

**Thavisha E. Dharmawardena**  
**Incoming Monash Faculty, Feb 2026**  
 (NASA Hubble Fellow)



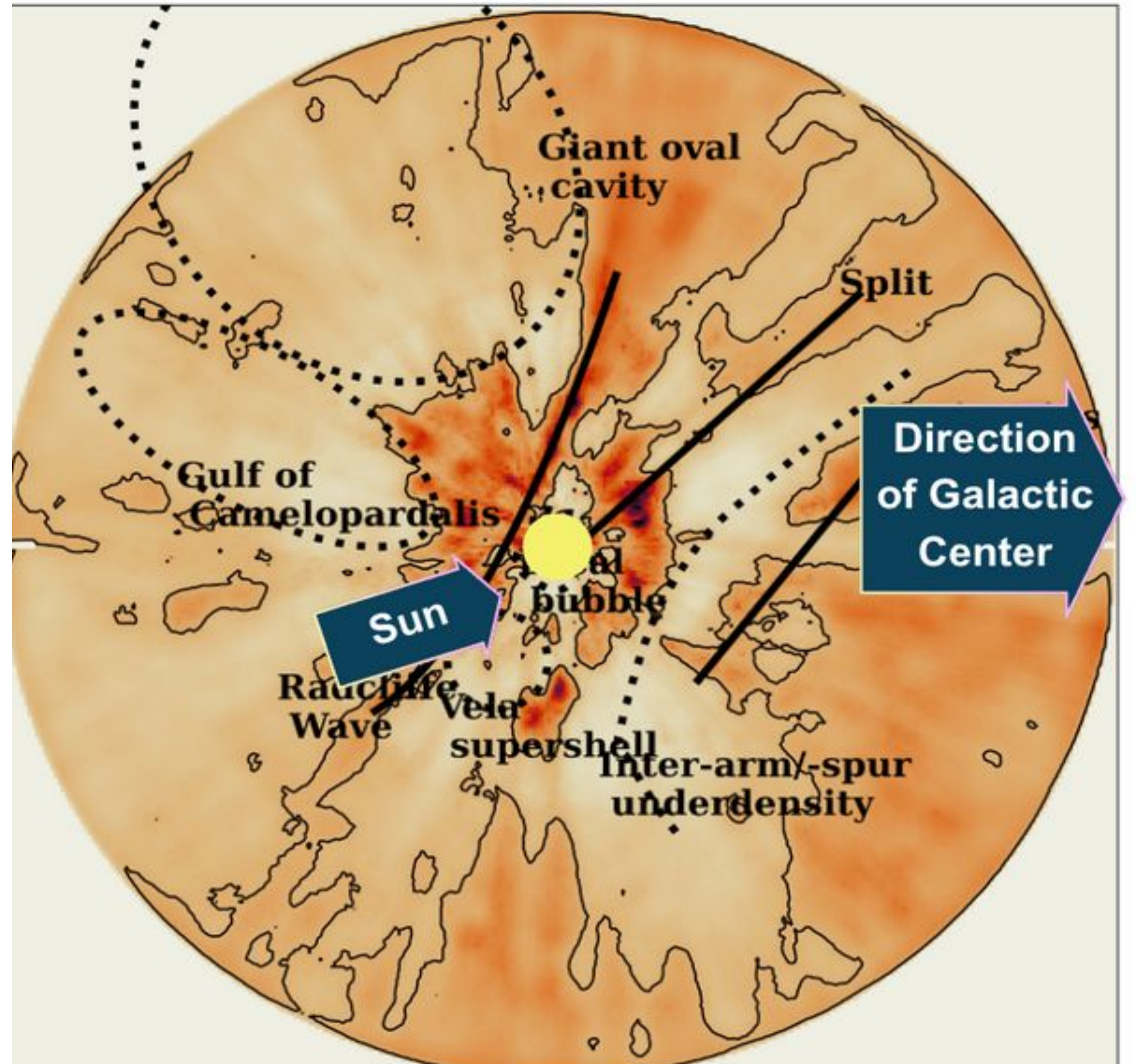
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**Who am I:**

- Data driven astronomer
- Developer of Open Source Software
- Galactic and Star Formation enthusiast
- Diversity, Equity and Inclusivity Driven

**I'm excited about exploring:**

- New ML/AI techniques
- Humungous datasets
- Creating compelling and engaging visualisation to communicate research
- Intersection between the arts and astronomy in public engagement

