


# HANNAH THERESA RÜDISSER

## PhD Student in Heliophysics

MSc in Theoretical and Computational Physics · AUSTRIA

### PERSONAL

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### PROFESSIONAL EXPERIENCE

**10/2022 – PRESENT**

**PHD STUDENT**, AUSTRIAN SPACE WEATHER OFFICE, GEOSPHERE AUSTRIA, GRAZ

‘Understanding the Global Magnetic Structure of Coronal Mass Ejections using hyper-fast Models’

Supervisors: Helmut Lammer, Christian Möstl • ERC, HELIO4CAST, 101042188

**01/2018 – PRESENT**

**RIDING INSTRUCTOR & HORSE TRAINER**, SELF-EMPLOYED, GRAZ

**08/2020 – 12/2022**

**JUNIOR RESEARCHER**, KNOW-CENTER GMBH, GRAZ

Time Series Event Detection for Different Use Cases using Machine Learning

Supervisor: Andreas Windisch • Europlanet 2024 RI, 871149

**05/2020 – 12/2020**

**SALES ASSISTANT**, KRÄMER PFERDESPORT GMBH & CO KG, GRAZ

**11/2018 – 07/2019**

**CASHIER**, KRÄMER PFERDESPORT GMBH & CO KG, GRAZ

**07/2018**

**STUDENT INTERN**, SPACE RESEARCH INSTITUTE, AUSTRIAN ACADEMY OF SCIENCES, GRAZ

Colorado Ultraviolet Transit Experiment Data Simulator

Supervisor: Luca Fossati, Aickara Gopinathan Sreejith • FEMtech Summer Internship

**07/2017**

**STUDENT INTERN**, SPACE RESEARCH INSTITUTE, AUSTRIAN ACADEMY OF SCIENCES, GRAZ  
Instrumental Meteorological Record for Styrian Village from 1819 to 1821  
Supervisor: Bruno P. Besser • FEMtech Summer Internship

**07/2016 – 07/2017**

**DELIVERER**, ÖSTERREICHISCHE POST AG, GRAZ

**11/2018 – 07/2019**

**INTERN**, DRESSUR UND AUSBILDUNGSSTALL LANGEHANENBERG, BILLERBECK

## EDUCATION

**PRESENT**

**PHD IN PHYSICS**, UNIVERSITY OF GRAZ, GRAZ  
'Understanding the Global Magnetic Structure of Coronal Mass Ejections using hyper-fast Models'  
Supervisors: Helmut Lammer, Christian Möstl

**2020-2022**

**MASTER IN THEORETICAL AND COMPUTATIONAL PHYSICS**, UNIVERSITY OF GRAZ, GRAZ  
Graduated with Distinction  
'Deep Learning for the Automatic Detection of Interplanetary Coronal Mass Ejections'  
Supervisor: Ute V. Amerstorfer, Andreas Windisch

**2019**

**EXCHANGE SEMESTER (ISEP)**, UNIVERSITY OF KENTUCKY, LEXINGTON  
Machine Learning; Stars, Galaxies and the Universe; Interaction of Radiation with Matter,

**2015-2020**

**BACHELOR IN PHYSICS**, UNIVERSITY OF GRAZ, GRAZ  
'Online Gaussian Process Regression'  
Supervisor: Wolfgang von der Linden, Sascha Ranftl

## CERTIFICATES & PROJECTS

- **ESN BUDDY PROGRAM**  
Providing guidance and support for international students in Graz.
- **MEDIATION AND CONFLICT MANAGEMENT**  
Member of the organization for mediation and conflict management in high school.

- **LAUNCH OF A WEATHER BALLOON TO STRATOSPHERE**  
Student project on performing measurements in the stratosphere using a weather balloon.
- **JUNIOR COMPANY**  
Founding the JUNIOR Company lumin[ø] within Junior Achievement Austria.
- **ENTREPRENEUR'S SKILLS CERTIFICATE**  
Acquiring entrepreneurial qualities and knowledge.

