

Dr. Jurjen de Jong

Postdoctoral researcher at Leiden University

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Profile

I am a postdoctoral researcher, radio astronomer, and software developer at Leiden Observatory and ASTRON. My work focuses on developing and improving data-reduction strategies and techniques for automated processing of radio interferometric data from the European LOw Frequency ARray (LOFAR) to produce wide-field sub-arcsecond resolution images on HPC clusters from Surf. Scientifically, I am also interested in studying the cosmic evolution of radio galaxies and the mergers of galaxy clusters.

Professional Experience

Radio Astronomer & Software Developer – ASTRON Developing (parts of) the LOFAR VLBI calibration and imaging pipeline in collaboration with Leiden Observatory.	Jan 2025 – present
Radio Astronomer – Leiden Observatory PhD candidate (2021–2024), postdoctoral researcher (2025–now) Studying radio galaxy evolution, pre-merging galaxy clusters, and developing the LOFAR-VLBI pipeline.	Jan 2021 – present
Visiting Researcher – Durham University Working on the data release of the deepest ever radio image and the development of the LOFAR VLBI pipeline.	Nov 2025 – Dec 2025
Data Scientist – Matrixian Group Developing machine-learning pipelines, address validators for (inter)national postal companies, and APIs for various commercial clients.	Feb 2019 – Jan 2021
Astronomer Intern – European Space Agency Testing Benford’s law on stellar distances on Gaia data; resulted in A&A publication.	Sep 2018 – Jan 2019
Science Writer – Scientias Authored popular-science articles on physics, mathematics, computing, and space engineering.	Aug 2017 – Jan 2020
Mechanical Engineer Intern – EPPM Tunisia Automated stress-calculation workflows for lifting-lug designs.	Jun 2017 – Aug 2017

Education

PhD in Radio Astronomy – Leiden University (the Netherlands)	Jan 2021 – Dec 2024
MSc in Space Studies – KU Leuven (Belgium) Including summer exchange program to National Cheng Kung University (國立成功大學) (Taiwan)	Sep 2017 – Dec 2018
MSc in Mathematics – Ghent University (Belgium) Including Erasmus+ exchange to Uppsala University (Sweden)	Sep 2015 – Jun 2017
BSc in Physics – Utrecht University (the Netherlands)	Sep 2013 – Jul 2015
BSc in Mathematics – Utrecht University (the Netherlands)	Sep 2012 – Jul 2015
Propedeutics in Mechanical Engineering – Avans Breda (the Netherlands)	Sep 2011 – Jul 2012

Selected Publications

First-authored

- De Jong et al., “Cosmic Depth and Detail: Advancing LOFAR imaging workflows to unveil the deep high-resolution universe,” PhD-thesis (2025)
- De Jong et al., “Scalable and robust wide-field facet calibration with LOFAR’s longest baselines,” MNRAS (2025)
- De Jong et al., “Unlocking ultra-deep wide-field imaging with sidereal visibility averaging,” A&A (2025)
- De Jong et al., “Into the Depths: Unveiling ELAIS-N1 with LOFAR’s deepest sub-arcsecond wide-field images,” A&A (2024)
- De Jong et al., “Cosmic evolution of FRI and FRII sources out to $z = 2.5$,” A&A (2024)
- De Jong et al., “Deep study of A399–401: Application of a wide-field facet calibration,” A&A (2022)
- De Jong et al., “Benford’s law in the Gaia Universe,” A&A (2020)

Co-authored

- Shimwell et al., “The LOFAR Two-metre Sky Survey. VII. Third Data Release,” A&A (2026)
- Escott et al., “The sub-arcsecond ILT view of the Boötes Deep Field: A link between low-frequency kiloparsec radio morphology and AGN driven ionised outflows,” MNRAS (2026)
- van Weeren et al., “MeerKAT observations of Abell 1775 and Abell 1795: the discovery of a hadronic radio halo?,” MNRAS (2026)
- Romain et al., “Building Capacity for FAIR and Open Science: Insights from the World Café sessions at the OSCARS 1st AGM,” Open Research Europe Journal (2025)
- De Rubeis et al., “Revealing the intricacies of radio galaxies and filaments in the merging galaxy cluster Abell 2255. II. Properties of filaments using multi-frequency radio data,” A&A (2025)
- Clews et al., “Radio-loud AGN morphology and host-galaxy properties in the LOFAR Two-Metre Sky Survey Data Release 2,” MNRAS (2025)
- De Rubeis et al., “Revealing the intricacies of radio galaxies and filaments in the merging galaxy cluster Abell 2255: I. Insights from deep LOFAR-VLBI sub-arcsecond resolution images,” A&A (2025)
- Morabito et al., “A decade of sub-arcsecond imaging with the International LOFAR Telescope,” Ap&SS (2025)

Shimwell et al., *"The LOFAR Two-metre Sky Survey: Deep Fields Data Release 2: I. The ELAIS-N1 field," A&A* (2025)

Morabito et al., *"A hidden AGN population: radio luminosity functions by physical process," MNRAS* (2024)

Pignataro et al., *"Abell 0399–0401 radio bridge spectral index," A&A* (2024)

Groeneveld et al., *"The Decameter sky at sub-arcminute resolution," Nature Astronomy* (2024)

Ye et al., *"1 arcsec imaging of ELAIS-N1 at 144 MHz using LoTSS," A&A* (2024)

Talks

Colloquia

Chalmers University of Technology – Gothenburg, Sweden (2025)

Leiden University – Leiden, the Netherlands (2025)

ASTRON – Dwingeloo, the Netherlands (2025)

