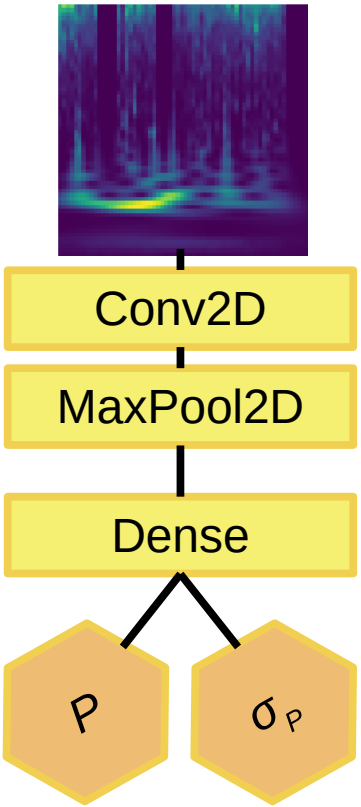
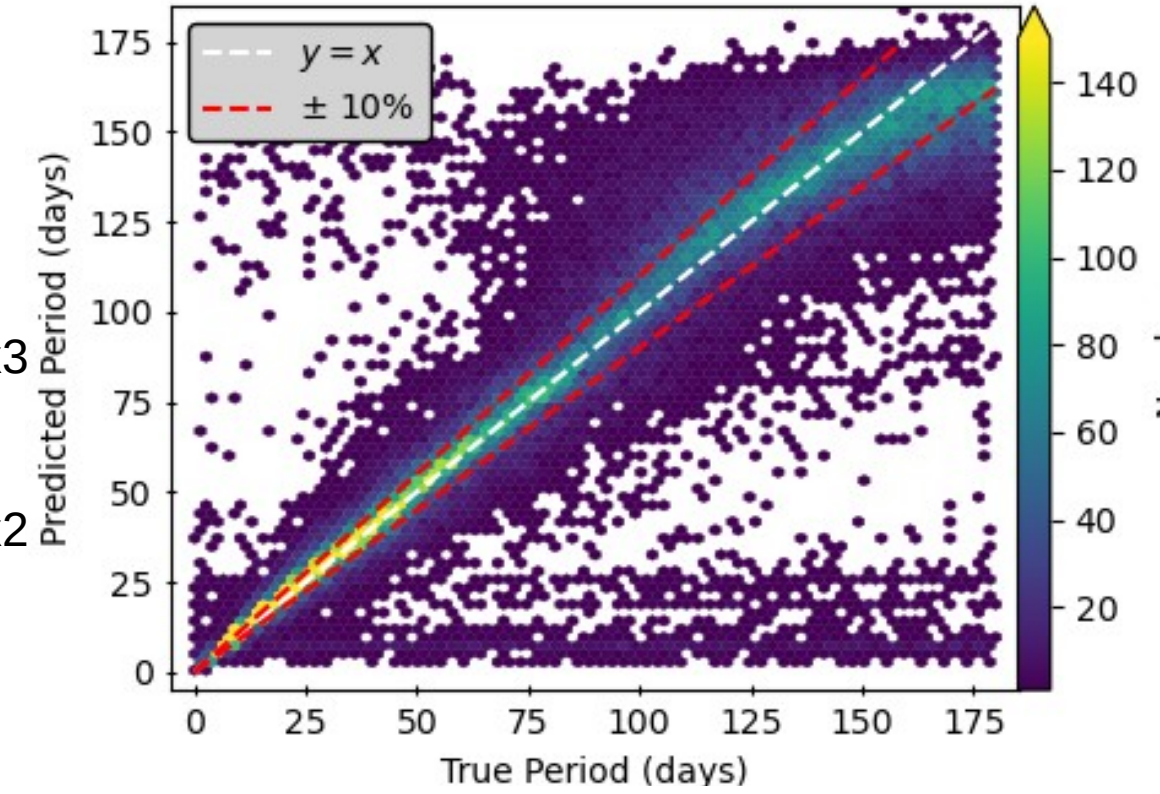
Recovery of *TESS* Stellar Rotation Periods with Convolutional Neural Networks

Zach Claytor and Jennifer van Saders
Institute for Astronomy, University of Hawai‘i

TESS period recovery efforts are confounded by mission systematics.
But can neural networks see through the noise?





- NNs can “learn” the noise and ignore it to some extent.
- We are currently testing our network on a number of simulated and real light curves.
- Look for this on the arXiv in the coming weeks!

We train our network on wavelet power spectra of simulated light curves with real *TESS* systematics, then predict both the rotation period and its uncertainty.

Predicting the period uncertainty lets us select objects with more confident estimates. With this selection, we recovery 60% of objects’ periods to within 10% accuracy.


zclaytor@hawaii.edu
@AstroClayt
zclaytor