

The Extragalactic Catalog of the S-PLUS Fornax Project (S+FP)

Large-scale structure in the direction of the Fornax cluster from membership probabilities

JP. Calderón, AV. Smith-Castelli, R. Haack, L. Gutiérrez-Soto, A. Lopez



Facultad de Ciencias
Astronómicas
y Geofísicas
UNIVERSIDAD NACIONAL DE LA PLATA



Outline

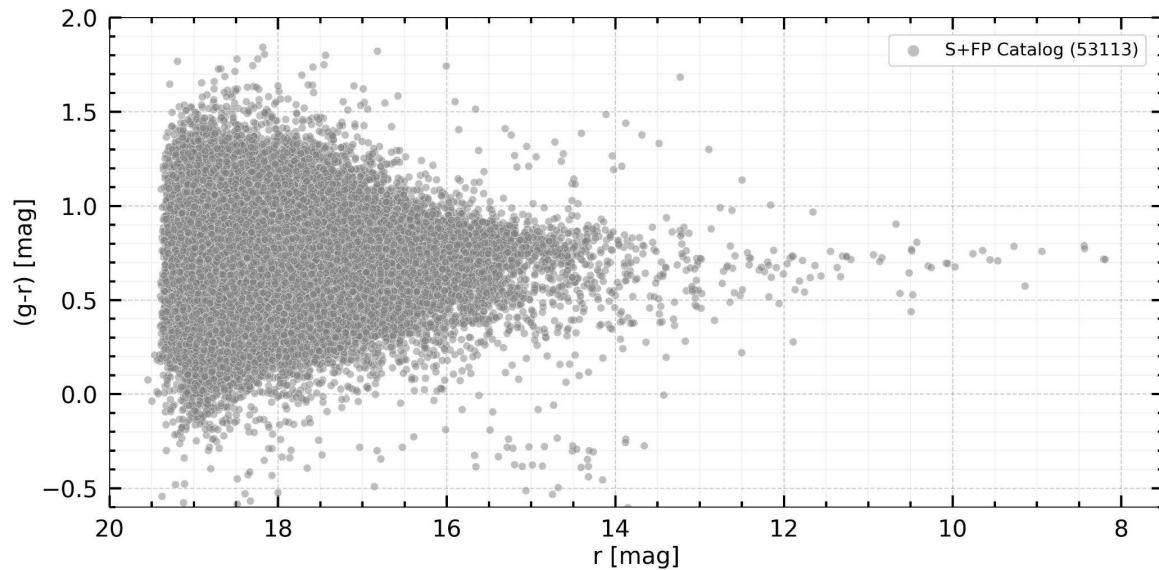
1. Motivation
2. Samples description
3. Algorithm
4. Results
5. Next steps

1. Motivation

Our main goal is to statistically characterize the Fornax galaxy population by utilizing structural and photometric parameters obtained from SExtractor runs.

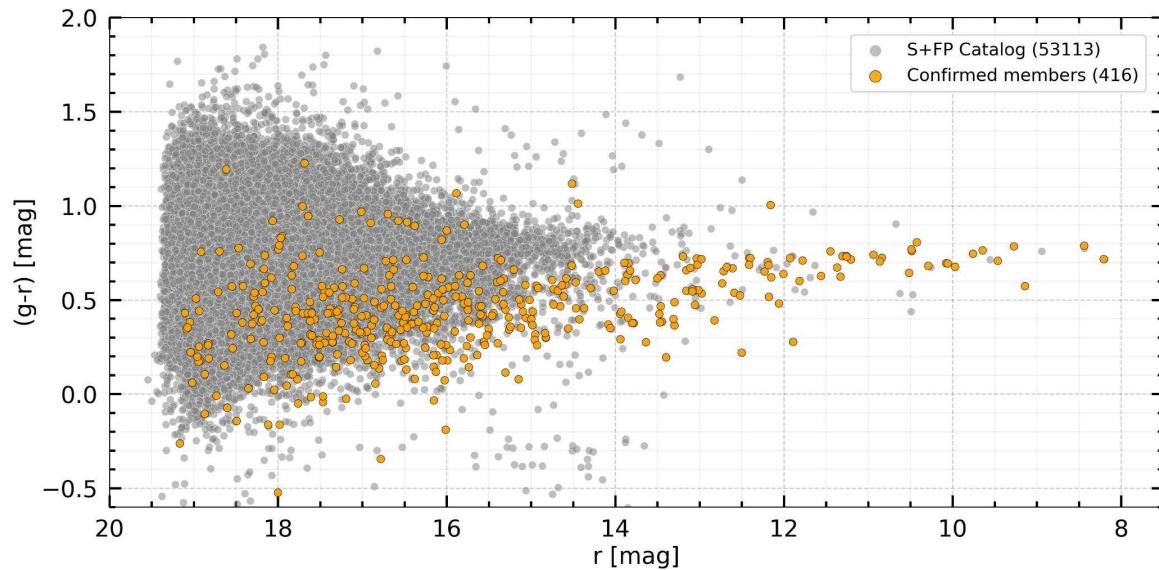
This approach aims to identify new members of the Fornax galaxy cluster.

2. Samples description



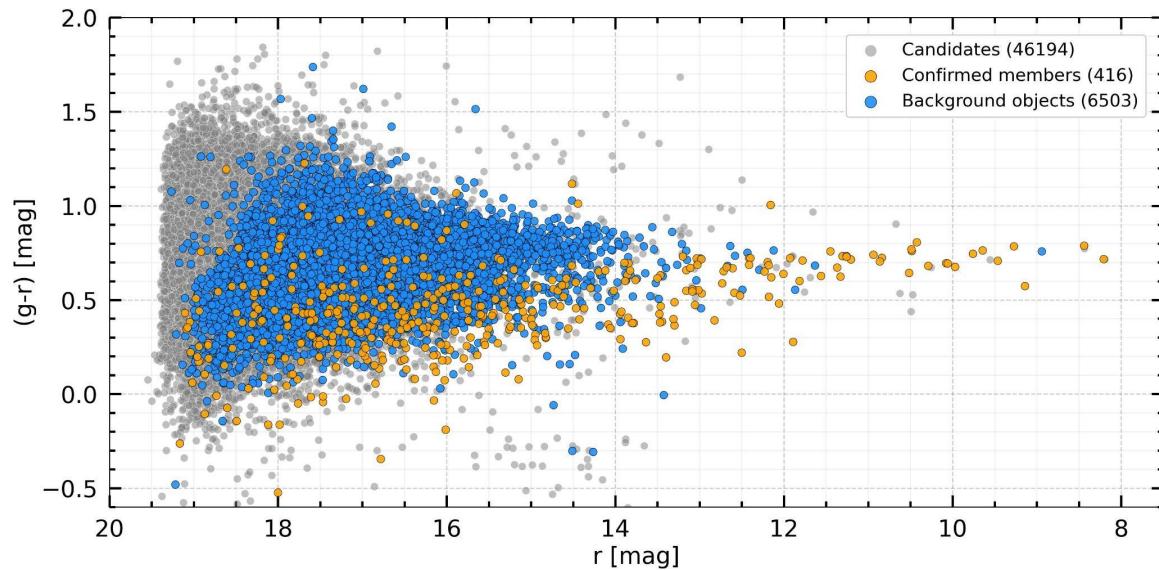
- S+FP catalog 53113 objects
- No spurious detections
- G/S separation
- No anomalous structures

2. Samples description



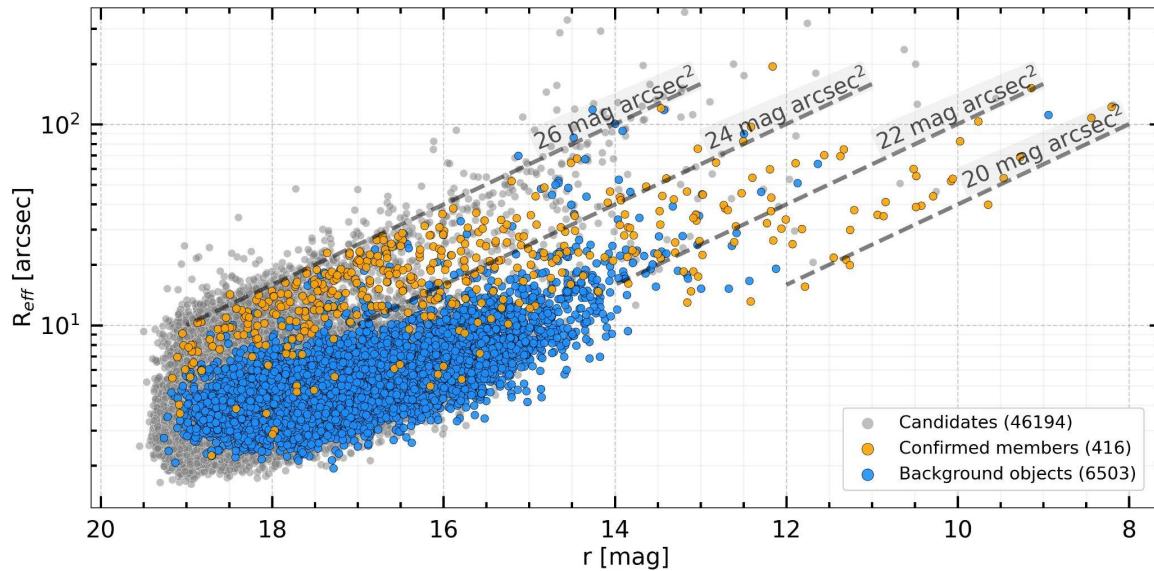
- S+FP catalog 53113 objects
- No spurious detections
- G/S separation
- No anomalous structures
- Cross-match with Literature
416 objects
- ~ 21 catalogues