Invited

Netherlands Astronomy Conference – Berg en Dal, the Netherlands (2025)

URSI Atlantic Radio Science Conference – Gran Canaria, Spain (2024)

Contributed

Machine learning journal club – Durham, United Kingdom (2025)

AGN journal club – Durham, United Kingdom (2025)

CORTEX annual meeting – Leiden, the Netherlands (2025)

10th International VLBI Technology Workshop (IVTW) – Gothenburg, Sweden (2025)

LOFAR Family Meeting – Paris, France (2025)

OSCARS Annual Meeting – Rome, Italy (2025)

Astronomical Data Analysis Software and Systems (ADASS) – Valletta, Malta (2024)

Teaser talk - ASTRON – Dwingeloo, the Netherlands (2024)

LOFAR Family Meeting – Leiden, the Netherlands (2024)

SKA Pathfinder Radio Continuum Survey (SPARCS) – Bologna, Italy (2024)

CORTEX annual meeting – Utrecht, the Netherlands (2024)

Science At Low Frequencies – Amsterdam, the Netherlands (2023)

LOFAR Family Meeting – Olsztyn, Poland (2023)

Deep field symposium – Online (2023)

SKA Pathfinder Radio Continuum Survey (SPARCS) – Johannesburg, South-Africa (2022)

IAU General Assembly XXXI – Busan, South-Korea (2022)

Software Experience

Skills

Programming Languages: Python, Bash, R, SQL, CWL, Julia, Rust

Database management: MySQL, MongoDB

Cluster management: HPC, Slurm

Project management: Scrum, Jira, Trello

DevOps tools: Singularity, Docker, Version control (Git)

Machine learning: Scikit-learn, Keras, Tensorflow, PyTorch

Website development: Wix, WordPress, HTML, Markdown

Other: Tableau (dashboards), SolidWorks (engineering), LaTeX (writing)

Projects

Co-developer of CWL workflows for automated data reduction for high-resolution LOFAR imaging – <https://github.com/LOFAR-VLBI/pilot>

Co-developer of calibration software for radio telescopes – https://github.com/rvweeren/lofar_facet_selfcal/

Lead developer of Sidereal Visibility Averaging to obtain an order of magnitude speed improvements for interferometric imaging – https://github.com/jurjen93/sidereal_visibility_avg

Lead developer of Python package with tools for data processing with LOFAR – https://github.com/jurjen93/lofar_helpers

Co-developer for Machine Learning pipeline to predict house prices in the Netherlands, as employee of Matrixian Group

Lead developer for Address Validator for PostNL and DPD, as employee of Matrixian Group, as employee of Matrixian Group

Lead developer of Machine Learning pipeline for mortgage prepayment prediction, as part of a collaboration between Volksbank and Matrixian Group

Teaching & Supervision

Msc research project – E. Woest	Sep 2025 - Jul 2026
Summer student internship – M.S. Abay	Jul 2025 - Aug 2025
Msc research project – S.E. Bokhove	Sep 2024 - Jul 2025
Bsc research project – V. Chakawri	Jan 2024 - Jul 2024
Bsc research project – D. de Jong & Q. van Zegveld	Jan 2024 - Jun 2024
Summer student internship – L. Deniaud	Jun 2024 - Aug 2024
Bsc research project – A. Villarrubia-Aguilar & F.F. Vecchi	Jan 2021 - Jun 2024
Teaching Assistant – “Radio Astronomy” MSc course, Leiden University	Sep 2021 – Dec 2024

Organisational experience

Stamily meetup 2026 – Main organiser for 3-day meeting for people who stutter in Portugal (40 participants).

ISA World Congress 2025 – Volunteer during world congress for people who stutter in Finland (160 participants).

Hackathon 2025 – Main organiser for 4-day hackathon in Leiden for the LOFAR VLBI pipeline in the Netherlands (12 participants).

LOFAR Family Meetup 2024 – Co-organised the LOFAR family meeting (150 participants).

Stamily meetup 2023 – Main organiser for 3-day meeting for people who stutter in the Netherlands (40 participants).

Stamily meetup 2022 – Main organiser for 3-day meeting for people who stutter (40 participants).

Co-founder Stamily 2020 – Co-founder of the organisation Stamily, which is an organisation that provides an international supporting network for people who have a stutter.

Languages

Dutch (native)

English (fluent)

German (intermediate)

Swedish (basic)

Awards

Computing grants

NWO – Spider computing grant (2025) – 7 million CPU core hrs + 880 TB disk space + 1 PB tape

Surf – Snellius computing grant (2025) – 50k SBU GPU + 60k CPU core hrs + 6 TB disk space

NWO – Spider computing grant (2023) – 5 million CPU core hrs + 500 TB disk space + 250 TB tape

SURF – Spider computing grant (2022) – 1 million CPU core hrs + 200 TB disk space

SURF – Spider computing grant (2021) – 1 million CPU core hrs + 200 TB disk space

Scholarships

Leids Kerkhoven-Bosscha Fonds travel grant (2025)

Leids Kerkhoven-Bosscha Fonds travel grant (2021)

Flanders Trainee award for international internships (2018)

Scholarship from Leuven University for exchange to Taiwan (2017)

Erasmus+ scholarship for exchange to Sweden (2016)

Other

First place at the first round of the Mathematical Olympiad at secondary school (2011)

Two times player of the year award at local hockey club (2009-2010)

Chess champion at a competition between 3 local primary schools (2002-2003)

Other activities

Co-Founder of Stamily – non-profit association for people who stutter (2018-present)