Tomas Beuzen

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Personal Summary

I'm a Teaching and Learning Fellow with the Master of Data Science program at the University of British Columbia, Vancouver, and a data science consultant. I hold a PhD in coastal engineering and have experience in research, education, and engineering and data science consulting. While I'm currently a core instructor for the Master of Data Science program where I teach courses covering topics such as Python programming, databases, machine learning and time series analysis, I also engage in data science consulting, research and open-source work. I enjoy creating and contributing to open educational data science materials to help others make the transition to the wonderful world of data science, as I once did.

Education

PhD in Coastal Engineering　　　　　　　　　　　　　　　　　　　　2016 - 2019
University of New South Wales

BEng in Civil Engineering　　　　　　　　　　　　　　　　　　　　　2011 - 2016
University of New South Wales

BSc in Climate Dynamics　　　　　　　　　　　　　　　　　　　　　2011 - 2016
University of New South Wales

Skill Highlights

Experience	**Programming**	**Other Skills**
🔬 Research	® R	🌐 GIS
🏛 Education	🐍 Python	A Latex
✎ Consulting	</> HTML, CSS, Javascript	🔍 Strong publication record

Experience

Data Science Consultant　　　　　　　　　　　　　　July 2020 - August 2020
LightSpark

Consultant providing expert advice on data science for Lightspark, a SaaS company focused on leveraging data to better predict and manage building energy usage and emissions. Focus on unsupervised learning and data wrangling tasks.

Data Science Consultant　　　　　　　　　　　　　　January 2020 - Present
Properly

Independent contractor advising on data science workflow and initiatives at Properly, a data-based realtor in Canada. Focus on machine learning and data wrangling tasks.

Postdoctoral Teaching and Learning Fellow
August 2019 - Present
University of British Columbia

Part of the UBC Master of Data Science (MDS) program. Main roles include instructing courses (statistics, data wrangling, programming, machine learning, etc.), assessing admissions, updating and expanding the MDS curriculum, managing teaching assistants, planning and mentoring students in their capstone projects and collaborating with industry partners. Courses instructed:

- DSCI 511 - Python Programming for Data Science
- DSCI 551 - Descriptive Statistics and Probability for Data Science
- DSCI 512 - Databases and Data Retrieval
- DSCI 523 - Data Wrangling
- DSCI 561 - Regression I
- DSCI 571 - Supervised Learning I
- DSCI 572 - Supervised Learning II
- DSCI 574 - Spatial and Temporal Model
- DSCI 591 - MDS Capstone Projects
- BAIT 509 - Business Applications of Machine Learning

Graduate Engineer
June 2018 - June 2019
Royal HaskoningDHV

Worked as a coastal engineer on local and international projects. Tasks included wave and water level modelling, sediment transport modelling, liaising with clients and project managers, report writing and field investigations.

Teaching Assistant
June 2013 - April 2019
University of New South Wales

Teaching assistant for over 15 different civil and environmental engineering courses at the University of New South Wales. Involves preparing and delivering material to classes, ranging from 20 to 50 students and lasting 1 to 4 hours. Courses included water engineering, geotechnical engineering, structural engineering, project management, mathematics and statistics for engineers, and final year theses.

Consultant
December 2012 - March 2013
EMGA Mitchell McLennan Planning and Environmental Consultancy

Assisted all aspects of the consulting process in fields of geotechnical, transport, environmental, acoustic engineering and project management. Duties included site visits, writing Environmental Assessments, budgeting and tenders. Primarily worked on successful tenders for the Sydney North West Rail Project.

Open Source Work

CaloCrunch

CaloCrunch is a free calorie-counting web application I made.

Executable Books Project

I contribute to and manage elements of the Jupyter Book project. For example, the Jupyter Book cookiecutter.

BinderHub

I contribute to the BinderHub project and set up and manage a private BinderHub that powers the online Key Capabilities in Data Science program at UBC.

Online Educational Material

I created and support a variety of online, open educational material, including:

- A Python Packaging book

- A Python programming course

- Various machine learning tutorials

Key Publications

pywebcat: A Python package to interface with the NOAA National Ocean Service Web Camera Applications Testbed

Zenodo, July 2020

Machine learning and coastal processes

Chapter 28 in Sandy Beach Morphodynamics, May 2020

pybeach: A Python package for extracting the location of dune toes on beach profiles

Journal of Open Source Software, December 2019

Controls of variability in berm and dune storm erosion

Journal of Geophysical Research, December 2019

Ensemble models from machine learning: an example of wave runup and coastal dune erosion

Natural Hazards and Earth Systems Science, September 2019

A variable selection package driving Netica with Python

Environmental Modelling and Software, January 2019

A comparison of methods for discretizing continuous variables in Bayesian Networks

Environmental Modelling and Software, July 2018

Bayesian Networks in coastal engineering: Distinguishing predictive and descriptive applications

Environmental Modelling and Software, January 2018

Physical model study of beach profile evolution by sea level rise in the presence of seawalls

Journal of Coastal Engineering, December 2017

Presentations and Public Speaking

UBC Jupyter Days, 2020
Introduction to Jupyter Book

American Geophysical Union Fall Meeting, 2019
A machine learning approach for identifying dune toes on beach profile transects

American Geophysical Union Fall Meeting, 2018
A new parameterization for wave runup within a dune impact model. AGU 2018 Fall Meeting Abstracts

International Conference on Coastal Engineering, 2018
A Probabilistic Model of Regional-scale Response to Extreme Storm Events

Shoreshop, 2018
Predicting shoreline evolution with Random Forests and Bayesian Networks

American Geophysical Union Fall Meeting, 2017
A machine learning approach for the prediction of coastal storm erosion at the regional scale

Australasian Coasts and Ports: Working with Nature, 2017
Predicting storm erosion on sandy coastlines using a Bayesian network

References

Available on request.