2. Samples description

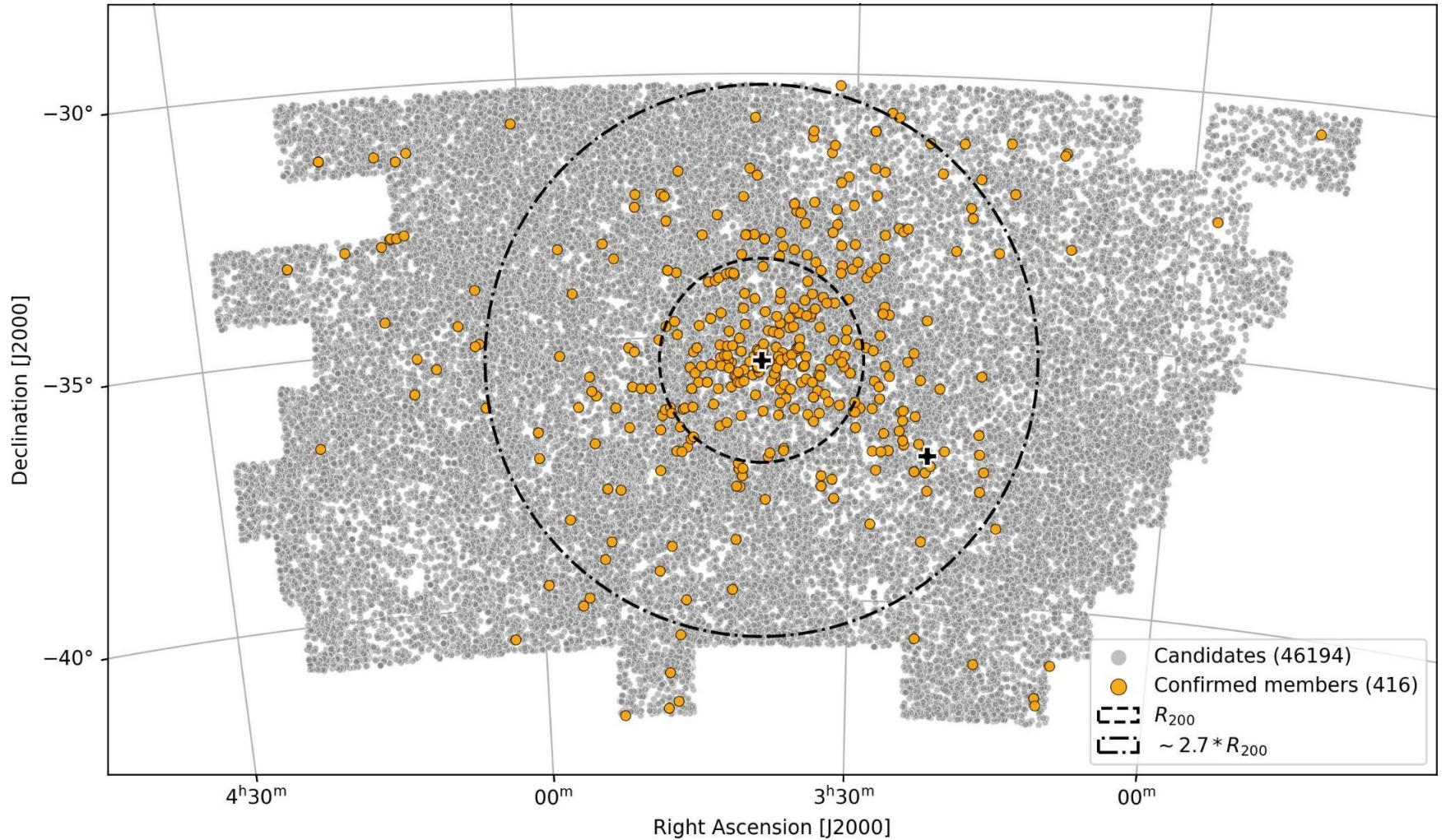


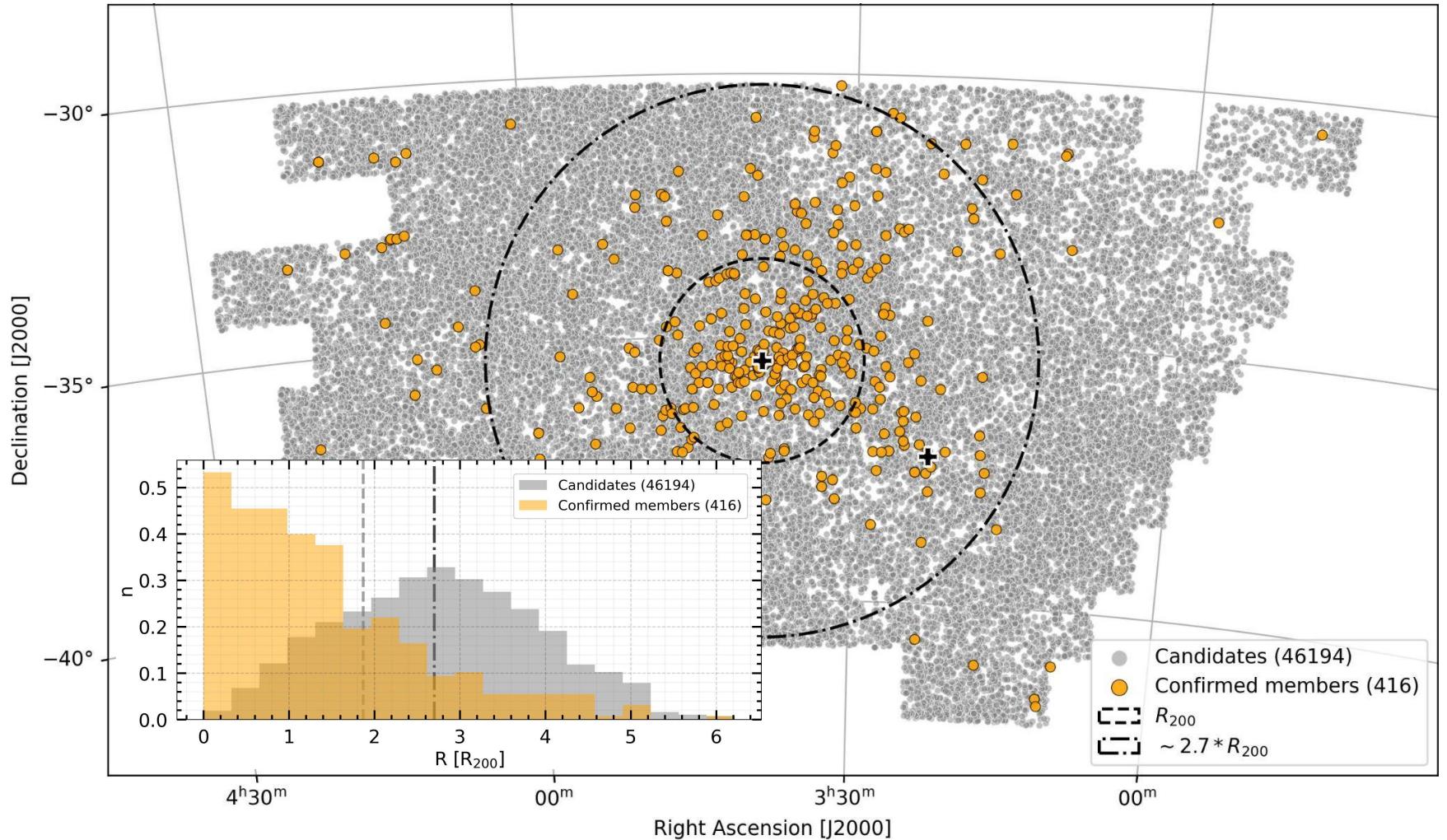
- Candidates 46194 objects
 - No spurious detections
 - G/S separation
 - No anomalous structures
- Cross-match with Literature 416 objects
 - ~ 21 catalogues
- Cross-match with SIMBAD 6503 objects
 - $0.002 > z > 0.01$

