

# Dr.-Ing. Ribana Roscher

## *Curriculum Vitae*

### Contact Information

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### Academic Positions

- Since 12/15 Junior Professor for Remote Sensing, *University of Bonn, Institute of Geodesy and Geoinformation, Department of Photogrammetry, Germany*
- 01/15-06/15 Visiting researcher, *Fields Institute for Research in Mathematical Sciences, Toronto, Canada*, Participation in the Thematic Programme "Statistical Inference, Learning and Models for Big Data"
- 10/13-12/15 Research assistant, *Freie Universität Berlin, Institute of Geographical Sciences, Remote Sensing and Geoinformatics, Germany*, Project: 'Self-taught learning for land cover mapping of large areas using multispectral remote sensing data', Funding: German Research Foundation (DFG), Research advisor: Prof. Dr. B. Waske
- 08/13-09/13 Research assistant, *University of Bonn, Institute of Geodesy and Geoinformation, Department of Photogrammetry, Germany*, Project: 'Self-taught learning for land cover mapping of large areas using multispectral remote sensing data', Funding: German Research Foundation (DFG), Research advisor: Prof. Dr. B. Waske
- 06/13-07/13 Research assistant, *Julius Kühn-Institut, Institute for Grapevine Breeding, Siebeldingen, Germany*, Project: 'PHENOVines: Phenotyping in the vineyard', Funding: The Federal Ministry of Education and Research (BMBF), Research advisor: Dr. R. Töpfer
- 04/13-05/13 Research assistant, *Humboldt-Innovation, Berlin, Germany*, Project: 'EnMAP: Development and implementation of analysis methods for the EnMAP-Box', Research advisor: Prof. Dr. P. Hostert
- 01/09-03/13 Research assistant, *University of Bonn, Institute of Geodesy and Geoinformation, Department of Photogrammetry, Germany*, Project: 'CROP.SENSE.net: Data analysis and management group (Development of standardized methods for dynamic phenotypic evaluations of grapevine)', Funding: The Federal Ministry of Education and Research (BMBF), Research advisor: Prof. Dr.-Ing. Dr. h.c. mult. Wolfgang Förstner

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## Education

- 01/09-09/12 PhD student, *University of Bonn, Institute of Geodesy and Geoinformation, Department of Photogrammetry, Germany*
- 10/04-12/08 Student of Geodesy, *University of Bonn, Institute of Geodesy and Geoinformation, Department of Photogrammetry, Germany*

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## Scientific Activities

### Working Group Activities

- 2016-2020 Co-chair, *ISPRS Working group II/6 'Large-scale Machine Learning for Geospatial Data Analysis'*

### Committee Activities

- 2017 Program committee member, *International Society for Photogrammetry and Remote Sensing (ISPRS) Hannover Workshop*
- 2017 Program committee member, *Joint Urban Remote Sensing Event (JURSE)*
- 2016 Program committee member, *ICPR Workshop on Pattern Recognition in Remote Sensing*

### Reviewing Activities

IEEE Transactions on Neural Networks and Learning Systems, Remote Sensing, ISPRS Journal of Photogrammetry and Remote Sensing, Image and Vision Computing, Computers and Electronics in Agriculture, IEEE Transactions on Geoscience and Remote Sensing, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

### Awards

- 2016 Symposium Prize Paper Award IGARSS 2015
- 2009 Turbo-Preis der Gesellschaft für Geodäsie, Geoinformation und Landmanagement (DVW)

### Further Memberships

- Since 2015 German Association of University Professors and Lecturers (Deutscher Hochschulverband)
- Since 2014 Institute of Electrical and Electronics Engineers (IEEE)
- Since 2010 Deutsche Arbeitsgemeinschaft für Mustererkennung e.V.

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## Teaching Activities

### Lectures

- Since 2016/17 'Image Analysis and Interpretation for Remote Sensing', *University of Bonn*, BSc, lecture and seminar, 4h/week, winter term
- Since 2016 'Big Data Analysis', *University of Bonn*, MSc, Lecture and seminar, 3h/week, summer term
- Since 2015/16 'Photogrammetry and Remote Sensing', *University of Bonn*, MSc, lecture (shared), 3h/week, winter term

### Practical Courses

- Since 2016/17 'Remote Sensing Image Interpretation', *University of Bonn*, MSc, winter term

Since 2016 'Detection, Analysis and Modeling of Phenotypes and Heterogeneity', *University of Bonn*, MSc, summer and winter term

2015/16 'Selected Topics on Image Analysis and Interpretation for Remote Sensing', *University of Bonn*, MSc, winter term

### Further Activities

2017 Lecturer, *International SPLIT Remote Sensing Summer School*, Croatia

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## Main Publications

Rosentreter, J., Hagensieker, R., Okujeni, A., **Roscher, R.**, Wagner, P., Waske, B. (2017): "Sub-pixel mapping of urban surfaces using EnMAP data and machine learning algorithms", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, *accepted*

Franke, B., J.-F. Plante, **Roscher, R.**, A. Lee, C. Smyth, A. Hatefi, F. Chen, E. Gil, A. Schwing, A. Selvitella, M. M. Hoffman, R. Grosse, D. Hendricks und N. Reid (2016): "Statistical Inference, Learning and Models in Big Data", *International Statistical Review*, *to appear*, *arXiv:1509.02900*

Mack, B., **Roscher, R.**, Stenzel, S., Feilhauer, H., Schmidtlein, S., Waske, B. (2016): "Mapping raised bogs with an iterative one-class classification approach", *ISPRS Journal of Photogrammetry and Remote Sensing*, 120, 53-64

**Roscher, R.**, Behmann, J. Mahlein, A.-K., Dupuis, J., Kuhlmann, H., Plümer, L. (2016): "Detection of disease symptoms on hyperspectral 3D plant models", *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 89-96

**Roscher, R.**, Waske, B. (2015): "Shapelet-based sparse representation for landcover classification of hyperspectral images", *IEEE Transactions on Geoscience and Remote Sensing*, 54(3)

Mack, B., **Roscher, R.**, Waske, B. (2014): "Can I trust my one-class classification?", *Remote Sensing*, 6(9), 8779-8802

**Roscher, R.**, Herzog, K., Kunkel, A., Kicherer, A. Töpfer, R., Förstner, W. (2014): "Automated image analysis framework for high-throughput determination of grapevine berry sizes using conditional random fields", *Computers and Electronics in Agriculture*, 100, 148-158

Herzog, K., **Roscher, R.**, Wieland, M., Kicherer, A., Läbe, T., Förstner, W., Kuhlmann, H., Töpfer, R. (2014): "Initial steps for high-throughput phenotyping in vineyards", *VITIS - Journal of Grapevine Research*, 53(1), 1-8

**Roscher, R.**, Förstner, W., Waske, B. (2012): "I<sup>2</sup>VM: Incremental import vector machines", *Image and Vision Computing*, 30(4-5), 263-278

**Roscher R.**, Waske, B., Förstner W. (2012): "Incremental import vector machines for classifying hyperspectral data", *IEEE Transactions on Geoscience and Remote Sensing*, 50(9), 3463-3473