Record Nr. UNINA9910145698803321 2007 IEEE Conference on Computer Vision and Pattern Recognition **Titolo** (CVPR) Pubbl/distr/stampa [Place of publication not identified], : IEEE, 2007 **ISBN** 1-5090-9068-1 Descrizione fisica 1 online resource Disciplina 621.3819598 Soggetti Pattern recognition systems Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Bibliographic Level Mode of Issuance: Monograph Note generali Sommario/riassunto Linear and affine subspaces are commonly used to describe appearance of objects under different lighting, viewpoint, articulation, and identity. A natural problem arising from their use is - given a query image portion represented as a point in some high dimensional space - find a subspace near to the query. This paper presents an efficient solution to the approximate nearest subspace problem for both linear and affine subspaces. Our method is based on a simple reduction to the problem of nearest point search, and can thus employ tree based search or locality sensitive hashing to find a near subspace. Further speedup may be achieved by using random projections to lower the dimensionality of the problem. We provide theoretical proofs of correctness and error bounds of our construction and demonstrate its capabilities on synthetic and real data. Our experiments demonstrate that an approximate nearest subspace can be located significantly faster than

variations due to viewpoint, lighting etc.

the exact nearest subspace, while at the same time it can find better matches compared to a similar search on points, in the presence of