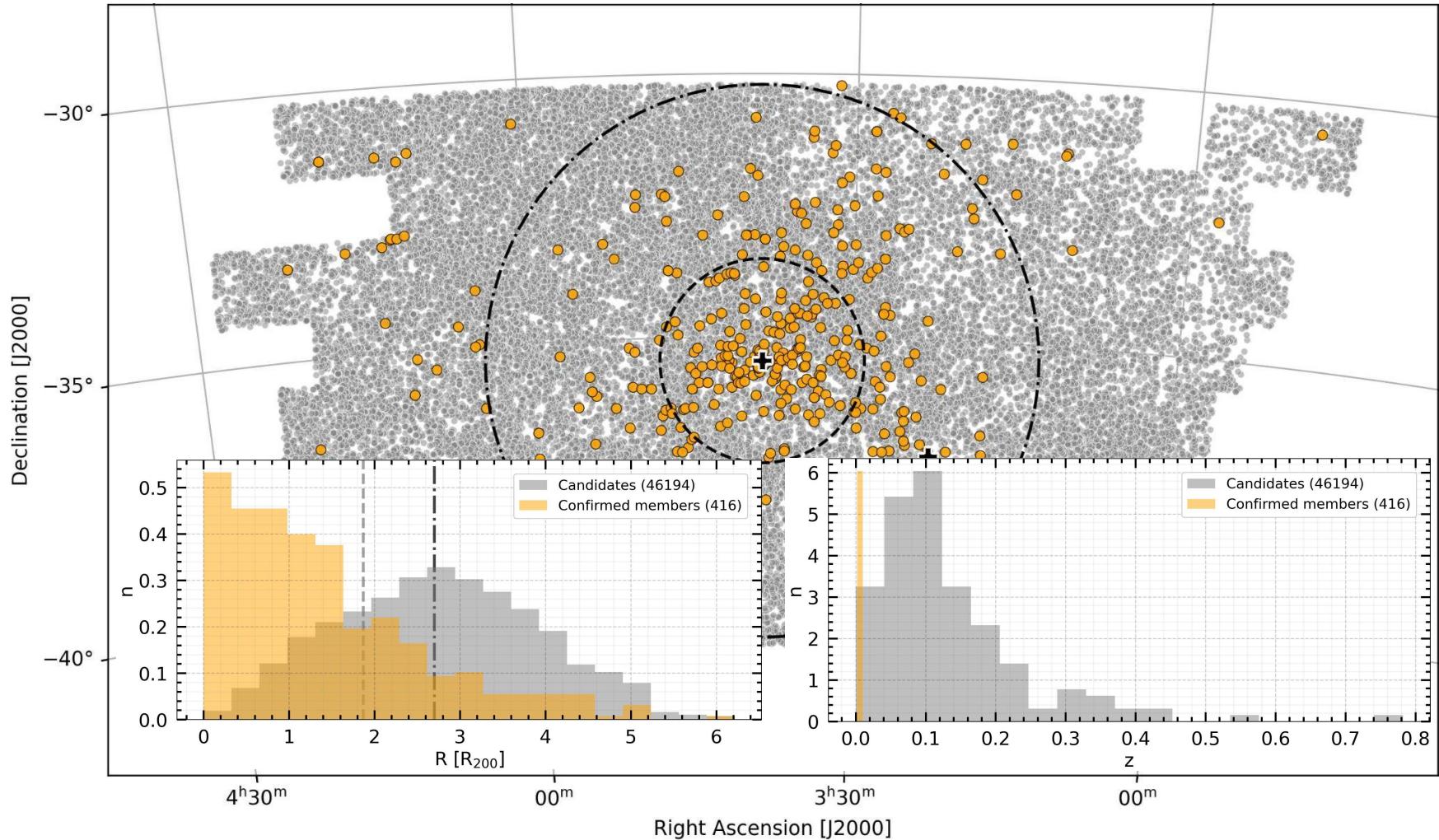
2. Samples description



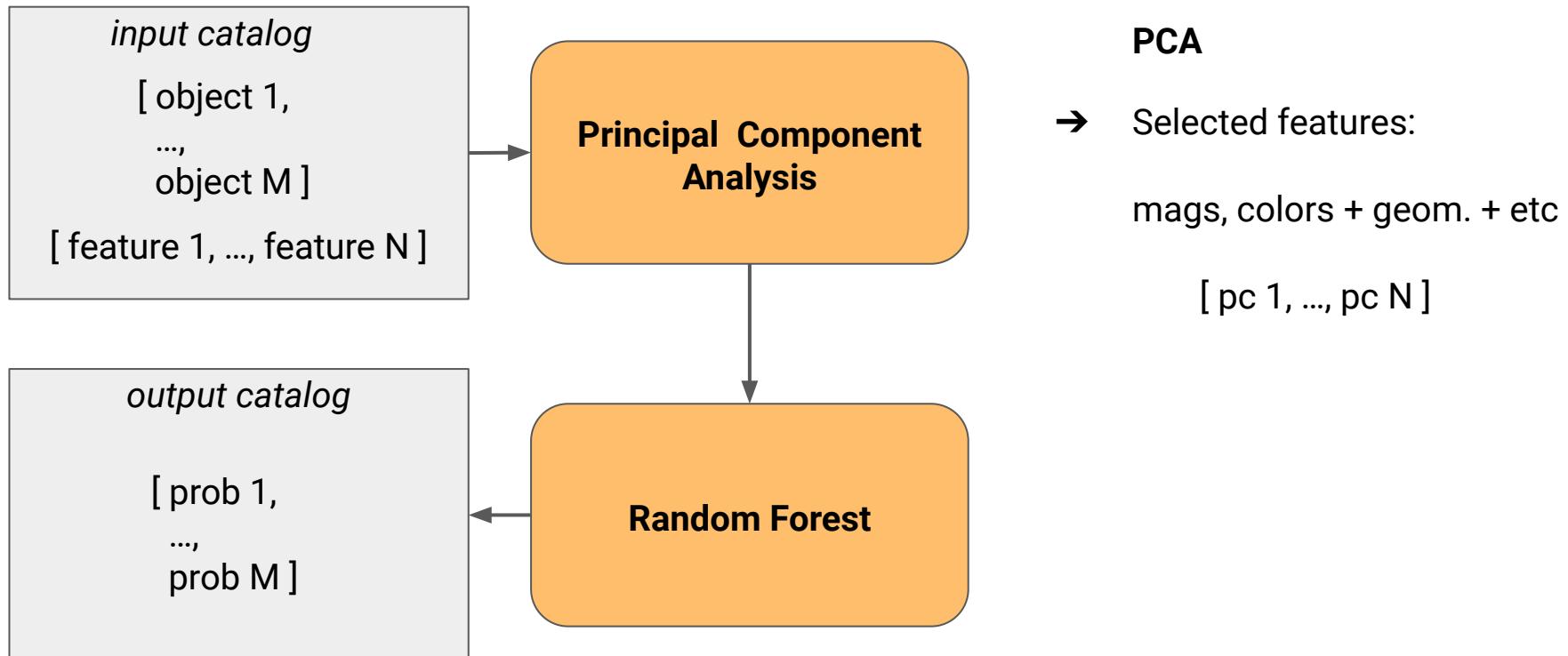
- Candidates 46194 objects
 - No spurious detections
 - G/S separation
 - No anomalous structures
- Cross-match with Literature 416 objects
 - ~ 21 catalogues
- Cross-match with SIMBAD 6503 objects
 - $0.002 > z > 0.01$



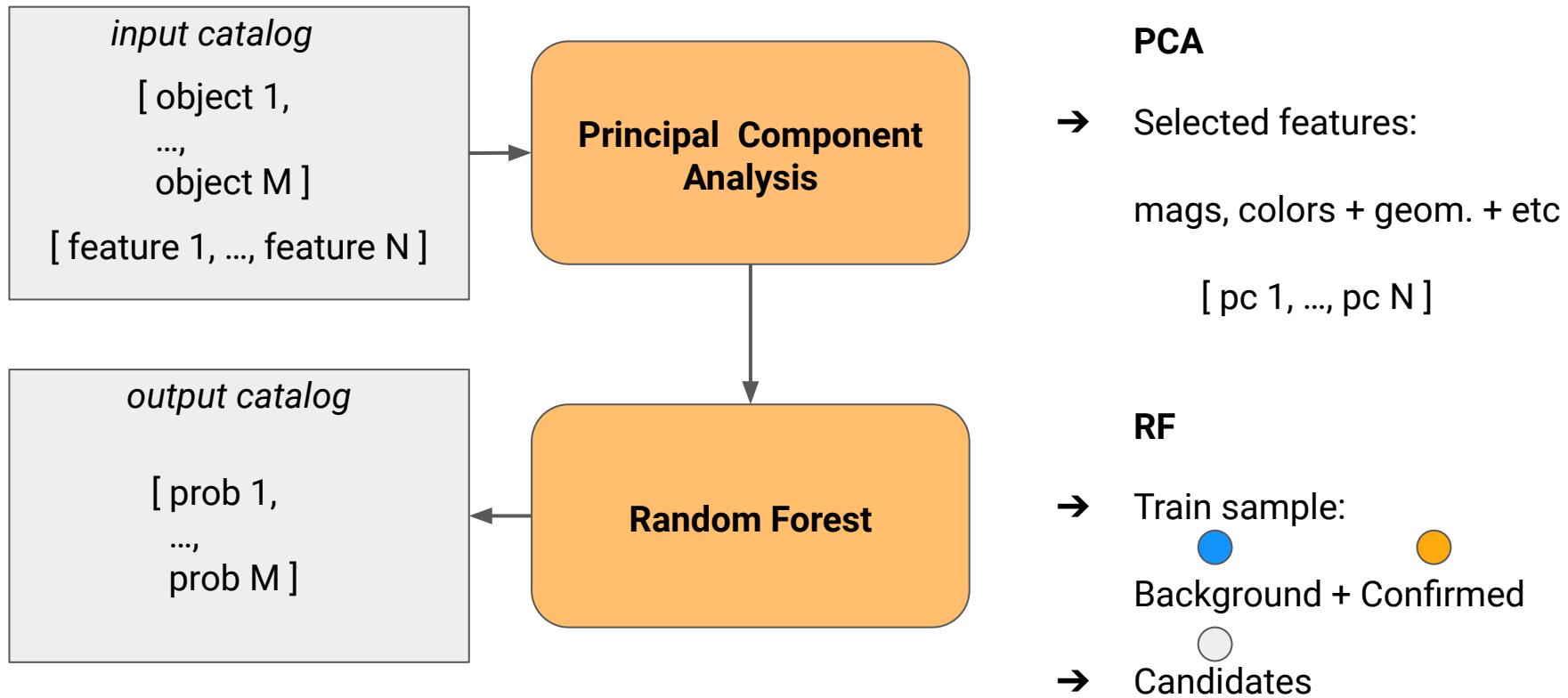




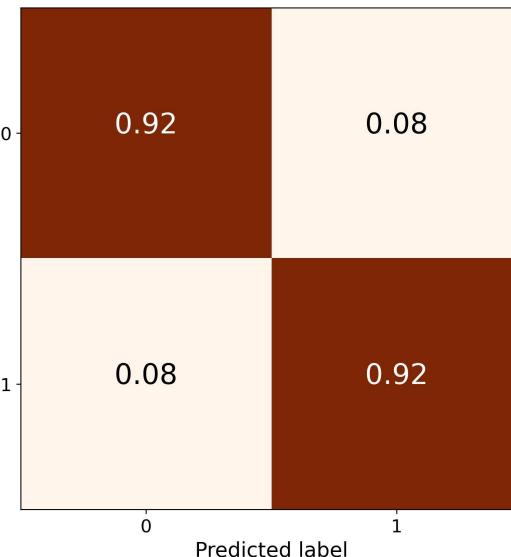
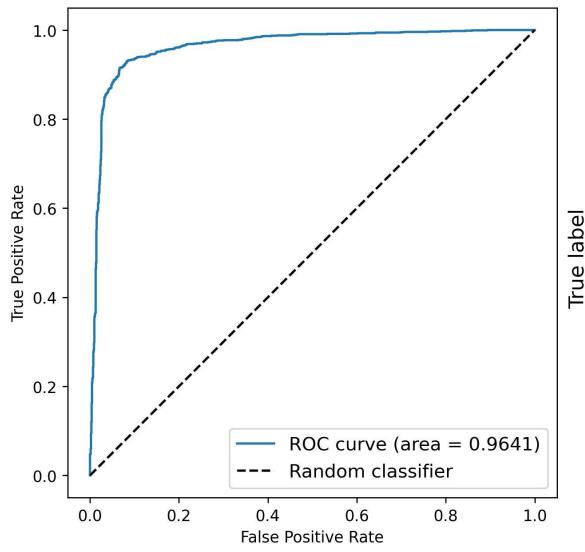
3. Algorithm



3. Algorithm



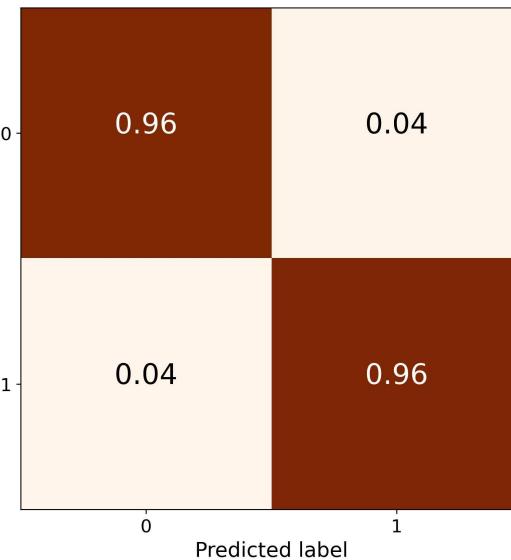
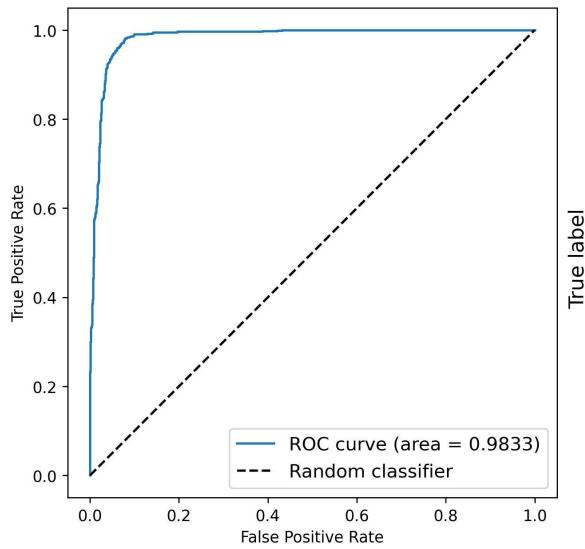
4. Results



Selected features

→ magnitudes + errors + colors

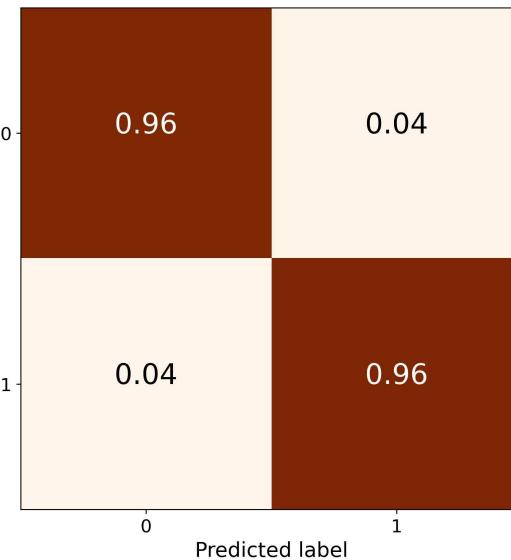
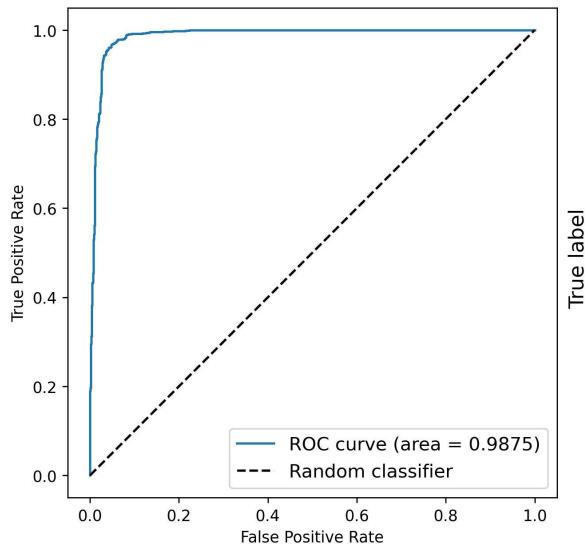
4. Results



