

# Curriculum Vitae: G.J.J. van den Burg

February, 2019

## PERSONAL DETAILS

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Gerrit Jan Johannes (Gertjan) van den Burg  
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## PROFESSIONAL EXPERIENCE

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2018 – NOW **Postdoctoral Research Associate** The Alan Turing Institute, London, UK

- Project: *Artificial Intelligence for Data Analytics*.
- Collaborators: prof. C. K. I. Williams & prof. C. Sutton.

## EDUCATION

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2012 – 2018 **Ph.D. Machine Learning** Erasmus University Rotterdam, The Netherlands

- Dissertation title: *Algorithms for Multiclass Classification and Regularized Regression*.
- Supervisors: prof. P.J.F. Groenen & dr. A. Alfons.

2010 – 2012 **M.Sc. Econometrics** Erasmus University Rotterdam, The Netherlands

- Thesis: *A New Multiclass Support Vector Machine – An Approach using Iterative Majorization and Huber hinge errors*.
- Supervisor: prof. P.J.F. Groenen

2009 – 2012 **M.Sc. Applied Physics** Delft University of Technology, The Netherlands

- Thesis: *Criticality in One-dimensional Triplet and Quadruplet Contact Processes*.
- Supervisor: prof. G.T. Barkema at the Institute for Theoretical Physics of Utrecht University, The Netherlands.

2006 – 2009 **B.Sc. Applied Physics** Delft University of Technology, The Netherlands

- Thesis: *Segmentation Algorithms for a Quantitative Description of  $\alpha$ -synuclein Aggregation*.
- Supervisor: dr. B. Rieger

## RESEARCH INTERESTS

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Machine learning, data wrangling, multiclass classification, meta-learning, sparse regression, deep learning

## PUBLICATIONS

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Journal Papers:

- [1] Van den Burg, G.J.J. and Groenen, P.J.F.. GenSVM: A Generalized Multiclass Support Vector Machine. *Journal of Machine Learning Research*, 17(225):1-42, 2016.

Preprints:

- [2] Van den Burg, G.J.J. and Nazabal, A. and Sutton, C. Wrangling Messy CSV Files by Detecting Row and Type Patterns. *arXiv:1811.11242*, 2018.
- [3] Van den Burg, G.J.J. and Hero, A.O. Fast Meta-Learning for Adaptive Hierarchical Classifier Design. *arXiv:1711.03512*, 2017.

[4] Van den Burg, G.J.J. and Groenen, P.J.F. and Alfons, A. SparseStep: Approximating the Counting Norm for Sparse Regularization. *arXiv:1701.06967*, 2017.

[5] Van den Burg, G.J.J. and Groenen, P.J.F. and Alfons, A. Regularization with the GGM Penalty. Manuscript in preparation.

Dissertation:

[6] Van den Burg, G.J.J. Algorithms for Multiclass Classification and Regularized Regression, Erasmus University Rotterdam, 2018.

#### AWARDS & GRANTS

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**Top Educator Award**, Erasmus School of Economics, 2016

**Research Grant** to visit University of Michigan, Erasmus Trustfonds, 2016

#### VISITING POSITIONS

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Feb. 2017 **University of Michigan, U.S.A.**, visiting prof. dr. A.O. Hero

Feb. – Apr. 2016 **University of Michigan, U.S.A.**, visiting prof. dr. A.O. Hero

May 2014 **Stanford University, U.S.A.**, visiting prof. dr. P.J.F. Groenen

#### TEACHING EXPERIENCE

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2016 – 2017 **Thesis Supervisor**, Erasmus University Rotterdam, The Netherlands  
– Supervisor for two MSc and four BSc theses in econometrics and machine learning

2016 – 2017 **Educational Innovation Member**, Erasmus School of Economics, The Netherlands  
– Set up technical infrastructure for autograded programming exercises using Autolab

2015 – 2016 **Lecturer**, Erasmus University Rotterdam, The Netherlands  
– MATLAB module in undergraduate programming course.

2014 – 2016 **Teaching Assistant**, Erasmus University Rotterdam, The Netherlands  
– Various courses on Programming, Data Analysis, Econometrics, and Mathematics

#### ACADEMIC SOFTWARE PACKAGES

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- **CleverCSV**: Python package for *Wrangling Messy CSV Files by Detecting Row and Type Patterns*.
- **SmartSVM**: Python package for *Fast Meta-Learning for Adaptive Hierarchical Classifier Design*.
- **SparseStep**: R package for *SparseStep: Approximating the Counting Norm for Sparse Regularization*.
- **GenSVM**: C, Python, and R package for *GenSVM: A Generalized Multiclass Support Vector Machine*.
- **Abed**: Python package for easy benchmarking of machine learning methods on a compute cluster.
- **SyncRNG**: Python and R package for synchronized random number generation.

#### WORK EXPERIENCE

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2012 – 2016 **Freelance Programmer**, **Stichting Studiebegeleiding Leiden**.

2011 – 2012 **Student Assistant**, **Erasmus School of Economics**

2007 – 2012 **Tutor**, **Stichting Studiebegeleiding Leiden**

#### SELECTED CONFERENCE TALKS

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- [1] Van den Burg, G.J.J.. Benchmarking Machine Learning Methods on LISA. In: *Surfsara Super D Event 2016*, Amsterdam, The Netherlands. Invited speaker.
- [2] Van den Burg, G.J.J. and Groenen, P.J.F.. SparseStep: Approximating the Counting Norm for Sparse Regularization. In: *Conference of the International Federation of Classification Societies (IFCS 2015)*, Bologna, Italy.
- [3] Van den Burg, G.J.J. and Groenen, P.J.F.. An Extended Comparison of Multiclass Support Vector Machines. In: *21-st International Conference on Computational Statistics (COMPSTAT 2014)*, Geneva, Switzerland.
- [4] Van den Burg, G.J.J. and Groenen, P.J.F.. Flexible Multiclass Support Vector Machines. In: *Machine Learning Summer School (MLSS 2013)*, Tübingen, Germany. Poster presentation.

#### PROFESSIONAL SERVICES

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2014 – 2015            Treasurer ERIM PhD Council  
2013 – 2014            Organizer reading groups on Machine Learning and Probabilistic Inference

#### LANGUAGES

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Speaking:            Fluent: Dutch, English  
Programming:        Fluent: C, Python, R, and Matlab. Experienced: Java.