Provided **Data Mining Advisory Services to a Local Immigration Agency** in developing predictive model for identifying employment pass holders who are likely to convert to permanent residents.
- Developed prototype for **Identification of Similar Cases through Text Mining and Clustering of Offenders with Similar Profiles for a Local Law Enforcement Agency** that helped to improve the current manual identification of similar cases that used similar modus operandi as well as improve the identification of similar profiles of offenders to help analysts in their analytical work.
- Developed prototype for **Root Cause Analysis for a Large Global Hard Disk Manufacturer** that enabled the process engineers to gain insights into the drivers for certain failures that they had never suspected before. This enabled the
- Developed prototype for **Near Real-Time Operational Reporting for a Large Global Wafer Manufacturer** that enabled the manufacturing and equipment engineers to quickly monitor the line as well as status of each machine.
- Developed prototype for **New Product Forecasting for a Large Consumer Electronics Marketing Company** that helped improved forecasting accuracy by 12%. The objective is to improve the current new product forecasting was to better forecast demand for their products to avoid ~~stockouts~~.
- Implemented **Statistical Forecasting Solution a Large Global Pharmaceutical Company** that improved demand forecasting accuracy by 40%. The objective is to improve the current demand forecasting accuracy that led to reduction in inventory costs
- Developed prototype in **Text Mining of Call Centre Unstructured Data for a Large Global High Tech Corporation**. Transformed call centre unstructured data into useable and intelligible format that triggered early warnings and enabled the timely detection of potential quality issues, enabling the Corporation to recognize trends, uncover potential product issues and identify business opportunities
- Developed prototype in **Text Mining of Defect Logs for a Global Airline**. Identified seats affected from the defect logs, automated the identification of defects and the action taken.

This will enable the timely detection of root cause of the defects so that remedial actions can be taken in a timely manner.

PREVIOUS EMPLOYMENT

TECH SEMICONDUCTOR (SINGAPORE) PTE LTD, SINGAPORE (Nov 1998 – 2004)

- Implemented Trace Features Extraction
 - Contributed to the development of a robust data mining method for root cause analysis and trace features extraction by defining algorithm to enable the storage of trace features in the Data Warehouse
 - Implemented the extraction of these trace features in database to perform data mining
- Provided consultation in the areas of Statistics and Operations Research to process engineers
- Evaluated and introduced data mining and analytical tools for engineers to do root cause analysis that achieved faster cycle time to solving yield problems
- Defined ~~datamarts~~ that captured material usage that enhanced the coverage of the data mining and analytical tool
- Managed a team of programmers that automated the generation of trigger reports and maintained the graphical user interface for the extraction of massive data for data mining
- Developed teaching material and teach classes in basic statistics, statistical process control, design of experiments and response surface methodology

DEVELOPMENT BANK OF SINGAPORE, SINGAPORE (APR 1991 – AUG 1993)

- Analyzed bank operations for control, efficiency and effectiveness which involved fact finding, collection of supporting data, report writing and presentation of recommendations to higher management

EDUCATION

Virginia Polytechnic Institute & State University, United States
Doctor of Philosophy (Statistics)

1995 to 1998

Virginia Polytechnic Institute & State University, United States
Master of Science (Statistics)

1993 to 1995

National University of Singapore, Singapore
Bachelor of Social Science (Economics - Statistics stream)

1987 to 1991

Improved BA Graduate Resume

Need to include CGPA, analytics courses and grades, description of analytics projects and any other analytics job held etc.

CAREER OBJECTIVES

To enhance learning and application of Business Analytics to different environment and situations

EDUCATION BACKGROUND



BSc in Business Analytics

Jan 09 to Dec11

SIM University

- Achieved CGPA of 3.98/5
- Analytics courses taken:

Data Visualisation for Business	B+
Selected Topics in Regression	B-
Fundamental of Data Mining	A
Association and Clustering	A
Business Analytics Application	B+
Predictive Modeling	A
Selected Topics in Business Analytics	B+
Business Analytics Applied Project	A-

- Business Analytics Applied Project: One-Pass Naïve Bayesian Classification System
 - Tackle huge data stream by performing One-Pass learning for effective computation
 - Display efficient computation of Naïve Bayesian model using MS Excel 2007
 - Compare classification errors and accuracy to other straw models



Questions???

