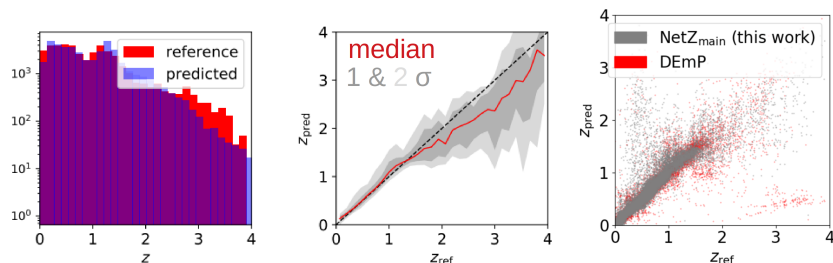


Photometric redshift estimation using directly the images: NetZ

Schuldt+2020

NetZ_{main} trained up to $z \sim 4$ with direct comparison to traditional photo- z method DEmP

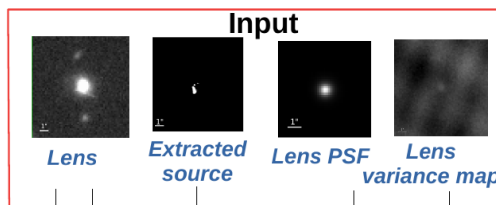


- **data augmentation** to get more high- z galaxies, not possible for other catalog based methods like DEmP
- thus **very good performance on high- z**
- published **> 34 million photo- z predictions**
- dedicated networks for **LRGs** and the **low- z range**
- **directly applicable to data from LSST** given the similarity to HSC images

Strong lens modeling

Schuldt+2021, Schuldt et al. (in prep)

Realistic mocks as training data,
Assume Singular Isothermal Ellipsoid
profile (SIE)+external shear



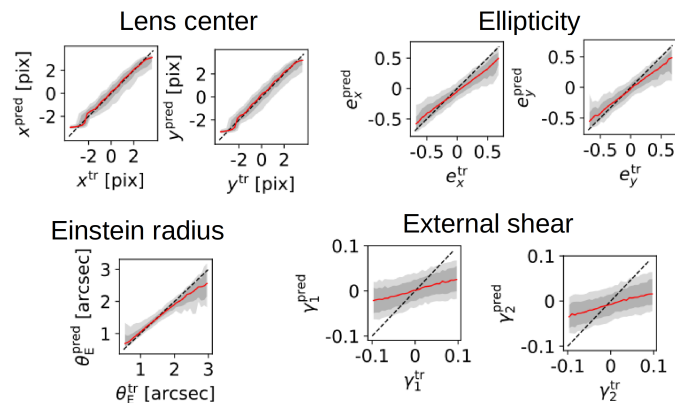
Lensed source

Convolved lensed source on HSC pixel scale with poisson noise

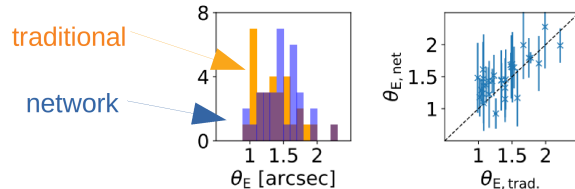
Lens system with all components

Color image based on gri filters

ResNet to predict **median** for **SIE+external shear** together with **individual 1σ uncertainties**



Comparison on SuGOHI: traditional method vs. ResNet



- network **tested on real data**
- no lens light subtraction required
- **predict 14 values**: 7 parameters + σ
- method **applicable to LSST** ($\sim 10^5$ lenses)

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