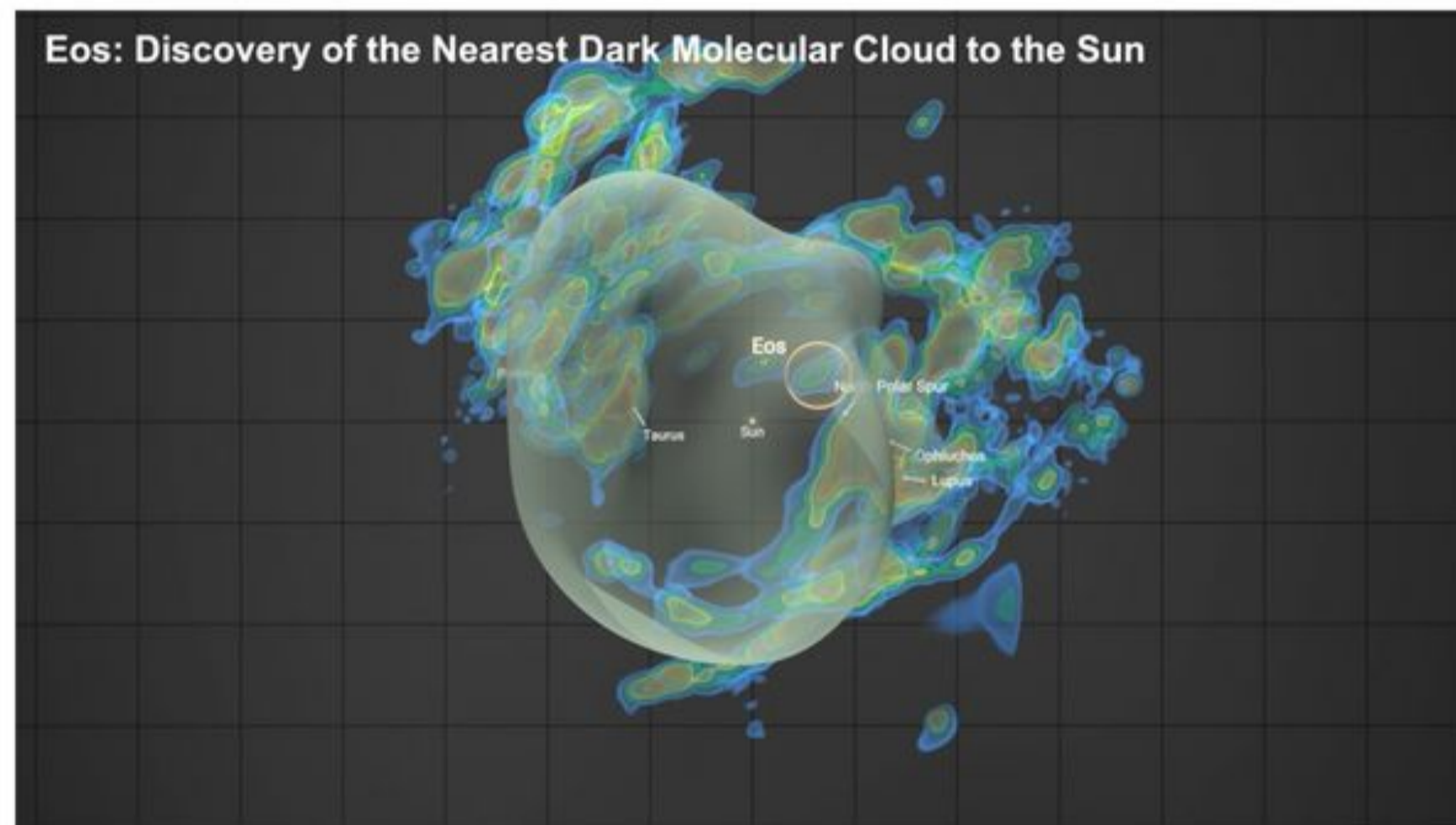


The New York Times

**A Massive, Glow-in-the-Dark Cloud Lurking in Our Cosmic Backyard**

The cloud, named Eos, is chock-full of molecular hydrogen and possibly rife with star-forming potential in the future.

