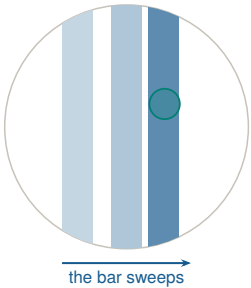
POPYLAR PRF WORKSHOP · COIMBRA · THURSDAY 5 NOVEMBER 2026, 09:00

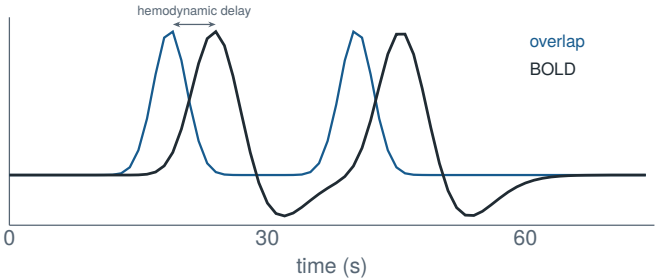
WELCOME TO THE POPYLAR WORKSHOP

Population receptive field modelling with prfmodel: where it came from, what we meant to build, and where we stand

Tomas Knapen

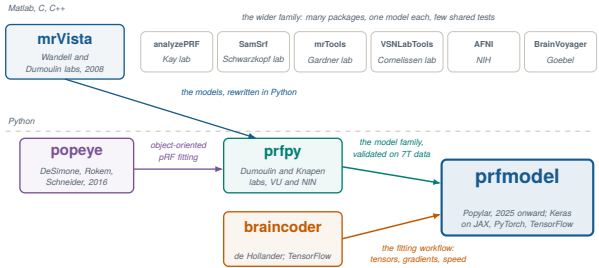
WHY WE ARE HERE





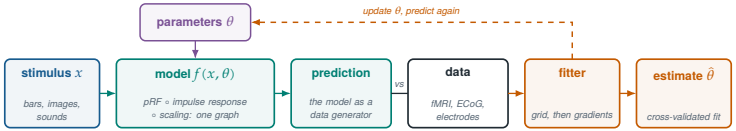
- A pRF: a model of what a neural population responds to *(Dumoulin and Wandell 2008)*.
- Eighteen years on: over a thousand papers, over a hundred labs, across species and measurements.

CREDIT WHERE CREDIT IS DUE



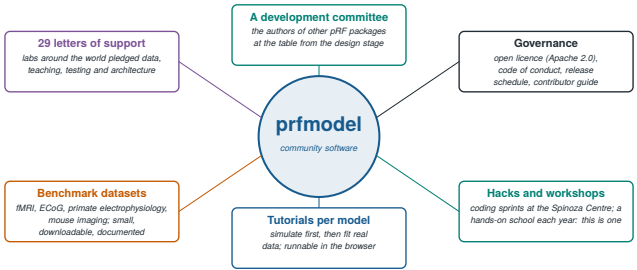
- Descended from mrVista, popeye, prfpy and braincoder *(DeSimone et al. 2016; Aqil et al. 2021)*.
- In 2024: over ten packages, limited model coverage, fragmented development.

WHAT WE PROPOSED: AN ENGINE



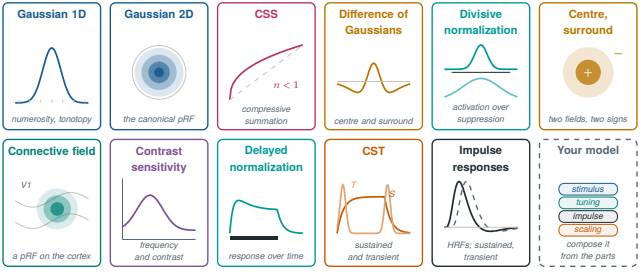
- Popylar, Open eScience Call 2024: eScience Center engineers, 2025 to 2027.
- One graph per model; simulate before you fit; run anywhere.

WHAT WE PROPOSED: A COMMUNITY



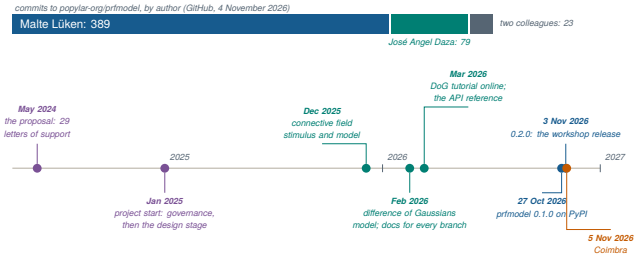
- 29 letters of support, several from authors of the other packages.
- Committee, Brain Hacks, shared tutorials and data, a yearly workshop.

WHERE WE STAND: PRFMODEL 0.2.0



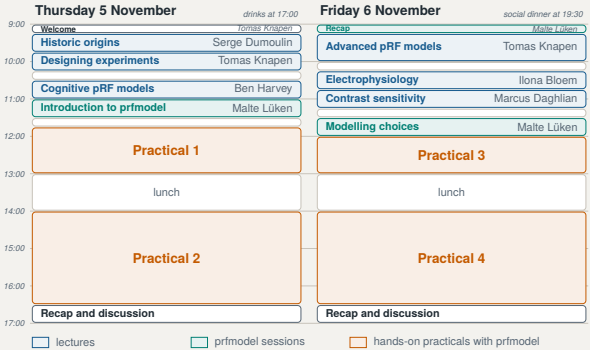
- 3 November: on PyPI, Apache 2.0, Keras on JAX, PyTorch or TensorFlow.
- Three fitters; six tutorials; four examples: fMRI, ECoG, numerosity, CF.

THE PERSON WHO BUILT IT



- Malte Lüken, eScience Center: architecture, models, tests, docs, releases.
- With José Angel Daza and colleagues, and our labs' modellers: thank you.

TWO DAYS



- Mornings: lectures. The rest: prfmodel in your hands, seven notebooks.
- Break it and tell us: an issue on GitHub is a contribution.

REFERENCES I

Aqil, Marco, Tomas Knapen, and Serge O. Dumoulin. 2021. “Divisive Normalization Unifies Disparate Response Signatures Throughout the Human Visual Hierarchy.” *Proceedings of the National Academy of Sciences* 118 (46): e2108713118. https://doi.org/10.1073/pnas.2108713118.

DeSimone, Kevin, Ariel Rokem, and Keith Schneider. 2016. “Popeye: A Population Receptive Field Estimation Tool.” *The Journal of Open Source Software* 1 (8): 103. https://doi.org/10.21105/joss.00103.

Dumoulin, Serge O., and Brian A. Wandell. 2008. “Population Receptive Field Estimates in Human Visual Cortex.” *NeuroImage* 39 (2): 647–60. https://doi.org/10.1016/j.neuroimage.2007.09.034.