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I am an **Assistant Professor in Statistics** at *Universiti Brunei Darussalam* (UBD). My expertise lie in statistical methodology and computation, with applications towards the natural and social sciences.

I am passionate about bringing data and technology to the forefront of our daily interaction with the world. Using the R programming language, I build statistical models for data analysis in order to gain insights, make predictions, and aid decision-making. I am frequently engaged in cross-disciplinary research collaborations and statistical consultations.

## Research Interests

Latent variable models

Binary and multinomial probit models

Bayesian estimation

Variational inference

Structural equation models

Truncated normal distribution

EM algorithms

## Education

2014 — 2018

**PhD in Statistics**, London School of Economics and Political Science

Supervisors: Wicher Bergsma<sup>1</sup> and Irini Moustaki<sup>2</sup>

*Thesis: Regression modelling using priors depending on Fisher information covariance kernels (I-priors)*<sup>3</sup>

2013 — 2014

**MSc in Statistics (distinction)**, London School of Economics and Political Science

2006 — 2010

**BSc & Master in Mathematics, Operational Research, Statistics and Economics (first class honours)**, University of Warwick

Supervisor: David Firth<sup>4</sup>

*Dissertation: The analysis of paired comparison data using Bradley-Terry models with applications to football data*

## Awards & honours

2020

**Arnold Zellner Thesis Award in Econometrics and Statistics (honourable mention)**<sup>5</sup>, American Statistical Association (Business and Economic Statistics Section)

2013 — 2018

**In-Service Training Scheme Scholarship**, Public Service Commission, Prime Minister's Office, Brunei

2006 — 2010

**Supreme Commander of The Royal Brunei Armed Forces Scholarship**<sup>6</sup>, Ministry of Defence, Brunei

2006

**Anugerah Penuntut Terbaik Tahun 2005 (Best Student Award 2005)**, Persatuan Guru-Guru Melayu Brunei (PGGMB)

## Employment

2019 — present

### Assistant Professor in Statistics

Mathematical Sciences, Faculty of Science, *Universiti Brunei Darussalam*<sup>7</sup>

I teach SM-1402 Basic Statistics, SM-2401 Geometry, SM-4331 Advanced Statistics, SM-4335 Advanced Probability, and CU-0304 Sciences for University Study. I also supervise mathematics students' final year projects. In addition to my teaching duties, I am the current Postgraduate Coordinator (Mathematics). I previously held the post of Discovery Year<sup>8</sup> advisor (2019-2021).

2014 — 2018

### Graduate Teaching Assistant

Department of Statistics, London School of Economics and Political Science<sup>9</sup>

I held various teaching roles ranging from secondary teaching to marking for masters (ST416 Multilevel Modelling, ST421 Development in Statistical Methods) and undergraduate level courses (ST312 Applied Statistics Project) at the LSE. In addition, I also held assistant invigilator and examiner roles for both the LSE and the University of London International Examinations respectively.

2010 — 2019

### Research Officer

Centre for Science and Technology, Research and Development (CSTRAD), Ministry of Defence, Brunei<sup>10</sup>

I provided analytical insight into matters arising from strategic procurement activities of the Royal Brunei Armed Forces (RBAF). This entailed market research, cost-benefit analyses, and writing technical reports. I was a core team member for the procurement and delivery of 12 Sikorsky S-70i helicopters<sup>11</sup> (US\$325M), and also the focal point for the development of tender evaluation criteria using the Analytic Hierarchy Process.

## Service

2020 — present

### Ad-hoc Reviewer

Annals of Applied Statistics<sup>12</sup>; Journal of the Royal Statistical Society: Series C<sup>13</sup>

2020 — present

### Review Editor

Frontiers in Applied Mathematics and Statistics<sup>14</sup>

2020

### Guest Lecturer

Universiti Teknologi Brunei<sup>15</sup>

2014 — 2015

### MSc Programme Facebook Administrator

Department of Statistics, London School of Economics and Political Science  
Acted as student liaison for incoming cohort of MSc Statistics 2015/16.

2013 — 2015

### Auditor

Brunei Down's Syndrome Association (ABLE)<sup>16</sup>

## Consultancy

2017 — 2018

### Data Analyst and Consultant

Universiti Brunei Darussalam

Project: The unmet needs of cancer carers in Brunei Darussalam.

