

## **Dr. Nils C. Prieur**

Date of Birth: 27.05.1988

Nationality: French and Norwegian

Postdoctoral Researcher

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## **Academic and Professional Experience**

Machine Learning Engineer	Field Geospatial Norway	2024–
Postdoctoral Researcher/Researcher	University of Oslo	2023–2024
Postdoctoral Researcher/Researcher	Stanford University	2021–2023
Scientific Software & ML Engineer	Science & Technology AS (Oslo)	2019–2021
Postdoctoral Researcher	University of Oslo	2018–2020
PhD in Planetary Sciences	University of Oslo	2014–2018
Civil Engineer/Hydrologist	SWECO (Consulting, Oslo)	2012–2014
Hydrologist	Statkraft (Hydropower, Oslo)	2011–2012

## **Education**

PhD in Planetary Sciences	University of Oslo (NO)	2014–2018
MSc in Remote Sensing, Hydrology and Physical Geography	University of Oslo (NO)	2009–2011
One-year study in Arctic Technology	University of Svalbard (NO)	2008–2009
Two-year Instrumentation and Measurements (IUT) diploma	Université d'Aix-Marseille (FR)	2006–2008

## Awards & Fellowships

1. **ATELIER-EO** (2022–2025). co-PI of the first proposal in 2021.  
Automated machine learning framework tailored to Earth Observation.  
*Innovasjonsprosjekt i næringslivet*, funded by the Research Council of Norway in 2022 after minor revision. 6.9 MNOK awarded to Science & Technology Norway AS.
2. **BOULDERING: Deep Learning for Boulder Detection on Planetary Surfaces.** (2021–2024). PI. Marie Skłodowska-Curie Global Postdoctoral Fellowship. 284,345€.
3. **A Deep Learning approach for boulder detection: The key to understand planetary surfaces evolution and their crater statistics-based ages** (2021–2024). PI.  
MSCA-TOPP-UT, Norwegian Research Council. 400,000 NOK.
4. **Cratering rates on Moon and Mars** (2018–2020). co-PI of a two-year postdoctoral fellowship funded by ESA and Norwegian Research Council . Salary for two years.
5. **IS-DAAD**, Researcher exchange travel grant between Norway and Germany (2014–2017). ~50,000 NOK.

## Selected Peer-Reviewed Publications

(6 published, 1 accepted, 20 abstracts as of 14/08/2023)

1. **Prieur, N. C.**, Amaro, B., Gonzalez, E., Kerner, K., Medvedev S., Rubanenko L., Werner, S. C., Xiao, X., Zastrozhnov, D., Lapôtre, M. G. A. Automatic characterization of boulders on planetary surfaces from high-resolution satellite images. **Accepted in Journal of Geophysical Research: Planets the 02/11/2023. DOI: 10.1029/2023JE008013.**
2. Wu B., Wang Y., Werner S. C., **Prieur, N.C.**, Xiao Z. (2022). Global analysis of crater depth/diameter ratios on the Moon. *Geophysical Research Letters*. <https://doi.org/10.1029/2022GL100886>.
3. Ding C., Xiao Z., Wu B., Li Y., **Prieur, N.C.**, Cai Y., Su Y., Cui J. (2020). Fragments delivered by secondary craters at the Chang'E-4 landing site. *Geophysical Research Letters*. <https://doi.org/10.1029/2020GL087361>.
4. **Prieur, N.C.**, Rolf T., Luther R., Wünnemann K., Xiao Z., Werner S. C. (2018). Formation of simple impact craters in layered targets: Implications for lunar crater morphology and regolith thickness. *Journal of Geophysical Research: Planets*. <https://doi.org/10.1029/2017JE005463>.

5. **Prieur, N.C.**, Rolf T., Wünnemann K., Werner S. C. (2017). The effect of target properties on transient crater scaling for simple craters. *Journal of Geophysical Research: Planets*. <https://doi.org/10.1002/2017JE005283>.
6. Xiao Z., **Prieur, N.C.**, Werner S. C. (2016). The Self-Secondary Crater Population of the Hokusai Crater on Mercury: Self-Secondaries of Hokusai. *Geophysical Research Letters*. <https://doi.org/10.1002/2016GL069868>.

### **Selected Presentations (talks and posters)**

1. Amaro, B., **Prieur, N. C.**, Rubanenko, L., Lapôtre M. G. A. (2023): Rock abundance maps on the Moon from automated boulder measurements. American Geophysical Union Conference 2023.
2. **Prieur, N. C.**, Gonzalez, E., Amaro, B., L. Rubanenko, Z. Xiao, S. Werner, H. Kerner, Lapôtre M. G. A. (2023): Distribution of impact-generated boulders on planetary surfaces: Influence of target fracturation and lithology. The 54th Lunar and Planetary Science Conference (LPSC), Houston, USA. Abstract #2903.
3. **Prieur, N. C.**, Gonzalez, E., Amaro, B., L. Rubanenko, Z. Xiao, S. Werner, H. Kerner, M. G. A. Lapôtre (2022b): Deep Learning for Boulder Detection on Planetary Surfaces. American Geophysical Union Conference 2022. Abstract #P23A.
4. **Prieur, N.C.**, L. Rubanenko, Z. Xiao, H. Kerner, S.C. Werner and M.G.A. Lapôtre. (2022a): A large training dataset of boulder sizes and shapes as a first step towards the automated detection of rock fragments on planetary surfaces. The 53rd Lunar and Planetary Science Conference (LPSC), Houston, USA. Abstract #1835.
5. **Prieur, N. C.**, Werner, S. C. (2020): (Dis)similarities in the distributions of the shapes of large fresh impact craters on Mercury, Moon and Mars. What can we learn from them? Nordic Geological Winter Meeting, 8th-10th January 2020, Oslo, Norway.
6. Bultel, B., Gilje, K., Karlsson, R., Krzesinska, A., **Prieur, N. C.**, Rolf, T., Uppalapati, S. and Werner, S. C. (2019): The study of the crater formation process in situ and cratering chronology aspects. Cooperation between the European and Chinese Space Agency, 25th-26th July 2019, Zhuhai, China. Presenting author N. C. Prieur.
7. **Prieur, N. C.**, Werner, S. C. (2019): Constraining Impact Numerical Model Parameters with the Help of Fresh Simple Craters on the Moon. Lunar and Deep Space Exploration, 22th-24th July 2019, Zhuhai, China.

## **Invited Lectures**

University of Santa Cruz (2022); Center for Earth Evolution and Dynamics (2021); Department of Geosciences, University of Oslo (2020). Natural Museum of History of Berlin (2019). Center for Earth Evolution and Dynamics (2018). Norwegian Water Energy and Resources Directorate (2012).

## **Languages**

I speak Norwegian, French (my mother tongue), and English fluently.

## **Skills**

**Programming workflow:** Python, SLURM, BASH, PyCharm, TMUX & GitHub.

**Other programming languages known:** R, Matlab & Fortran.

**Engineering software:** QGIS, ArcGIS, PCI Geomatics, Agisoft Metashape & more...

**Operating Systems:** LINUX (preferred), UNIX & Windows.