Selected features

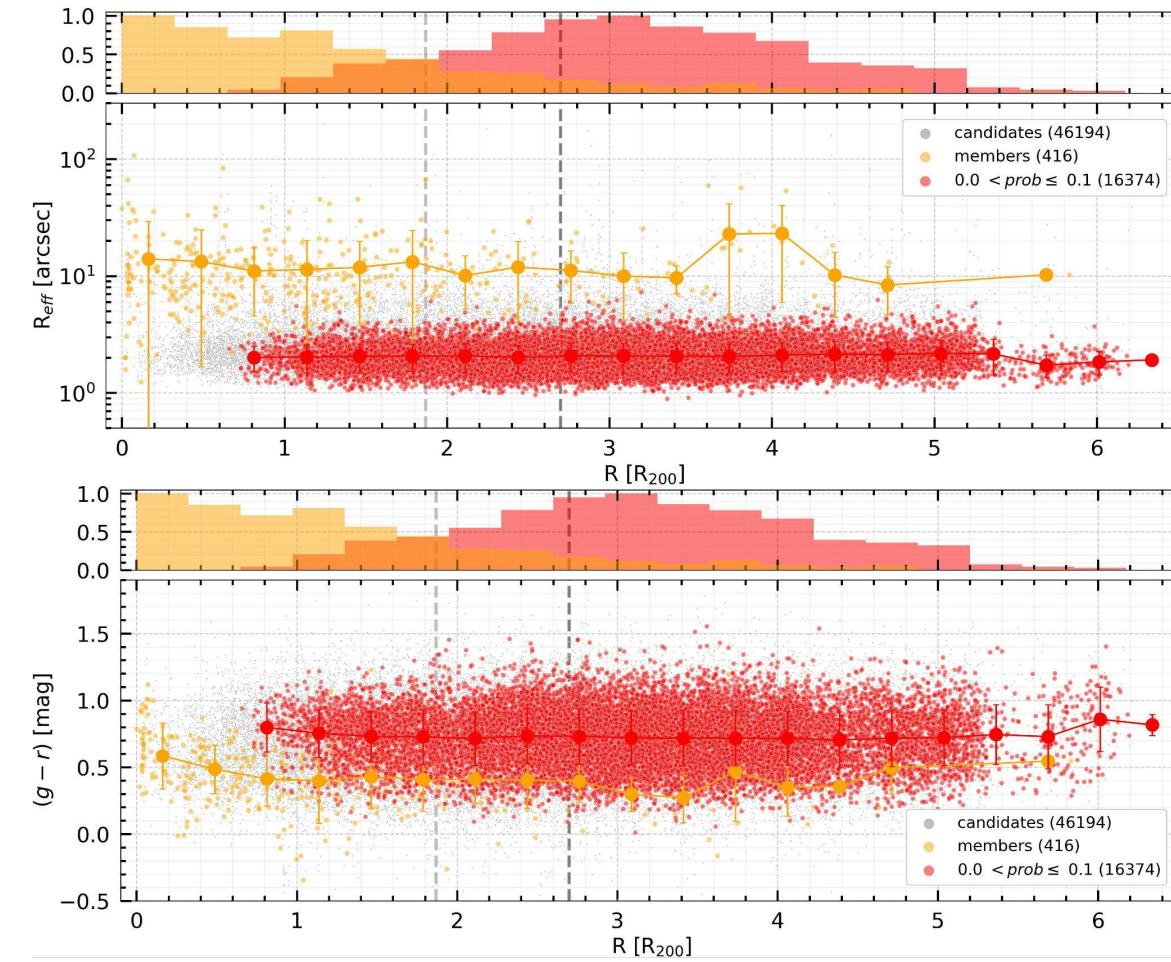
→ magnitudes + errors +
colors + geom.

4. Results



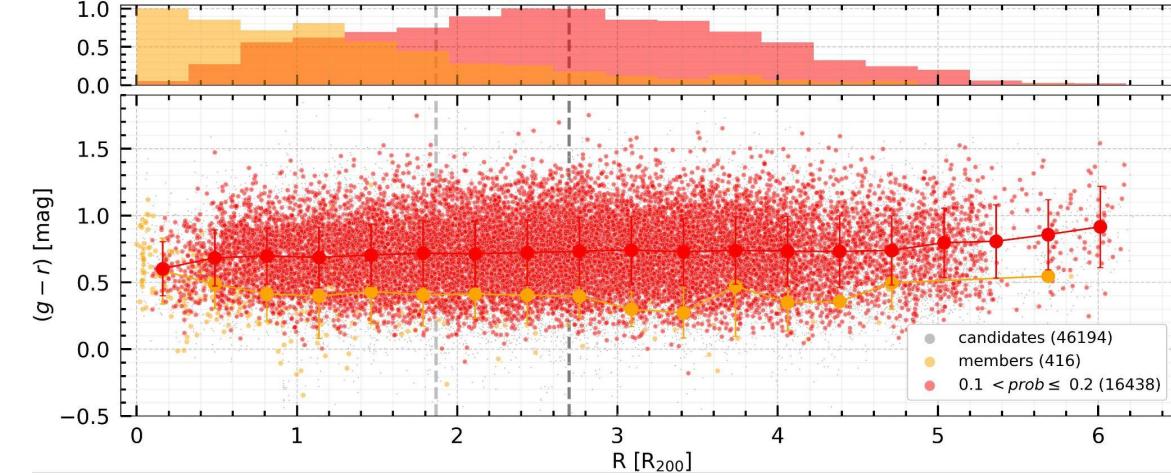
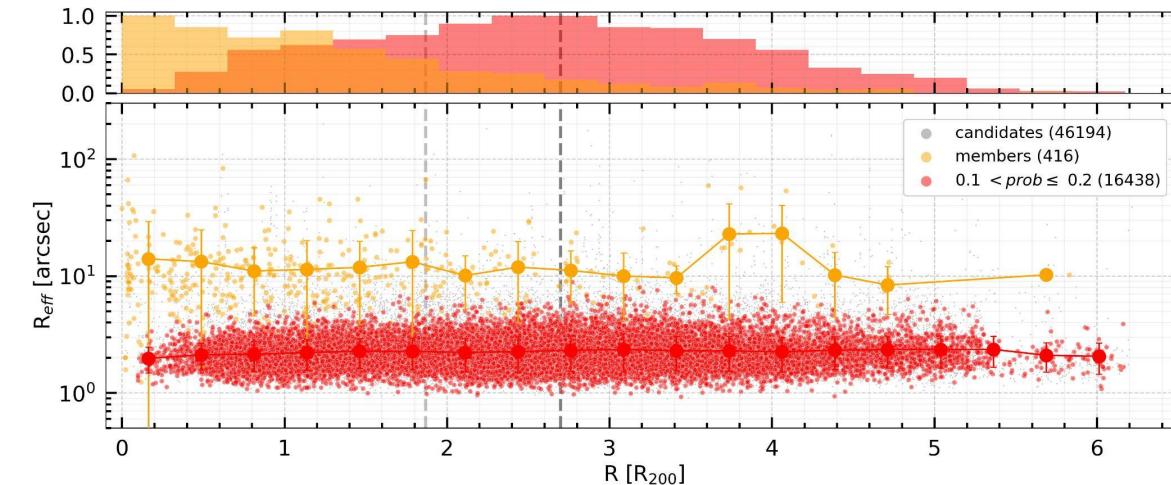
Selected features

→ magnitudes + errors +
colors + geom. +
FLUX_RADIUS_(50, 90) +
MU_MAX + SNR_WIN +
BACKGROUND



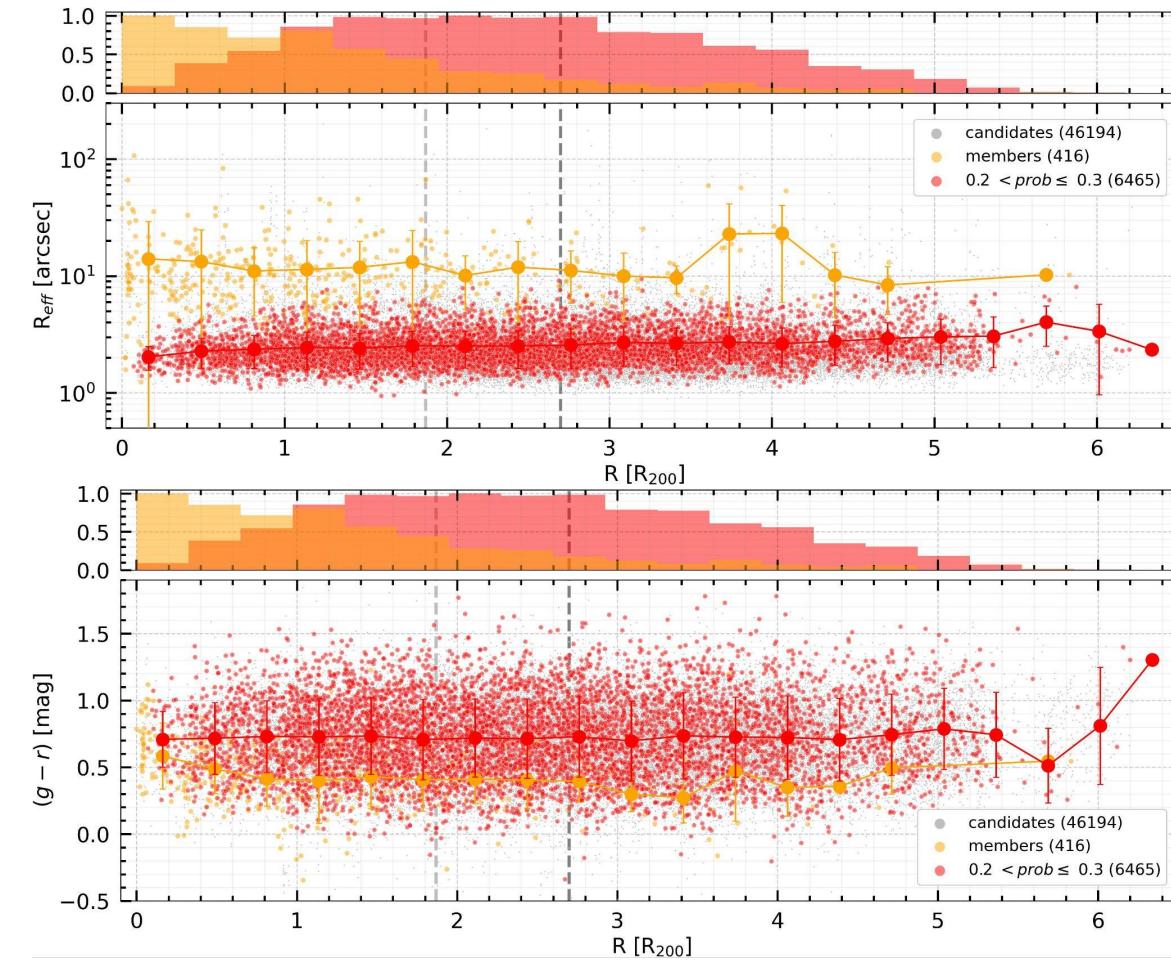
Selected features

→ magnitudes + errors +
colors + geom. +
FLUX_RADIUS_(50, 90) +
MU_MAX + SNR_WIN +
BACKGROUND



