

Classification of NS data

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I. RANDOM FOREST

A. Using only independent recovered variables

Training and testing using: $m1_{rec}, m2_{rec}, chi1_{rec}, chi2_{rec}, snr$. Standard deviation of score during crossvalidation: 0.000277942225285724 . Mean: 0.9744487408123469 Score 0.9748495808263471 . Optimum forest found: 200 trees, entropy criteria and sqrt max features

Score on testing: 0.9747829130485508

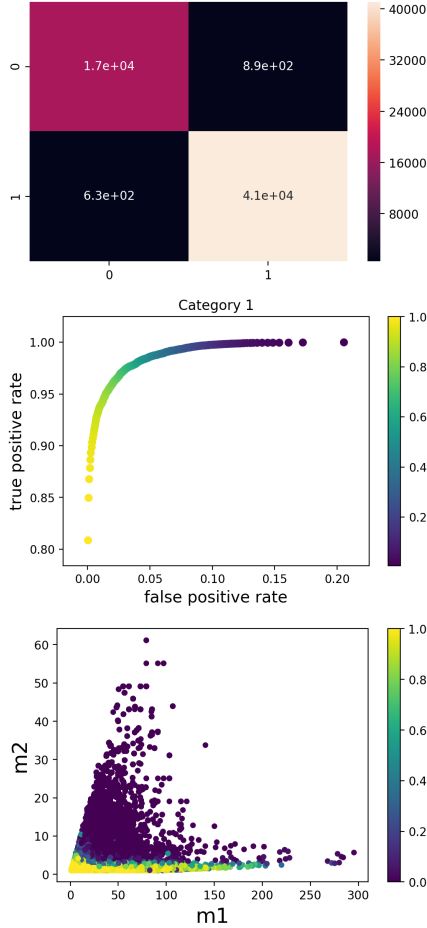


FIG. 1. Results with optimum model after crossvalidation. Using just independent recovered values (masses, spins and SNR).

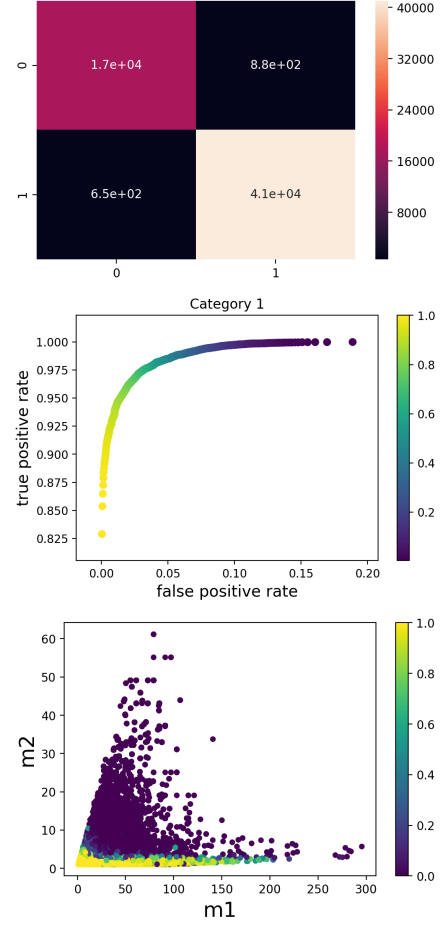


FIG. 2. Results with optimum model after crossvalidation. Using all recovered values (masses, spins and SNR, mass ratio, chirp mass, compactness and Risco).

B. Using recovered variables

Training and testing using: $m1_{rec}, m2_{rec}, chi1_{rec}, chi2_{rec}, mc_{rec}, q_{rec}, R_{isco_{rec}}, Compactness$. Standard deviation of score during crossvalidation: 0.0002807499052054315 . Mean: 0.9744466574442907 Score 0.975032917215287 . Optimum forest found: 400 trees, entropy criteria and sqrt max features
Score on testing: 0.9745329088818147

C. All injected values

No crossvalidated Score on testing: 0.9999833330555509

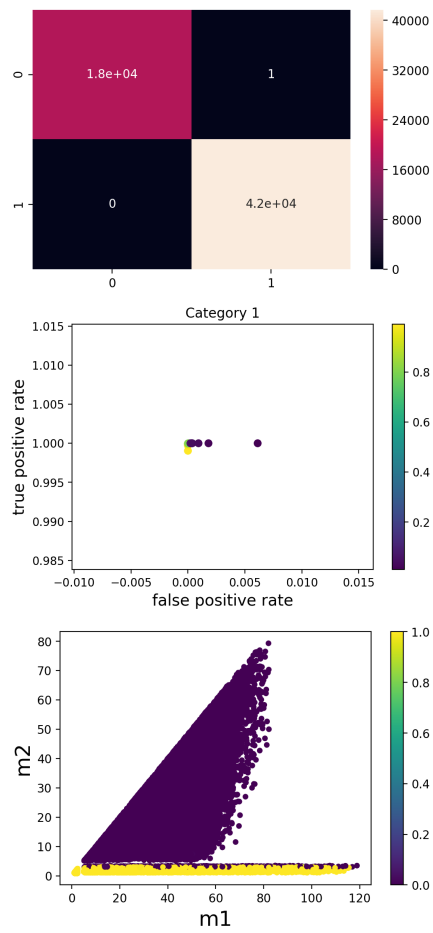


FIG. 3. Results using all the injected values

D. Independent injected values

Score on testing: 0.9999833330555509

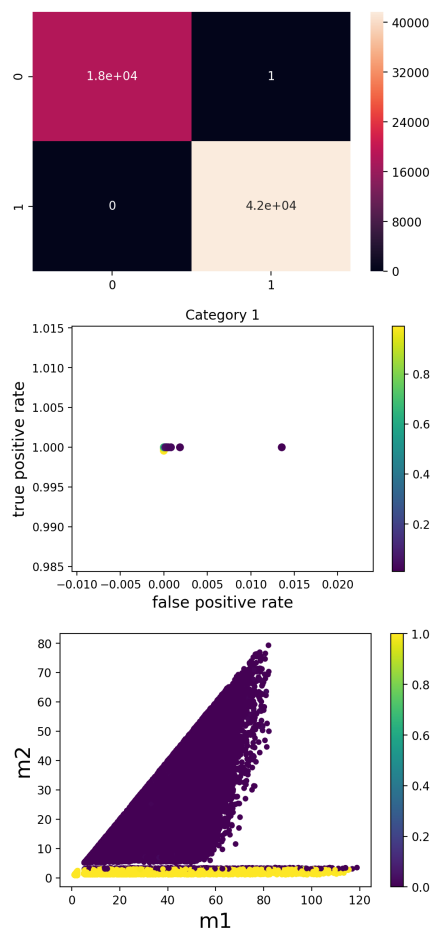


FIG. 4. Results using the independent injected values