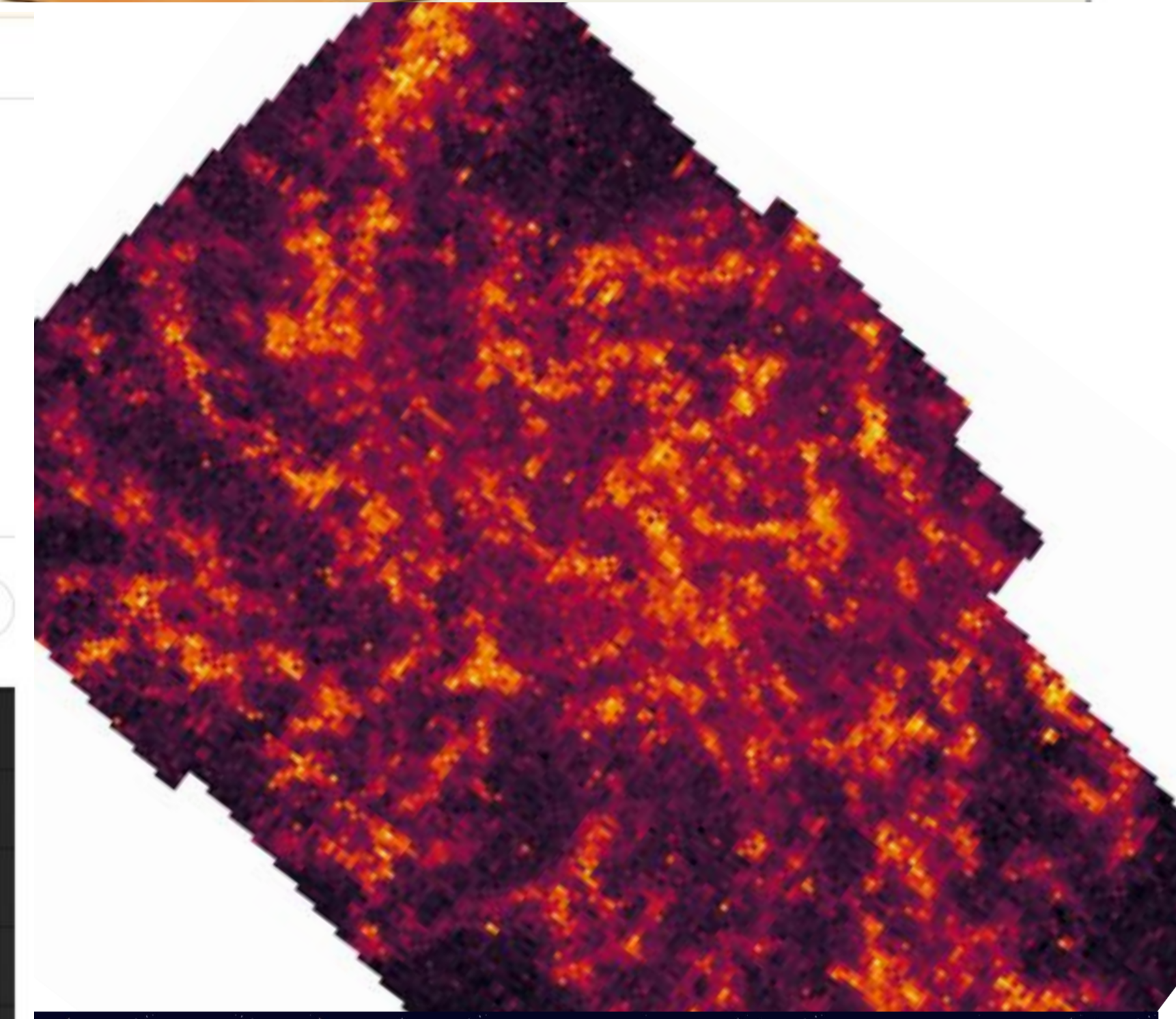
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A newly discovered potentially star-forming cloud that is one of the largest structures in the sky. Thomas Müller (HdA/MPIA) and Thavisha Dharmawardena (NYU)

