Martin Bergemann, PhD

Scientific Programmer

🏠 Melbourne, Aus
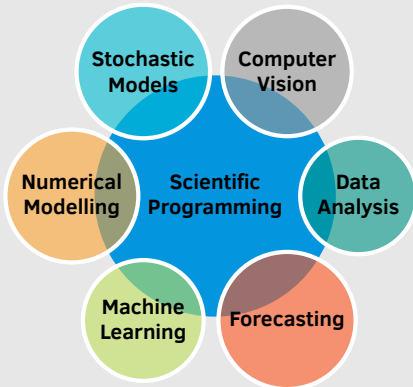
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🌐 antarcticrainforest.github.io

✉ martin.bergemann@unimelb.edu.au

Skills

Programming

Python, scikit-learn keras pandas

Fortran, openMP MPI netCDF

C\C++, HDF5 netCDF MPI

Bash

R\IDL\GDL

Matlab

Languages

- German (native)
- English (fluent)
- Spanish (beginner)

Research/Experience

since 2018   **Post-Doctoral Research Fellow** University of Melbourne, Melbourne, Australia
- Investigation of Extreme Rainfall events and High Impact Weather by applying Machine Learning algorithms to observational data and using high resolution cloud system resolving models.

2017   **Post-Doctoral Research Fellow**   Monash University, Melbourne, Australia
- Developed the first of its kind model of sub-grid scale sea-breeze circulation systems for application in global climate and numerical weather prediction models.

2014-2016   **Research Associate**   Monash University, Melbourne Australia
- Applied and improved a 3D variational assimilation technique, that can be applied to force cloud resolving or single column model simulations.

2013-2016   **PhD-Studentship**   Monash University, Melbourne Australia
- Developed an objective pattern recognition technique to identify tropical rainfall caused by land-sea interaction.
- Developed a stochastic parametrization approach that is able to capture the main characteristics of coastal convection.

2012-2013   **Research Fellow**   Freie Universität, Berlin, Germany
- Simulated and investigated regional African climate change caused by mountain uplift during the Miocene period 14 - 7 Ma BP.

2008-2011   **Junior IT-System Admin**   Freie Universität, Berlin, Germany
- Developed small software solutions for maintenance of the Institute of Meteorology's computer pool.

Education

2013 - 2016   **PhD, Atmospheric Physics**   Monash University, Melbourne Australia
supervisors: Prof. Christian Jakob and A-Prof. Todd P. Lane
Thesis: Coastal Convection in the Tropics

2004 - 2011   **German Diplom (MSc) in Meteorology**   Freie Universität, Berlin
Minors in Physics and Mathematics
Thesis: Last inter-glacial vegetation simulation in northern Asia: A parametrization approach and a data model comparison

Publications

2017   **M. Bergemann, B. Khouider, C. Jakob**
Coastal Tropical Convection in a Stochastic Modeling Framework - *Journal of Advances in Modeling Earth Systems (DOI: 10.1002/2017MS001048)*

2016   **M. Bergemann, & C. Jakob**
How important is tropospheric humidity for coastal rainfall in the tropics? - *Geophysical Research Letters, Vol. 43/11 (DOI: 10.1002/2016GL069255)*

2015   **M. Bergemann, C. Jakob, T. P. Lane**
Global Detection and Analysis of Coastline-Associated Rainfall Using an Objective Pattern Recognition Technique - *Journal of Climate Vol. 28/18 (DOI: 10.1175/JCLI-D-15-0098.1)*

2014   **M. Bergemann & S. Müller**
Last interglacial vegetation in northern Asia: Model simulations and comparison with pollen-based reconstructions - *Quaternary International Vol. 384 (DOI: 10.1016/j.quaint.2013.10.041)*