2021

## Data Analytics Consultant

Ministry of Defence, Brunei

Project: Human performance optimisation research

## Grants and funding

2021 — 2024

**Extension of I-prior methodology to nominal response models** (~BND 7,000), Faculty of Science Research Grant, *Universiti Brunei Darussalam*.

Role: *Principal Investigator*

2021 — 2023

**Examining spillover effects in regional trading blocs** (~BND 17,000), School of Business and Economics Research Grant, *Universiti Brunei Darussalam*.

Role: *Member*

2021 — 2024

**Mathematical Modeling of Genetic Assimilation** (~BND 8,000), Faculty of Science Research Grant, *Universiti Brunei Darussalam*.

Role: *Co-Principal Investigator*

## Research output

### Articles (peer-reviewed)

2022

A7

#### **Factors Affecting Readmission to a Drug Rehabilitation Centre**

F. Jali, E. Leong, H. Jamil

Journal of Population and Social Studies. *To appear*.

A6

#### **Iron and Manganese Mobilisation due to Dam Height Increase for a Tropical Reservoir in South East Asia**

S. Gödeke, H. Jamil, M. Schirmer, A. Bretzler, N. Shamsuddin, N. H. Mansor  
Environmental Monitoring and Assessment, 194(5), 358.

A5

#### **Pairwise likelihood estimation for confirmatory factor analysis models with categorical variables and data that are missing at random**

M. Katsikatsou, I. Moustaki, H. Jamil

British Journal of Mathematical and Statistical Psychology, 75(2) 23-45.

2021

A4

#### **Advocating Blended Learning for University Undergraduate Level Mathematical Instruction Beyond Covid-19**

H. Jamil, H. M. Ramli, E. Leong

In: Engineering and Sciences Teaching and Learning Activities: New Systems Throughout COVID-19 Pandemics, pp. 33-45. Ed. by Samsul Ariffin Abdul Karim and Saiful Azmi Hussain. Studies in Systems, Decision and Control, vol 381. Cham: Springer. ISBN: 978-3-030-79613-6.

A3

#### **Latent Class Analysis: Insights about design and analysis of schistosomiasis diagnostic studies**

A. Koukounari, H. Jamil, E. Erosheva, C. Shiff, I. Moustaki

PLOS Neglected Tropical Diseases, 15(2), e0009042.


2020

A2

#### **Bayesian Variable Selection for Linear Models Using I-Priors**

H. Jamil, W. Bergsma







In: Theoretical, Modelling and Numerical Simulations Toward Industry 4.0, pp. 107–132. Ed. by Samsul Ariffin Abdul Karim. Studies in Systems, Decision and Control, vol 319. Singapore: Springer. ISBN: 978-981-15-8986-7.

- 2018 A1 **Regression modelling using priors depending on Fisher information covariance kernels (I-priors)**  
*H. Jamil*  
 PhD Thesis. London School of Economics and Political Science.  
 **Arnold Zellner award, honourable mention (top 3)**

## Working papers (preprints and unpublished reports)

- 2021 W6 **I think I understand: Investigating misconceptions regarding hypothesis test concepts among university students**  
*A. Zaini, H. Jamil, E. Leong*  
 EdArXiv. DOI: 10.35542/osf.io/dj6x9
- 2020 W5 **Regression modelling with I-priors: With applications to functional, multilevel and longitudinal data**  
*W. Bergsma, H. Jamil*  
 arXiv:2007.15766 [math, stat].
- W4 **Investigating the effect of load carriage on soldiers' performances using Bayesian structural equation models**  
*H. Jamil, A. Salleh, L. Thieng Chan*
- 2019 W3 **iprior: An R Package for Regression Modelling using I-priors**  
*H. Jamil, W. Bergsma*  
 arXiv:1912.01376 [stat].
- 2017 W2 **Discussion contribution**  
*W. Bergsma, H. Jamil*  
 TI Cannings, RJ Samworth (2017). Random-projection ensemble classification. JRSSB, 79.4, pp. 959-1035.
- 2010 W1 **Analysis of paired comparison data using Bradley-Terry models with applications to football data**  
*H. Jamil*  
 Masters Thesis. University of Warwick.