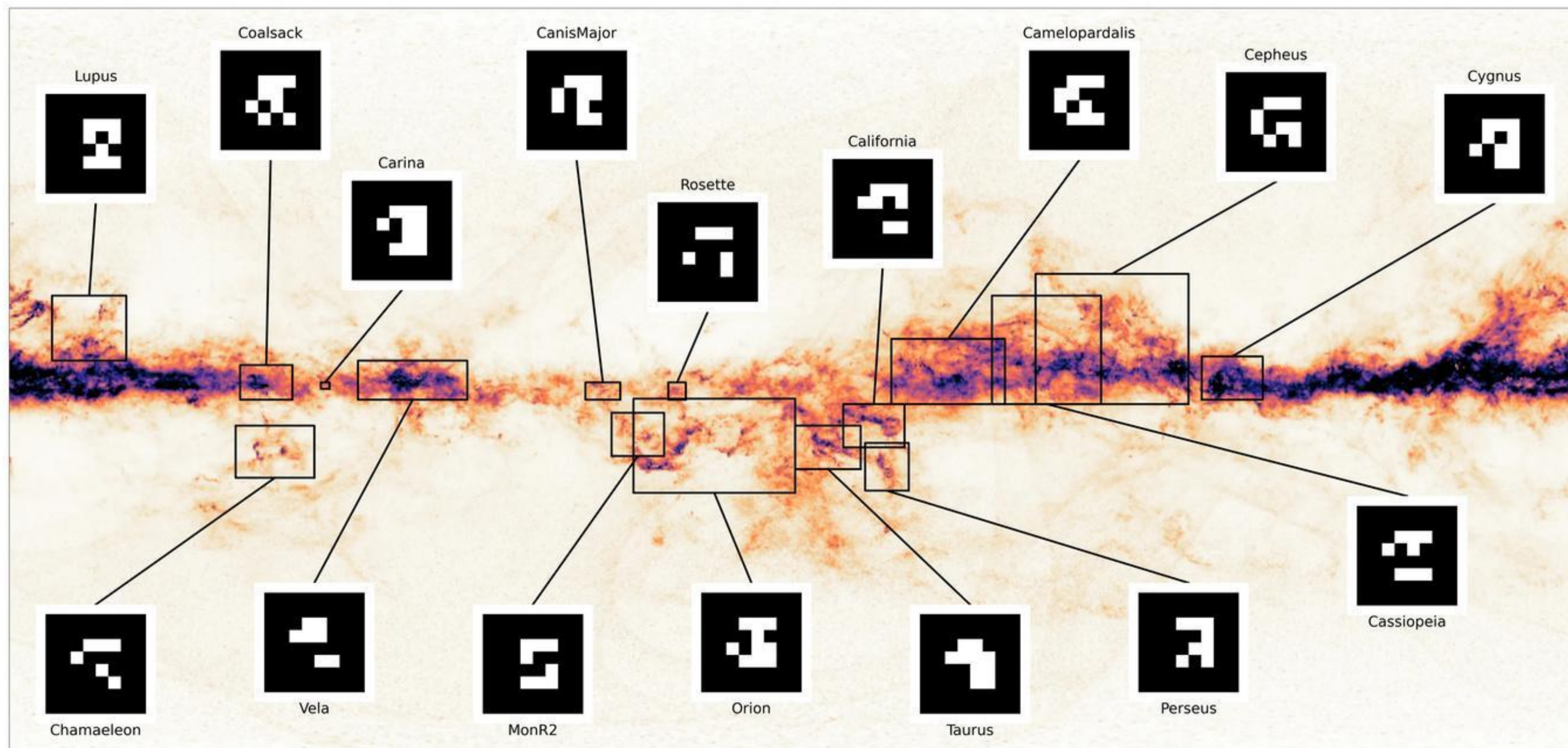
**What I'm excited to work on:**

- Milky Way and local universe galaxies - 3D structure and dynamics
- Interstellar Medium - Dust and Gas
- Star formation from sub-pc - kpc scales
- Evolved stars and Galactic enrichment
- Bridging simulations and observations in SF



**The three-dimensional Structure of Galactic Molecular Cloud Complexes out to 2.5 kpc**

Augmented-Reality view of Dust Contours



Interstellar dust encompasses less than 1% of the total baryonic matter in the universe and yet plays a crucial role in key processes such as Hydrogen catalyztion and star and planet formation. Further, interstellar dust is key to understanding the structure of the Milky Way. This dust absorbs, scatters and reemits star light which is known as an effect called reddening. Using this reddening along with accurate distances to stars using ground breaking mission such as Gaia and novel machine learning techniques we are able to trace the structure of Milky Way all the way from small scale star-formation regions to massive spiral arm structure. In this poster we use the **Distribution** algorithm (Dharmawardena et al., 2022a) which maps the 3D density structure of the Milky Way along with extinction and distance data from the Fousneau et al., 2022 catalogue to map the 3D structure of the extended environments of sixteen Galactic molecular clouds.

**How-To**

1. Scan the QR-Code in the lower right corner. This will open the corresponding website: ([www.mpia-hd.mpg.de/homes/tmueller/projects/ThavishaAR](http://www.mpia-hd.mpg.de/homes/tmueller/projects/ThavishaAR)).
2. Hold the camera of your tablet or mobile phone for one of the barcode markers to view the 3D structure of the dust cloud. Note that your camera always has to see the complete marker to work.
3. To increase or decrease a cloud use the config menu in the upper left corner. At this point you can also set some other parameters.



Credit: Data and code used to map the 3D structure of sixteen Galactic molecular clouds: Dharmawardena et al., 2022a, Dharmawardena et al., 2022b and Fousneau et al., 2022 / Background image: Gaia DR3 extinction (A<sub>v</sub>) map using data from Andrae et al., 2022 / Developed: Thomas Müller (HdA/MPIA)