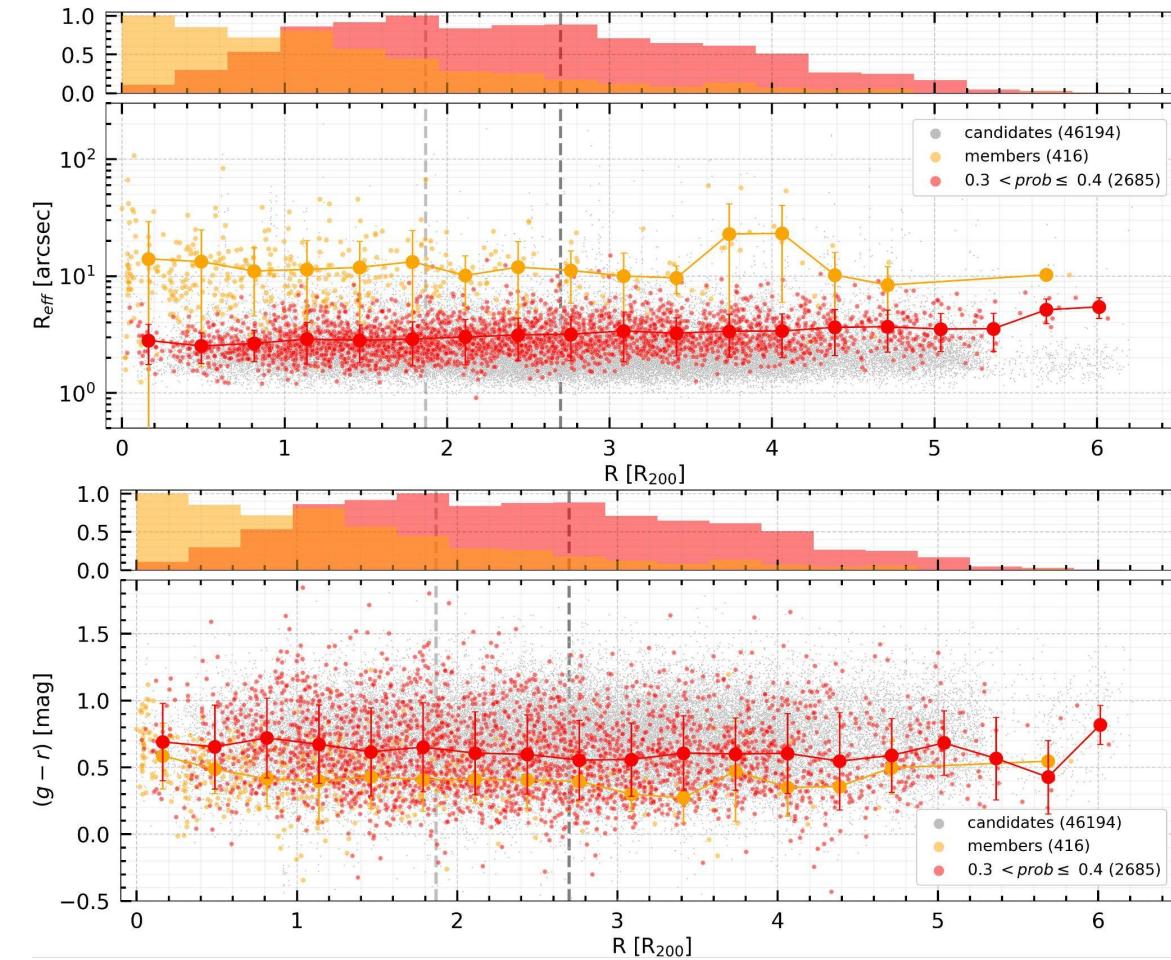
Selected features

- magnitudes + errors +
- colors + geom. +
- FLUX_RADIUS_(50, 90) +
- MU_MAX + SNR_WIN +
- BACKGROUND



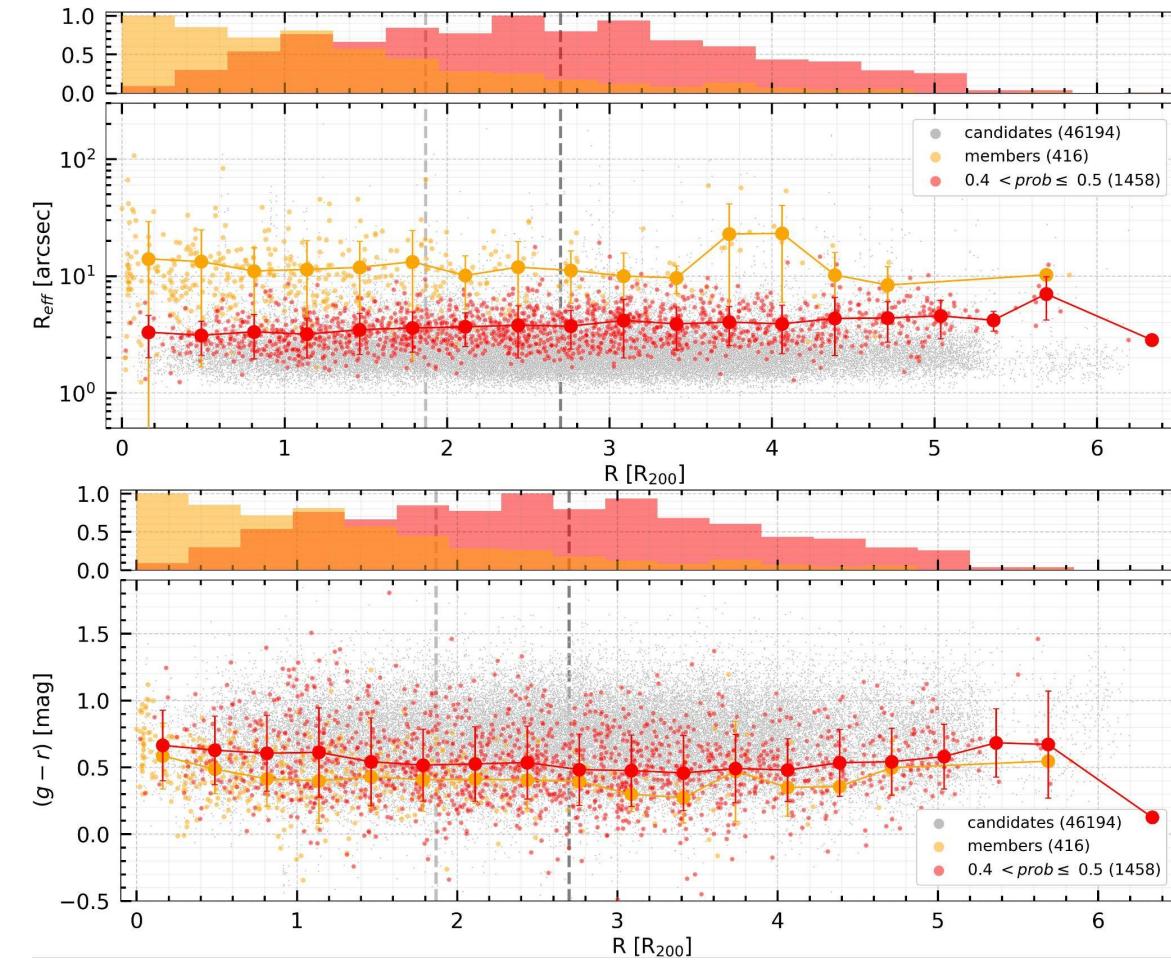
Selected features

- magnitudes + errors +
- colors + geom. +
- FLUX_RADIUS_(50, 90) +
- MU_MAX + SNR_WIN +
- BACKGROUND



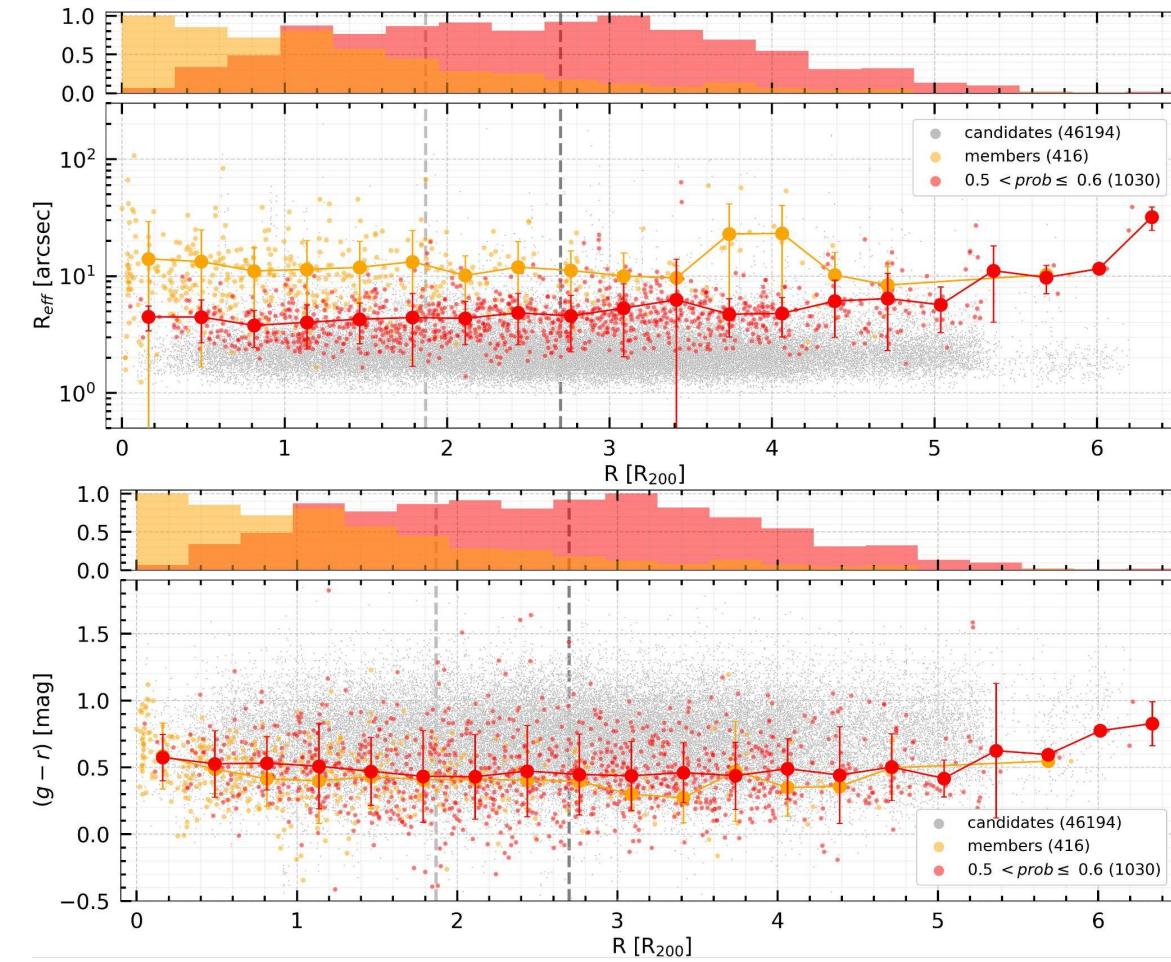
Selected features

→ magnitudes + errors +
colors + geom. +
FLUX_RADIUS_(50, 90) +
MU_MAX + SNR_WIN +
BACKGROUND



