

# Patrick Schratz

PHD STUDENT · DATA SCIENTIST

Friedrich-Schiller-University Jena, Department of Geography, GIScience group

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*To which open-source projects do you contribute to?*

## Work Experience

### Friedrich-Schiller-University Jena

Jena, Germany

RESEARCHER (PHD CANDIDATE)

Oct. 2016 - Present

- Project: [EU LIFE Healthy Forest](#)
- Description: "Early detection and advanced management systems to reduce forest decline caused by invasive and pathogenic agents"
- Statistical and machine-learning data analysis

### Chinese Academy of Forestry

Beijing, China

RESEARCH INTERN

Aug. 2015 - Oct. 2015

- Project work within [ESA-MOST Forest DRAGON 3](#)
- [Schmullius et al. \(2016\)](#): Decadal trends of Northeastern Forests in China from Earth Observation Synergy (see also 'publications')

### TU Ilmenau

Ilmenau, Thüringen

STUDENT ASSISTANT

Feb. 2014 - Apr. 2015

- GIS support within [Obschonka et al. \(2015\)](#): "Entrepreneurial Regions: Do Macro-Psychological Cultural Characteristics of Regions Help Solve the "Knowledge Paradox" of Economics?"

### Centre for Geographical Analysis

Stellenbosch, South Africa

INTERN

Mar. 2014 - May 2014

- [CGA Stellenbosch](#)
- Validation of a country wide land cover map for South Africa

### Friedrich-Schiller-University Jena

Jena, Germany

STUDENT ASSISTANT

Oct. 2013 - Feb. 2014

- Tutorial on image processing for 2nd year undergraduates

## Skills

**Programming languages** R, LaTeX, Git, Docker, HTML, CSS, C++, Python

### Programming specializations

- Machine & statistical learning
- (Geo)statistics
- Handling of spatial data
- Parallelization

**Languages** German, English

## Education

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### Friedrich-Schiller-University Jena

*Jena, Germany*

M.SC. IN GEOINFORMATICS

*Oct. 2014 - Sep. 2016*

- Thesis title: "Modeling the Spatial Distribution of Hail Damage in Pine Plantations of Northern Spain as a Major Risk Factor for Forest Disease" (<https://zenodo.org/record/814262>)

### Friedrich-Schiller-University Jena

*Jena, Germany*

B.SC. IN GEOGRAPHY

*Oct. 2011 - Sep. 2014*

- Specialization in Remote Sensing and Geoinformatics
- Thesis title: "Investigation of the ASAR BIOMASAR GSV maps from 2005 and 2010 using optical satellite data at different temporal and spatial resolution in Northeast China"

## Personal Projects

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### mlr

*Github*

AUTHOR

*July 2017 - Present*

- Machine Learning in R
- Maintainer of the tutorial site (<http://mlr-org.github.io/mlr/>)

### oddsratio

*Github*

CREATOR, AUTHOR, MAINTAINER

*Oct. 2016 - Present*

- Functions for calculation and plotting of odds ratios of Generalized Additive (Mixed) Models and Generalized Linear (Mixed) Models with a binomial response variable (i.e. logistic regression models)
- <https://pat-s.github.io/oddsratio/index.html>
- <https://doi.org/10.5281/zenodo.807719>

### sperrorest

*Github*

AUTHOR, MAINTAINER

*July 2016 - Present*

- Parallelized spatial error estimation and variable importance assessment for geospatial machine learning
- <https://pat-s.github.io/sperrorest/index.html>
- <https://doi.org/10.5281/zenodo.807710>

### RQGIS

*Github*

AUTHOR

*April 2016 - Present*

- Integrating R with QGIS
- <http://jannes-m.github.io/RQGIS/index.html>

## Miscellaneous Activity

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### Spring School on "Statistical Analysis of Hyperspectral and High-Dimensional Remote-Sensing Data")

*Jena, Germany*

MAIN ORGANIZER

*March 13 - March 17, 2017*

- State of the art statistical analysis of high-dimensional and especially hyperspectral data
- A mixture of lectures and lab classes / hands-on sessions using the widely used programming language R
- Networking with other data- focused scientists
- <http://tinyurl.com/MSMJ-Flyer>

### GIScience group, University of Jena

*Jena, Germany*

SERVER ADMINISTRATION

*2016 - Present*

### Social Activity

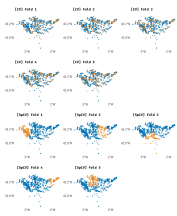
*Jena, Germany*

MENTOR FOR INTERNATIONAL STUDENTS AND REFUGEES

*2017 - Present*

## Publications

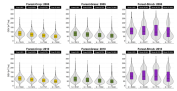
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Schratz, P., Muenchow, J., Richter, J., Iturritxa, E. and Brenning, A. (2018)  
**Performance evaluation and hyperparameter tuning of statistical and machine-learning models using spatial data**  
*arxiv preprint* · [URL](#)



Muenchow, J., Schratz, P. and Brenning, A.  
**RQGIS: Integrating R with QGIS for Facilitated Automated Statistical Geocomputing**  
*R Journal* · [URL](#)  
*R Package RQGIS: Integrating R with QGIS*



Schmullius, C., Balling, J., Schratz, P. et al. (2016)  
**Decadal trends of Northeastern Forests in China from Earth Observation Synergy**  
*ESA MOST DRAGON 3 Conference Proceedings, Wuhan* · [DOI](#)  
*Mixed pixel investigation of Growing Stock Volume (GSV) derivations derived from the BIOMASAR algorithm.*

## Teaching

### M.Sc. Geoinformatics, Winter term 2017/2018

[Jena, Germany](#)

GEO 404

Oct. 2017 - Feb. 2018

- Geoprocessing in **R**
- Scientific reporting using **Rmarkdown**

### B.Sc. Geography, Winter term 2016/2017

[Jena, Germany](#)

GEO 311

Oct. 2016 - Feb. 2017

- Introduction to Python
- Python for geoprocessing with **arcpy**
- Introduction to scientific reporting using **Rmarkdown**