## Software

- 2021 S4 **R/iprior: Regression Modelling using I-priors**  
*H. Jamil*  
 **0.7.3**  **31K**
- 2020 S3 **stat-tables: Open-source statistical tables for use in examinations, tests, and assignments**  
*H. Jamil*  
 **v0.2**  **231**
- 2018 S2 **R/ipriorBVS: Bayesian Variable Selection using I-priors**  
*H. Jamil*  
 **v0.1.1**
- S1 **R/probit: Binary and Multinomial Probit Regression with I-priors**  
*H. Jamil*  
 **v0.1**

## Talks

*Further information regarding the following events are available at [haziqj.ml/talk](https://haziqj.ml/talk)*

|      |     |   |
|------|-----|---|
| 2020 | T13 | <b>IADA Seminar</b> , UBD, Brunei<br>A latent variable model for maximal performance testing with dropouts for military applications  |
|      | T12 | <b>Social Statistics Group Meetings</b> , LSE, London, UK<br>Investigating the effect of load carriage on soldiers' performances using structural equation models           |
| 2019 | T11 | <b>UBDSBE Seminar Invitation</b> , UBD, Brunei<br>Bayesian Variable Selection for Linear Models   |
|      | T10 | <b>CSTRAD Sharing Session</b> , Ministry of Defence, Brunei<br>Misconceptions in Demography   |
| 2018 | T09 | <b>FOS Research Seminar</b> , UBD, Brunei<br>A Brief Guide to Variational Inference   |
|      | T08 | <b>Inaugural Workshop on Data Science Theory and Practice</b> , LSE, London, UK<br>Binary and Multinomial Regression using Fisher Information Covariance Kernels (I-priors) |
|      | T07 | <b>Social Statistics Group Meetings</b> , LSE, London, UK<br>A Beginner's Guide to Variational Inference  |
| 2017 | T06 | <b>Turing Data Study Group</b> , The Alan Turing Institute, London, UK<br>Can data science help identify potential drivers of extremism?                                    |
|      | T05 | <b>International Meeting of the Psychometric Society (IMPS)</b> , University of Zürich, Switzerland<br>Regression Modelling with I-Priors                                   |
|      | T04 | <b>Department of Statistics PhD Presentation Event</b> , LSE, London, UK<br>Binary probit regression with I-priors  |
| 2016 | T03 | <b>Social Statistics Group Meetings</b> , LSE, London, UK<br>I-priors in Bayesian Variable Selection: From Reproducing Kernel Hilbert Spaces to Hamiltonian Monte Carlo     |
| 2015 | T02 | <b>Postgraduate Research Seminar</b> , LSE, London, UK<br>Two-stage Bayesian variable selection for linear models using I-priors  |
|      | T01 | <b>Department of Statistics PhD Presentation Event</b> , LSE, London, UK<br>Regression Modelling using I-priors   |

## Skills

📊 **Programming, data analysis and visualisation** using R, BUGS/JAGS, Stan, Stata, Mplus, and Mathematica

🔬 **Reproducible research** using R Markdown, LaTeX, Git and AWS EC2

💻 **Web development** using HTML, Hugo, Jekyll, GitHub Pages and Netlify

# Links

1. <http://stats.lse.ac.uk/bergsma/>
2. <http://stats.lse.ac.uk/moustaki/>
3. <https://phd.haziqj.ml/>
4. <http://www2.warwick.ac.uk/fac/sci/statistics/staff/academic-research/firth/>
5. <https://community.amstat.org/businessandeconomicstatisticssection/new-item/new-item2>
6. <https://scholarship.mindef.gov.bn/Theme/Home.aspx>
7. <http://fos.ubd.edu.bn/>
8. <https://ubd.edu.bn/admission/discovery-year.html>
9. <http://lse.ac.uk/Statistics/>
10. <https://www2.mindef.gov.bn/cstrad/>
11. <https://news.lockheedmartin.com/2011-12-13-Sikorsky-Signs-with-Brunei-Ministry-of-Defence-for-Sale-of-S-70iTM-BLACK-HAWK-Helicopters>
12. <https://imstat.org/journals-and-publications/annals-of-applied-statistics/>
13. <https://rss.onlinelibrary.wiley.com/journal/14679876>
14. <https://www.frontiersin.org/journals/applied-mathematics-and-statistics/>
15. <http://www.utb.edu.bn/>
16. <https://www.instagram.com/ablebrunei/>