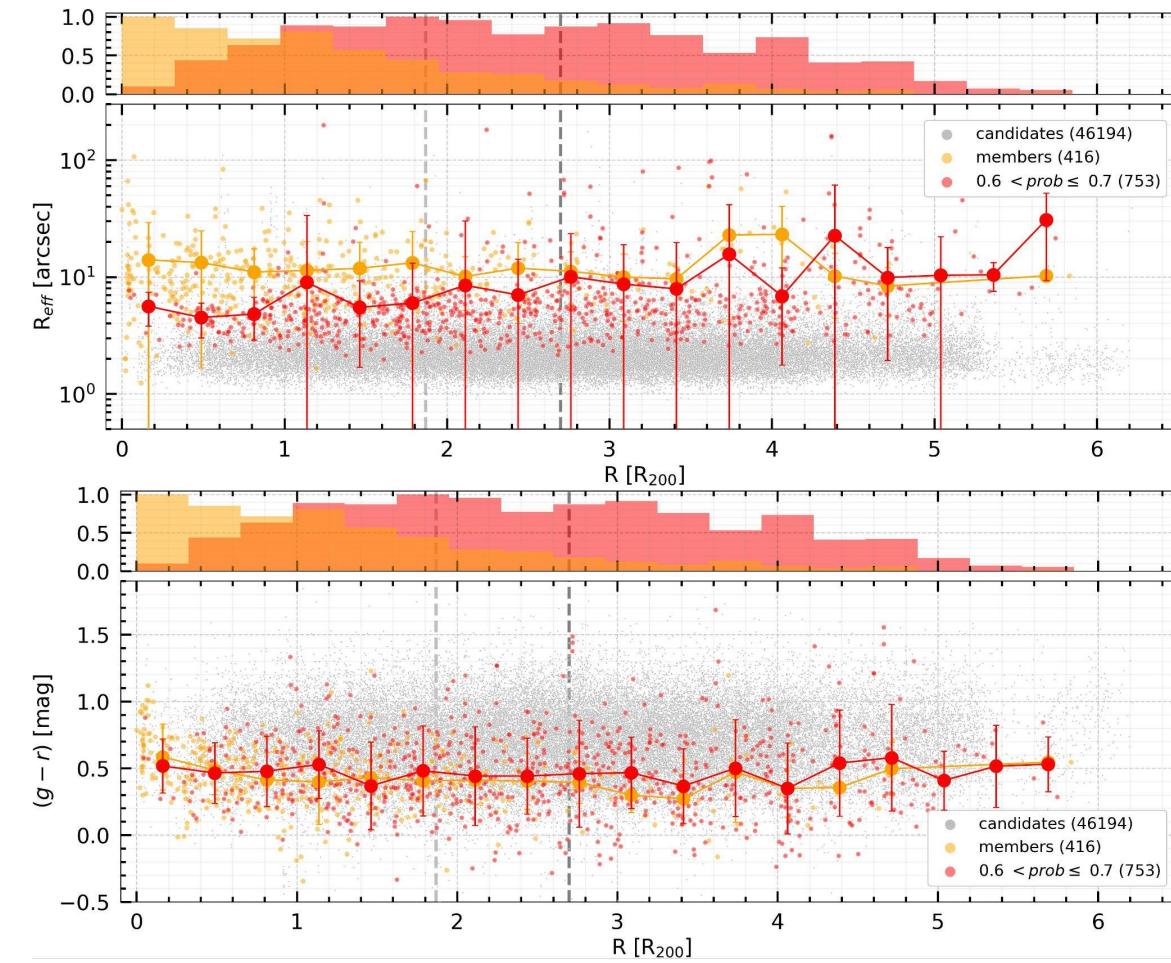
Selected features

→ magnitudes + errors +
colors + geom. +
FLUX_RADIUS_(50, 90) +
MU_MAX + SNR_WIN +
BACKGROUND



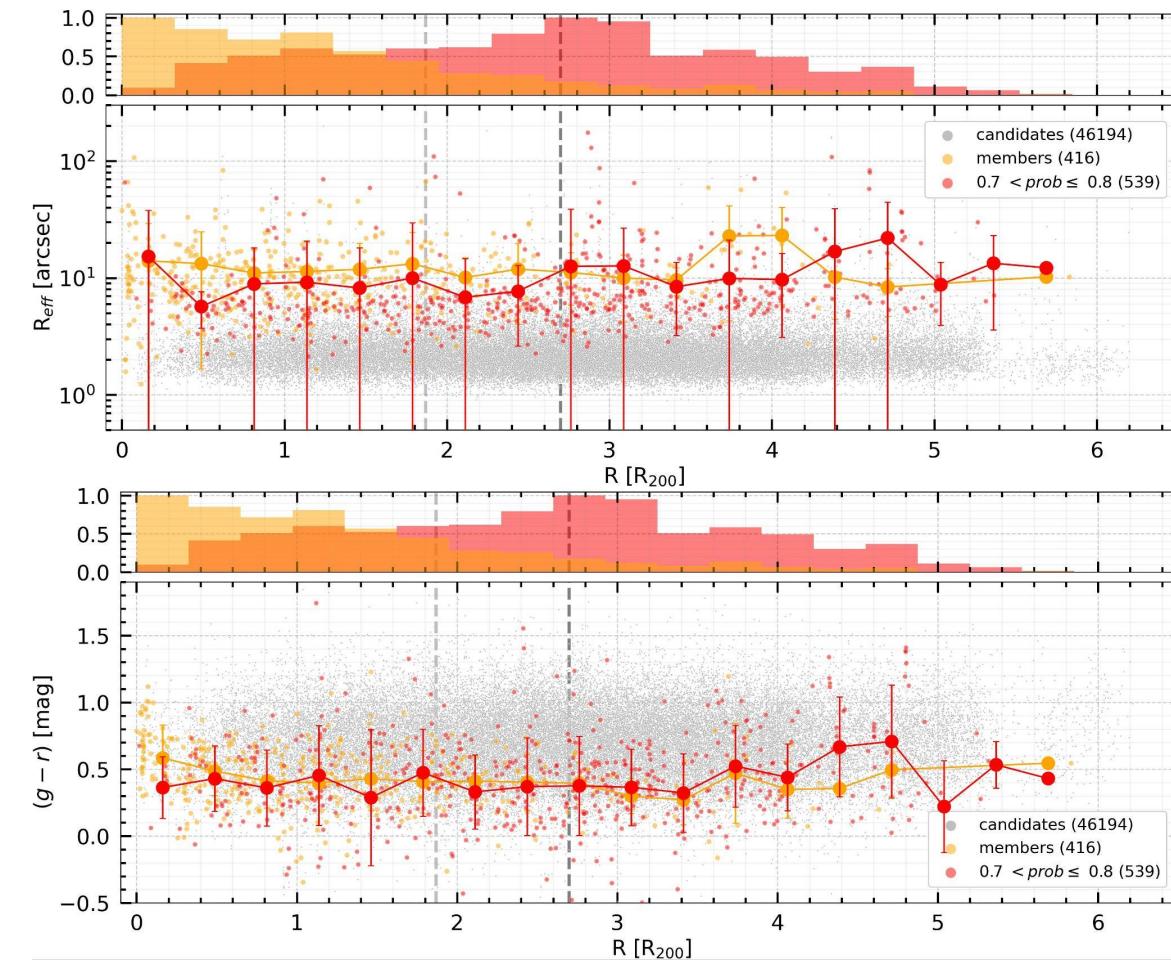
Selected features

- magnitudes + errors +
- colors + geom. +
- FLUX_RADIUS_(50, 90) +
- MU_MAX + SNR_WIN +
- BACKGROUND



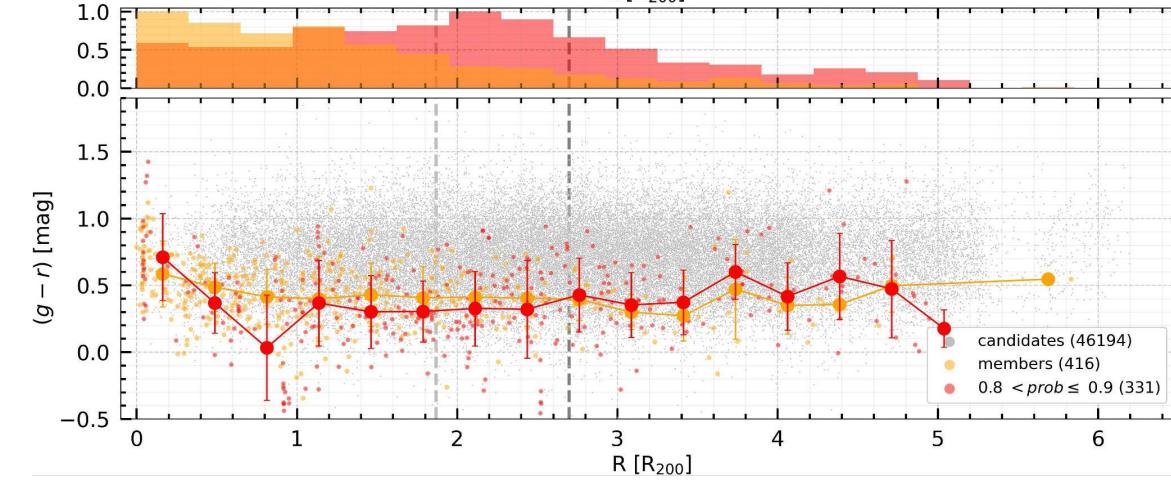
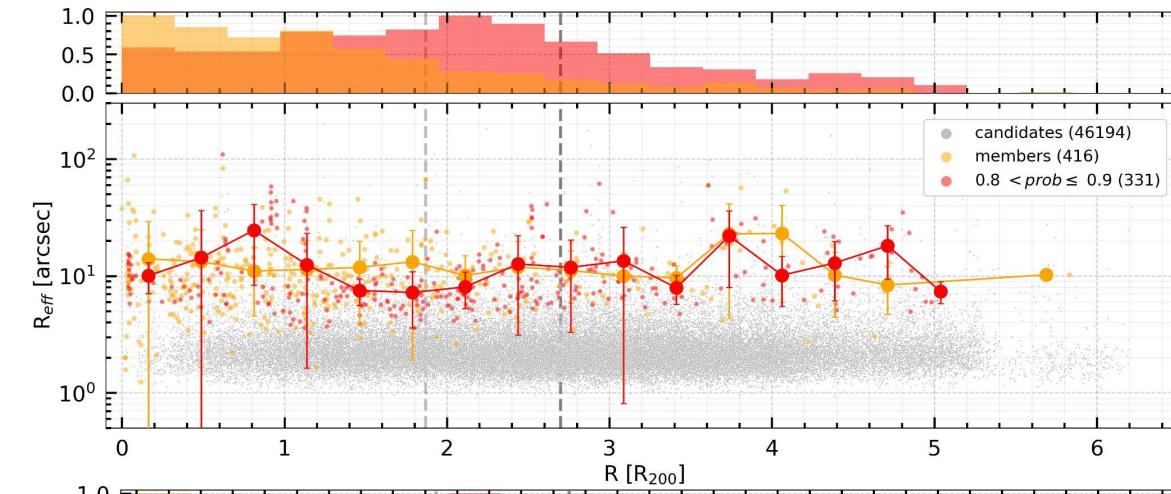
Selected features

- magnitudes + errors +
- colors + geom. +
- `FLUX_RADIUS_(50, 90)` +
- `MU_MAX` + `SNR_WIN` +
- `BACKGROUND`



