

Approximant comparison logbook

Classifier performance across approximants - setup

- 1st test: no higher modes, aligned spins, component masses $\in [5, 50]M_{\odot}$
- Approximants used:
 - IMRPhenomPv2
 - IMRPhenomXAS
 - SEOBNRv4_ROM
- 3 training sets, one for each approximant with 40000 elements (20000 sig + 20000 noise)
- 4 test sets, one for each approximant with 20000 elements plus one with only noise, also with 20000 elements

Classifier performance across approximants - results

Test set: ↓ \ Trained on: →	IMRPhenomPv2	SEOBNRv4_ROM	IMRPhenomXAS
IMRPhenomPv2	0.9350	0.9158	0.9379
SEOBNRv4_ROM	0.9382	0.9198	0.9403
IMRPhenomXAS	0.9378	0.9202	0.9402
noise	0.9479	0.9522	0.9399

A rough estimate of the inaccuracy gives $1/(\sqrt{N}) \approx 0.0071$

Classifier performance across approximants - conclusions

- The specific approximant used does not seem to significantly affect signal detection under the studied conditions
- A better rate of signal recovery seems to correlate with a worse rate of noise detection
- Perhaps higher mode contributions would differentiate the results more?