Machine learning for radio galaxy morphology analysis

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ASTRON

ASTRON is the Netherlands Institute for Radio Astronomy. ASTRON is part of the institutes organisation of NWO — the Dutch research council.

LOFAR is the Low Frequency Array designed and constructed by ASTRON. It has observing, data processing, and data storage facilities in several countries, which are owned by various parties (each with their own funding sources), and which are collectively operated by the ILT foundation under a joint scientific policy. The ILT resources have benefited from the following recent major funding sources: CNRS-INSU, Observatoire de Paris and Université d'Orléans, France; BMBF, MIWF-NRW, MPG, Germany; Science Foundation Ireland (SFI), Department of Business, Enterprise and Innovation (DBEI), Ireland; NWO, The Netherlands; The Science and Technology Facilities Council, UK; Ministry of Science and Higher Education, Poland; The Istituto Nazionale di Astrofisica (INAF), Italy.

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Cover art: Image created by a stable diffusion neural network hosted by stability.ai based on the prompt 'A field of LOFAR antennas underneath a sky of radio galaxies, painting by Vincent van Gogh'. The underlying stable diffusion model (Rombach et al., 2021) is available for use under the following license: https://huggingface.co/spaces/CompVis/stable-diffusion-license. In reality, LOFAR antennas are not steerable dishes as depicted. Future generative AI models might correctly paint LOFAR antennas as static.
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