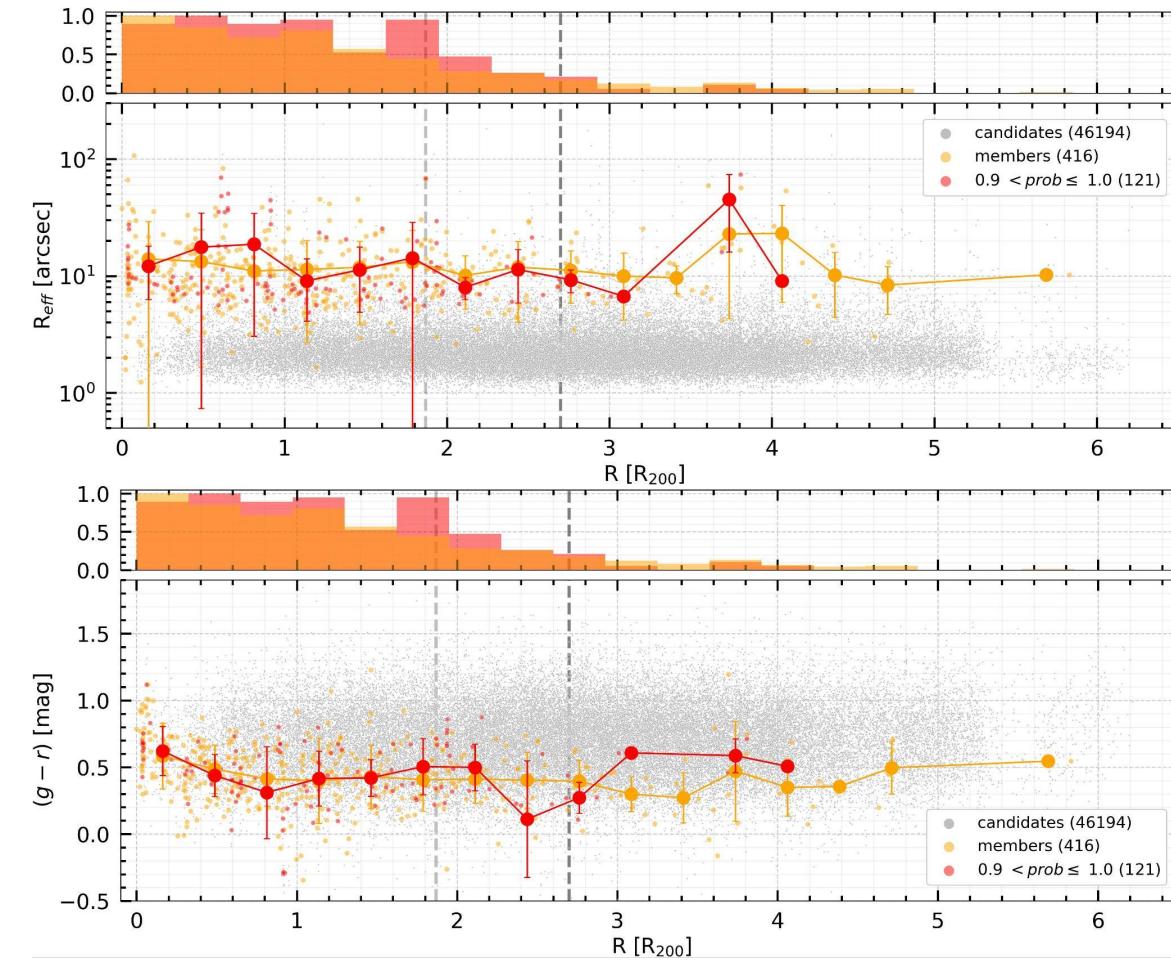
Selected features

- magnitudes + errors +
- colors + geom. +
- FLUX_RADIUS_(50, 90) +
- MU_MAX + SNR_WIN +
- BACKGROUND



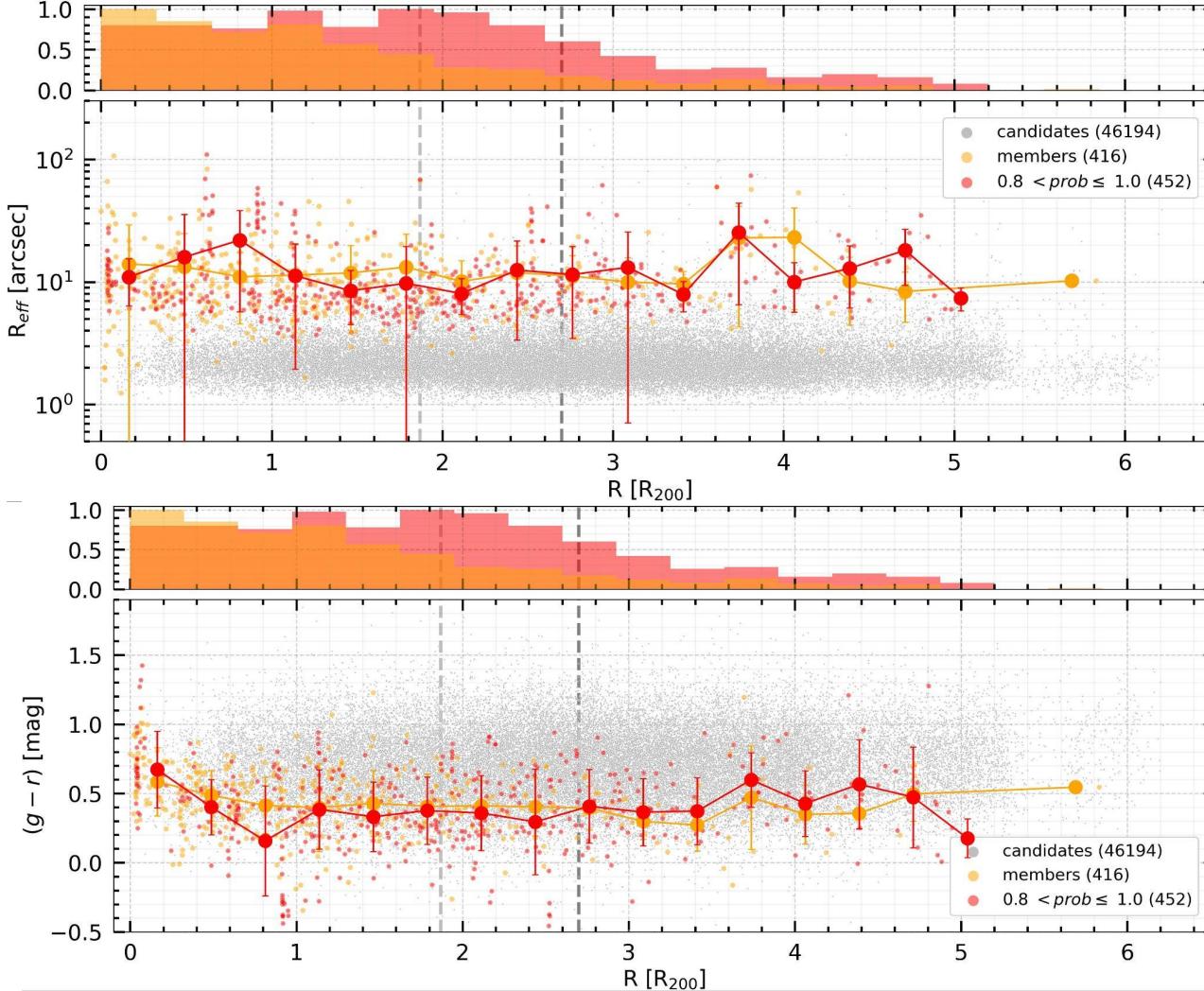
Selected features

- magnitudes + errors +
- colors + geom. +
- FLUX_RADIUS_(50, 90) +
- MU_MAX + SNR_WIN +
- BACKGROUND

