

NATHANIEL JOSELSON
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PROFILE

I have a curious, analytical mind and am not afraid to throw myself into new situations with new problems. I am confident and adaptable in my problem solving but am pro-active in asking for help if I need it. I have thrived at the University of Cape Town in South Africa through interacting with inspiring colleagues engaged in constant learning. I look forward to continuing to grow in projects related to data visualization, analytics, modelling and computing, especially in a research setting. I strongly believe that the data which is being collected world-wide has the power to improve lives, boost social mobility, reduce inequality and solve problems that haven't even been diagnosed yet. I can't wait to apply myself to new challenges in my future positions.

ACADEMICS

EDUCATION

Bsc. Honours in Statistical Sciences January 2016 - December 2016
University of Cape Town Cape Town, South Africa
Thesis: Uses of Principal Components in Generalized Linear Modelling
Advisor: Associate Professor Sugnet Lubbe

- Focus: Time Series Analysis, Generalized Linear Modelling, Analytics, Data Visualization, Multivariate Techniques, Decision Modelling, Mathematical Programming, Likelihood Theory, Bayesian Analysis

Bachelors of Commerce in Economics and Statistics January 2013 - December 2015
University of Cape Town Cape Town, South Africa

- Focus: Econometrics, Inferential Statistics, Survey Design, Micro and Macro-Economic theory

International Baccalaureate Diploma August 2010 - May 2012
United World College in Mostar Mostar, Bosnia & Herzegovina

AWARDS

- Graduated with Distinction in Economics, Distinction in Statistics and the degree with Distinction
- Member of the University of Cape Town Dean's Merit List 2013 - present
- Member of the Golden Key Honours Society 2015 - present
- Class Medal: STA3036S 2015
- Genesis Analytics Prize for Top 5 Students in Economics 2015
- UCT Plus Award for Service: AIDS and Change Educator 2015
Ran workshops about safe sexual practices and de-stigmatization of HIV, hosted HIV testing drives, facilitated conversations around topics of gender, sexuality and safe spaces.

WORK EXPERIENCE

Statistical Consultant - Ocean and Land Resource Assessment Consultants, Cape Town January 2015-present
First hired as an intern and then retained to work part-time during my studies.

- Implemented innovative modelling procedures for commercial scale fishing data using the Template Model Builder package (TMB) in R which led to ten-fold decreases in runtime.
- Assisted in broadening the scope of the TMB debugger to work on the Windows operating system. available on <https://github.com/kaskr/adcomp>
- Formulated solutions for OLRAC's clients in fields including survey design, generalized linear modelling, large-scale non-linear numerical optimization of likelihood functions, remote data collection, front-end software evaluation and multi-criteria decision analysis.

Research Assistant - Scientific Computing Research Unit

Winter 2015

Affiliated with the Department of Chemistry at the University of Cape Town

- Implemented molecule conformation generation algorithms in Python to aid in the visualization of glycans and their preferred conformation and energy profile.
- Assisted in the design and first-stage implementation of a virtual database of glycomics data for use by computational and experimental chemists.

Academic Tutor - Department of Statistical Sciences

2016

Department of Statistical Sciences at the University of Cape Town

- STA3036- 3rd Year Operations Research: Led weekly 1 hr tutorials and graded assignments on the coursework including simulation, linear/non-linear programming, queueing theory and decision modelling.
- STA3022- 3rd Year Research and Survey Statistics: Led weekly 1 hr tutorials on the coursework including discriminant analysis, principal component analysis, clustering and statistical computing in R.

PROJECTS

Uses of Principal Components in Generalized Linear Modelling

2016

Supervisor: Associate Professor Sugnet Lubbe, Department of Statistics, University of Cape Town

- Demonstrates the usefulness of the singular value decomposition in generalized linear modelling of highly correlated multivariate data, especially as regards interpretation of coefficients and confidence interval creation.

Modification of the prevailing species, sex, age and size disaggregated

hake stock assessment model to incorporate hake cannibalism and inter-species predation.

2015

Bergh M., Fourie A. and Joselson N.

- available on <https://www.researchgate.net/publication/291521486>

Visualizing Intersections Between Race and Academics at UCT

April 2016

Interactive visualization of one year's worth of academic data at the University of Cape Town which indicates a lack of inclusion of non-whites at the upper end of the academic hierarchy.

- Visualization created in R with Shiny. Available at <https://nathanieljoselson.shinyapps.io/VisApp/>

COMPUTER SKILLS

- **Languages:** R, L^AT_EX, Python, VBA, C++, Bash, Sqlite, Stata, Spss.
- **Web Development:** HTML, CSS.
- **Applications:** Vi/Vim, Git, tmux, Microsoft Office.
- **Operating Systems:** Unix, Linux, Mac OSX, Windows.

REFERENCES

- **A/Prof Sugnet Lubbe**

Associate Professor of Statistics
Department of Statistical Sciences
The University of Cape Town

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- **Dr. Mike Bergh**

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- **A/Prof Michelle Kuttel**

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