

NATHANIEL JOSELSON  
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## PROFILE

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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

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### 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

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**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.

## PROJECTS

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### 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

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- **Languages:** R, L<sup>A</sup>T<sub>E</sub>X, 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

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### • 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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