## PEER-REVIEWED PUBLICATIONS

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Möstl, C., Amerstorfer, T., Bailey, R. L. and Reiss, M. A., Automatic Detection of Interplanetary Coronal Mass Ejections in Solar Wind In Situ Data. *Space Weather*, 20, 10, 2022. DOI: [10.1029/2022SW003149](https://doi.org/10.1029/2022SW003149)

Reiss, M. A., Möstl, C., Bailey, R. L., **Rüdissler, H. T.**, Amerstorfer, U. V., Amerstorfer T., Weiss, A. J., Hinterreiter, J. and Windisch A., Machine learning for predicting the Bz magnetic field component from upstream in situ observations of solar coronal mass ejections. *Space Weather*, 19, 12, 2021. DOI: [10.1029/2021SW002859](https://doi.org/10.1029/2021SW002859)

Sreejith, A.G., Fossati, L., Fleming, B. T., France, K. C., Koskinen, T. T., Egan, A., **Rüdissler, H. T.**, and Steller, M., Colorado Ultraviolet Transit Experiment Data Simulator. *Journal of Astronomical Telescopes, Instruments, and Systems*, 5, 1, 2019. DOI: [10.1117/1.JATIS.5.1.018004](https://doi.org/10.1117/1.JATIS.5.1.018004)

## CONFERENCE TALKS

Möstl, C., Weiss, A., Amerstorfer, U. V., **Rüdissler, H. T.**, Amerstorfer, T., Bauer, M., Bailey, R. L., Reiss, M. A., Barnes, D., Davies, J. A., Harrison, R. A., Davies, E., Laker, R., Horbury, T. S. and Bale, S., Multipoint In Situ and Imaging Observations of Interplanetary Coronal Mass Ejections with Solar Orbiter, BepiColombo, Parker Solar Probe, Wind, and STEREO-A, *AGU Fall Meeting (12–16 December 2022), Chicago, USA*

Möstl, C., Weiss, A. J., Bailey, R. L., Reiss, M. A., Amerstorfer, T., Amerstorfer, U. V., Bauer, M., **Rüdissler, H. T.**, Barnes, D., Davies, J. A., Harrison, R. A., Laker, R., Horbury, T., Heyner, D., Bale, S. Predicting the Bz magnetic field component in solar coronal mass ejections, *European Space Weather Week (24–28 October 2022), Zagreb, Croatia*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Möstl, C., Bailey, R. L., Amerstorfer, T., Reiss, M. A., Automatic Detection of Interplanetary Coronal Mass Ejections in Solar Wind In Situ Data, *European Space Weather Week (24–28 October 2022), Zagreb, Croatia*

**Rüdissler, H. T.**, Amerstorfer, U. V., and Soucek, J., Machine Learning Pipeline for Automated Detection of Magnetospheric Boundaries, *Europlanet Science Congress (18–23 September 2022), Granada, Spain*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Möstl, C., Bailey, R. L., Amerstorfer, T., Reiss, M. A., Automatic Detection of Interplanetary Coronal Mass Ejections, *EGU General Assembly (23–27 May 2022)*, Vienna, Austria

Reiss, M. A., Möstl, C., Bailey, R. L., **Rüdissler, H. T.**, Amerstorfer, U. V., Amerstorfer, T., Weiss, A., Hinterreiter, J., Windisch, A., Predicting the Bz magnetic field component from upstream in situ observations of coronal mass ejections using machine learning, *EGU General Assembly (23–27 May 2022)*, Vienna, Austria

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Möstl, C., Bailey, R. L., Amerstorfer, T., Reiss, M. A., Machine Learning Pipeline for Automated Detection of ICMEs, *Europlanet Science Congress (13–24 September 2021)*, Online

