



Two sample tests for high-dimensional covariance matrices

Jun Li, Song Xi Chen

(Submitted on 5 Jun 2012)

We propose two tests for the equality of covariance matrices between two high-dimensional populations. One test is on the whole variance-covariance matrices, and the other is on off-diagonal sub-matrices, which define the covariance between two nonoverlapping segments of the high-dimensional random vectors. The tests are applicable (i) when the data dimension is much larger than the sample sizes, namely the "large p , small n " situations and (ii) without assuming parametric distributions for the two populations. These two aspects surpass the capability of the conventional likelihood ratio test. The proposed tests can be used to test on covariances associated with gene ontology terms.

Comments: Published in at [this http URL](#) the Annals of Statistics ([this http URL](#)) by the Institute of Mathematical Statistics ([this http URL](#))

Subjects: **Statistics Theory (math.ST)**

Journal reference: Annals of Statistics 2012, Vol. 40, No. 2, 908-940

DOI: [10.1214/12-AOS993](#)

Report number: IMS-AOS-AOS993

Cite as: [arXiv:1206.0917](#) [math.ST]

(or [arXiv:1206.0917v1](#) [math.ST] for this version)

Submission history

From: Jun Li [[view email](#)]

[v1] Tue, 5 Jun 2012 13:10:07 GMT (137kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

math.ST

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1206](#)

Change to browse by:

[math](#)
[stat](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