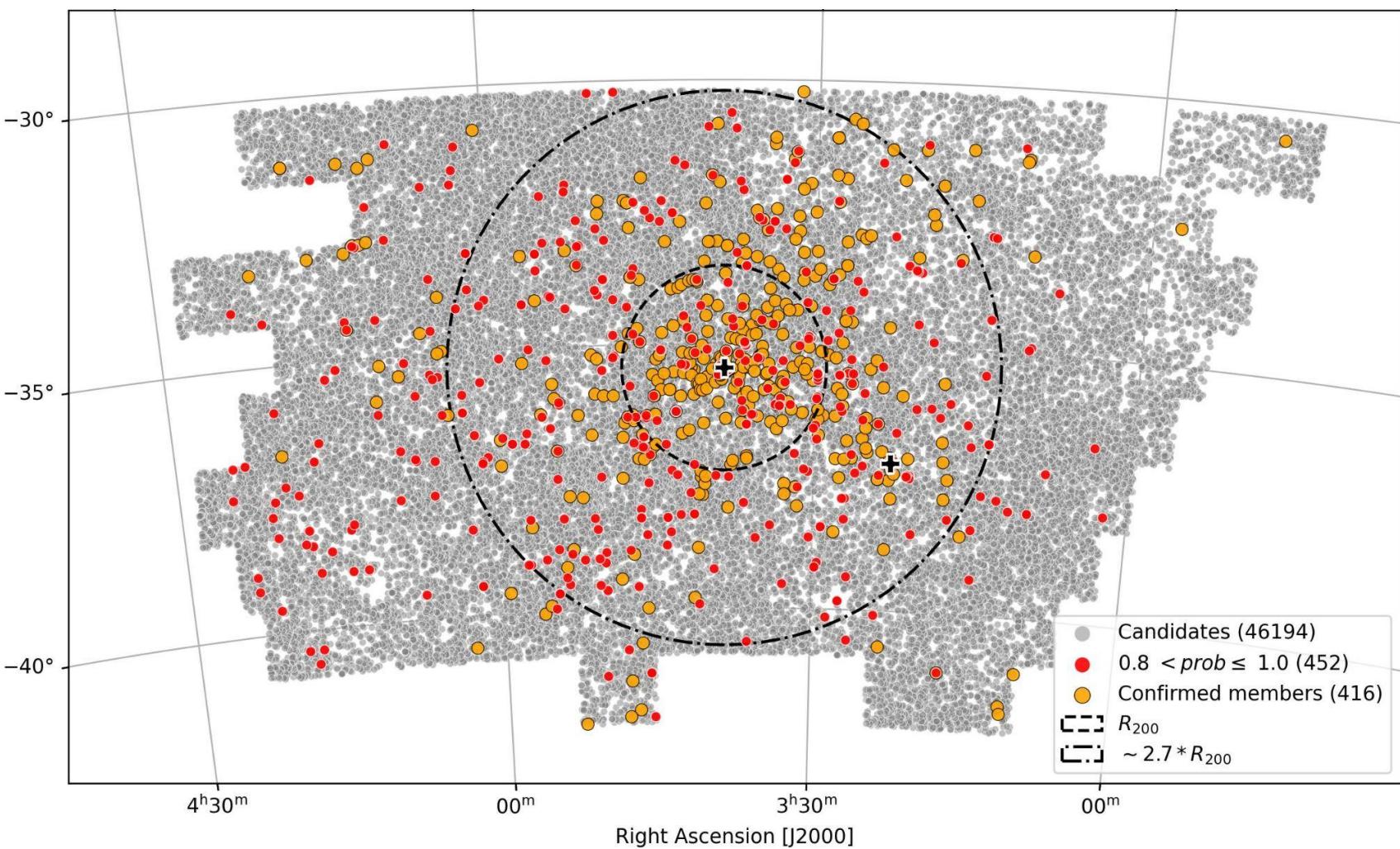


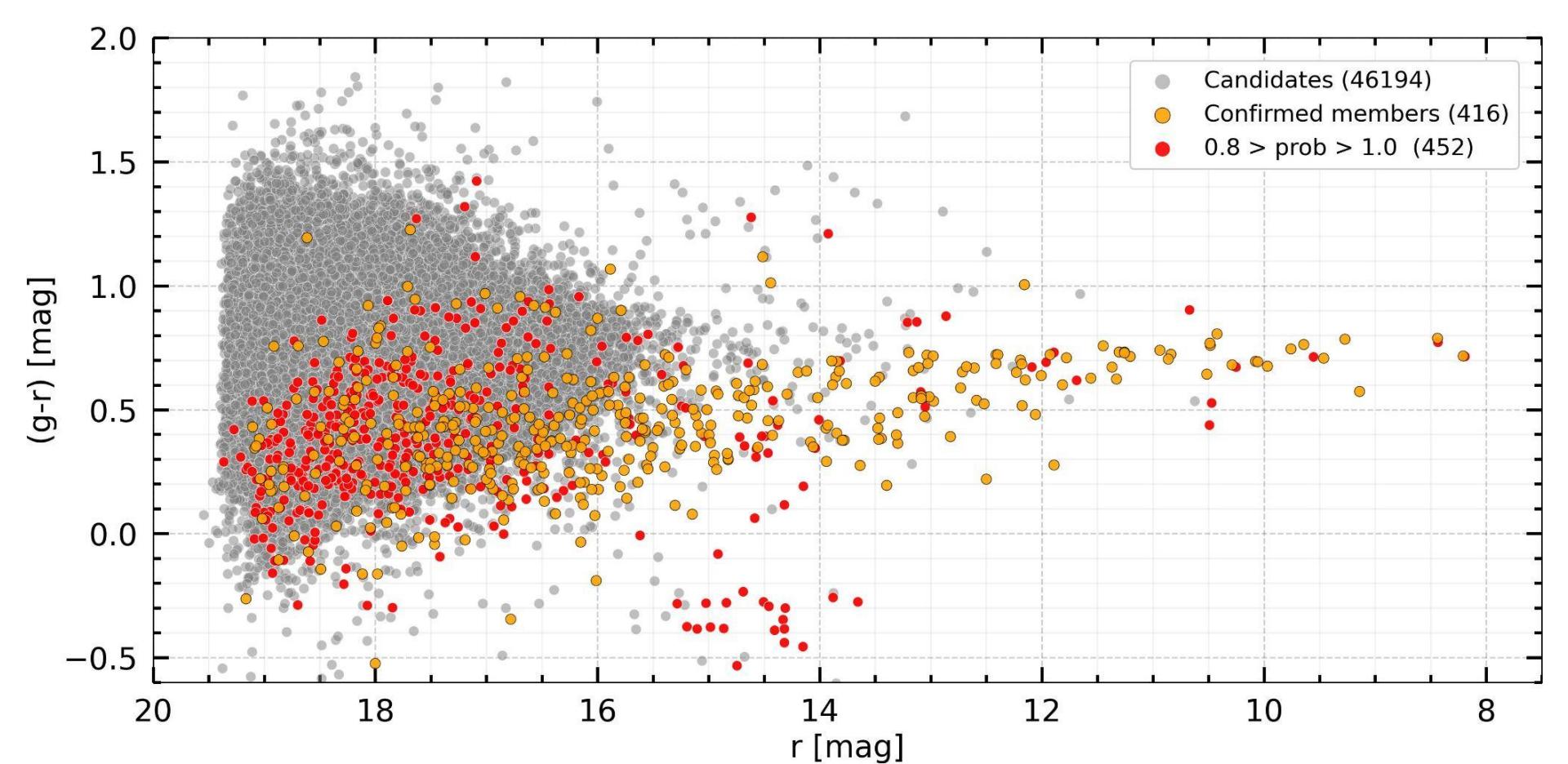
Selected features

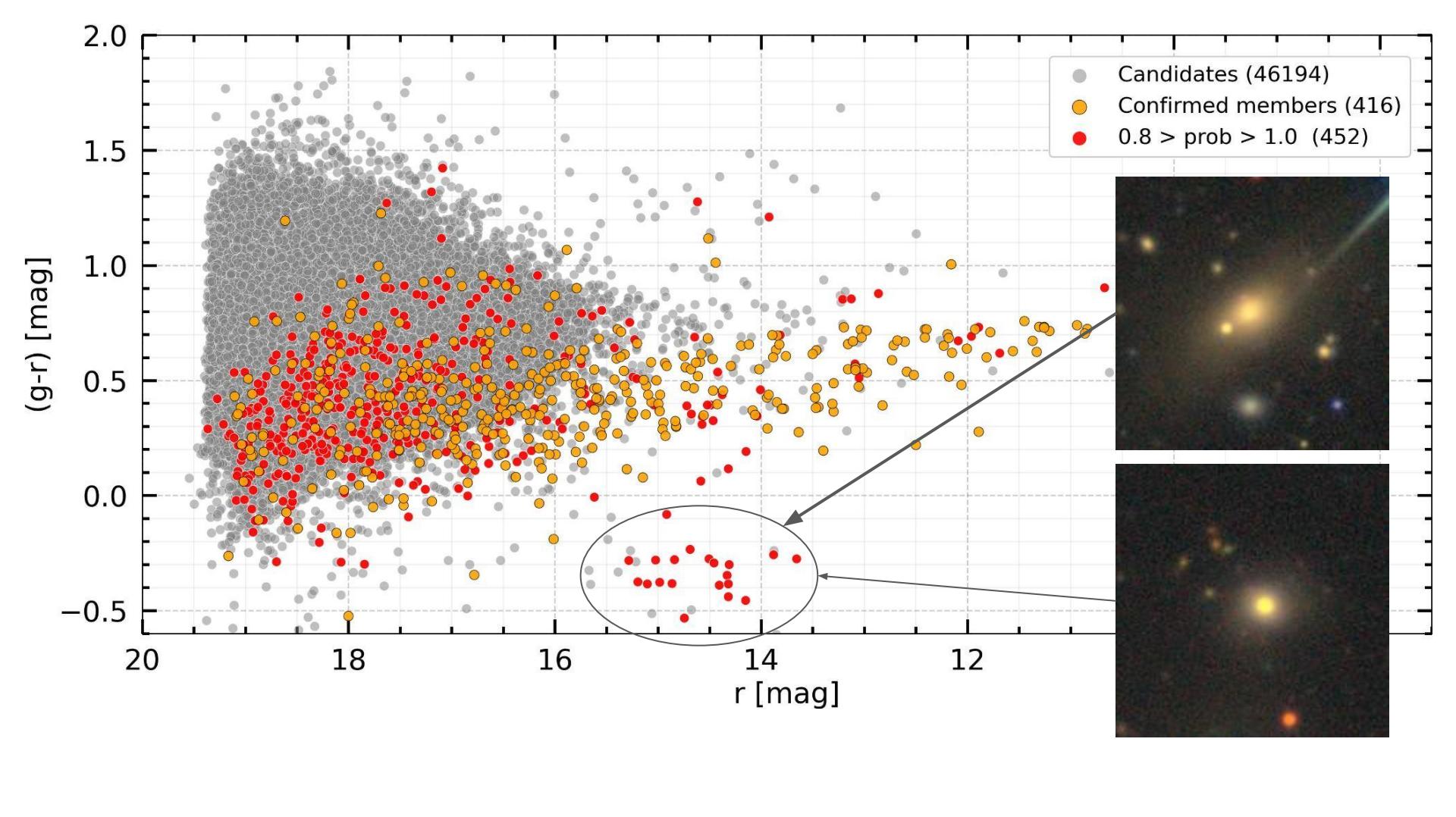
- magnitudes + errors +
- colors + geom. +
- FLUX_RADIUS_(50, 90) +
- MU_MAX + SNR_WIN +
- BACKGROUND

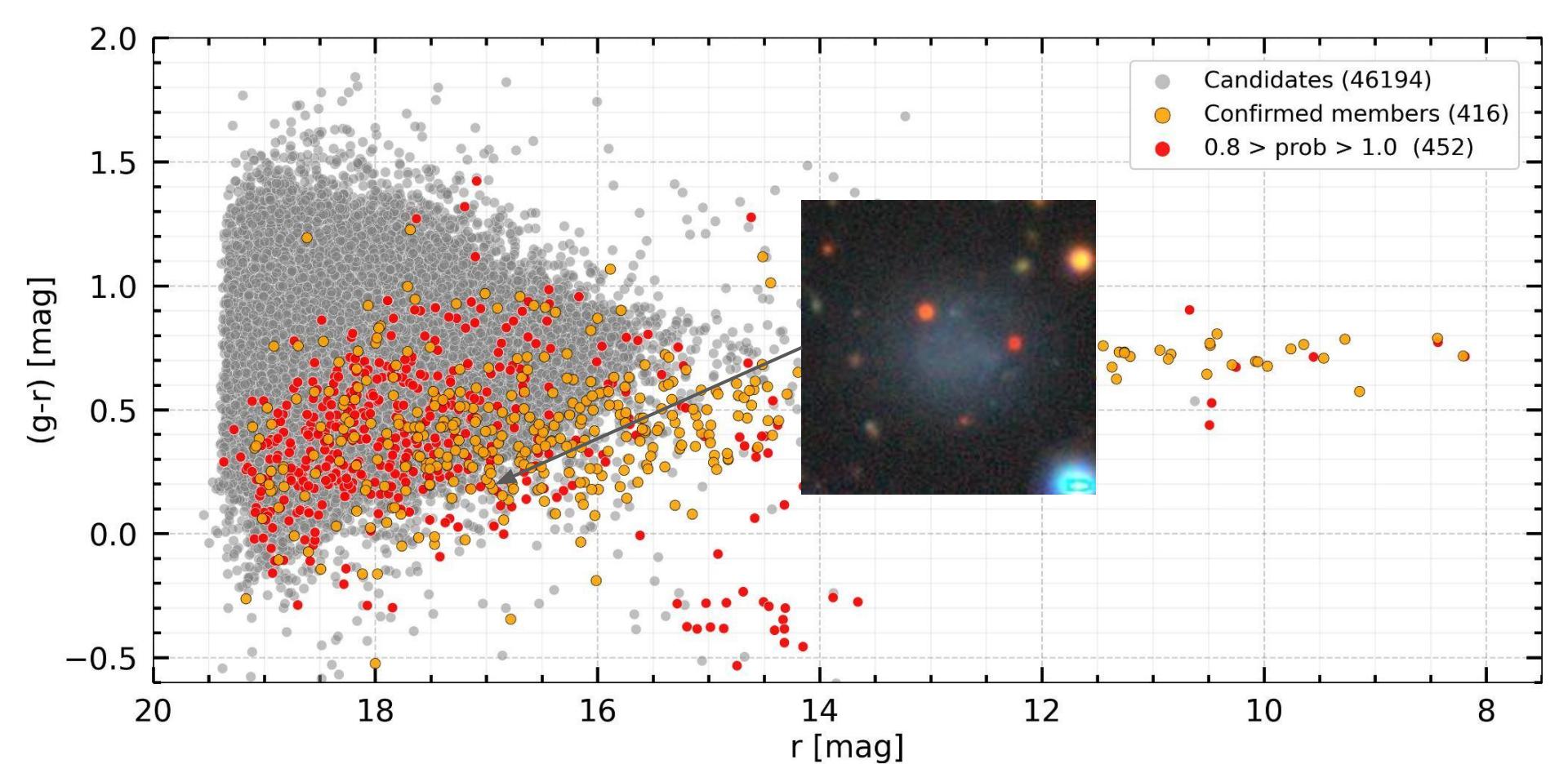


Declination [J2000]







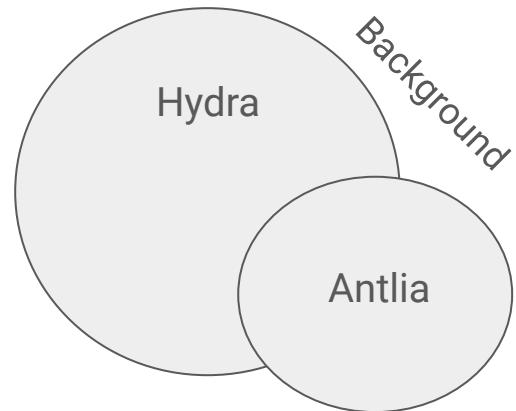


5. Next steps

- Testing GMM to obtain substructures on slices of probability
- Apply this method to cluster at higher redshift
- The Hydra and Antlia cluster

5. Next steps

- Testing GMM to obtain substructures on slices of probability
- Apply this method to cluster at higher redshift
- The Hydra and Antlia cluster



Gracias - Obrigado - Thank you