## SEMINAR TALKS

**Rüdissler, H. T.**, Time Series Event Detection, Neural Networks 2 (27 January 2023), FH Joanneum, Graz, Austria

**Rüdissler, H. T.**, Automatic Detection of ICMEs in Solar Wind Data, Seminar: Machine Learning in Heliophysics – Trailblazers in Graz (21 April 2022), Space Research Institute, Austrian Academy of Sciences, Graz

**Rüdissler, H. T.**, Automatic Detection of ICMEs in Wind, STEREO A and STEREO B Data using Deep Neural Networks and Computer Vision Techniques, Solar Orbiter Science Working Group (7 June 2021), Online

## SESSION CONVENING

Amerstorfer, U. V., Julka, S., **Rüdissler, H. T.**, D'Amore, M., Rossi, A. P., Machine Learning in Planetary Sciences *Europlanet Science Congress (18–23 September 2022)*, Granada, Spain

Amerstorfer, U. V., Julka, S., **Rüdissler, H. T.**, D'Amore, M., Rossi, A. P., Machine Learning in Planetary Sciences and Heliophysics, *EGU General Assembly (23–27 May 2022)*, Vienna, Austria

Amerstorfer, U. V., Julka, S., **Rüdissler, H. T.**, D'Amore, M., Rossi, A. P., Machine Learning in Planetary Sciences *Europlanet Science Congress (13–24 September 2021)*, Online

## CONFERENCE POSTERS

**Rüdissler, H.T.**, Reiss, M., Möstl, C., Amerstorfer, T., Amerstorfer, U. V., Weiss, A., Bailey, R., Windisch, A., Hinterreiter, J., Gonzi, S. and Jackson, D. Machine Learning for solving the Bz Problem in Space Weather Forecasting, *AGU Fall Meeting (12–16 December 2022)*, Online

Reiss, M. A., Möstl, C., Bailey, R. L., **Rüdissler, H. T.**, Amerstorfer, U. V., Amerstorfer, T., Weiss, A., Hinterreiter, J., and Windisch, A., Can Machine Learning solve the „Bz Problem” in Interplanetary Coronal Mass Ejections? *European Space Weather Week (24–28 October 2022), Zagreb, Croatia*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Píša, D., and Soucek, J., Automatic Detection and Classification of Boundary Crossings in Spacecraft in situ Data, *Europlanet Science Congress (18–23 September 2022), Granada, Spain*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Píša, D., and Soucek, J., Automatic Detection and Classification of Boundary Crossings in Spacecraft in situ Data, *AGU Fall Meeting (13–17 December 2021), Online*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Möstl, C., Bailey, R. L., Amerstorfer, T., Reiss, M. A., Automatic Detection of Interplanetary Coronal Mass Ejections, *AGU Fall Meeting (13–17 December 2021), Online*

Reiss, M. A., Möstl, C., Bailey, R. L., **Rüdissler, H. T.**, Amerstorfer, U. V., Amerstorfer, T., Weiss, A., Hinterreiter, J., Windisch, A., Machine Learning for predicting the Bz magnetic field component from upstream in situ observations of solar coronal mass ejections, *AGU Fall Meeting (13–17 December 2021), Online*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Píša, D., and Soucek, J., Automatic Detection and Classification of Boundary Crossings in Spacecraft in situ Data, *Europlanet Science Congress (13–24 September 2021), Online*

**Rüdissler, H. T.**, Windisch, A., Amerstorfer, U. V., Möstl, C., Bailey, R. L., Amerstorfer, T., Reiss, M. A., Automatic Detection and Classification of ICMEs in Solar Wind Data, *EGU General Assembly (19–30 April 2021), Online*

Besser, B. P., **Rüdissler, H. T.**, Grinschgl, E., Eichelberger, H. U., Stachel, M., Automatic Detection and Classification of ICMEs in Solar Wind Data, Instrumental meteorological record for Styrian village from 1819 to 1821, *EGU General Assembly (8–13 April 2018), Vienna, Austria*