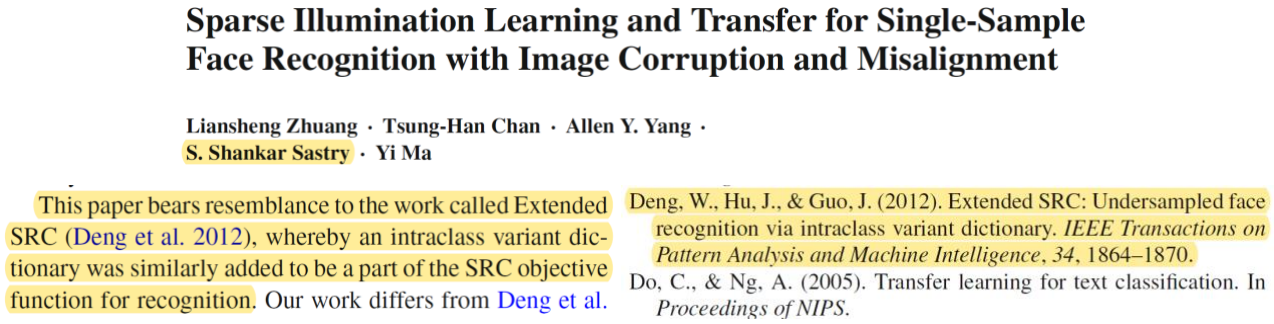
Representative publications:

Weihong Deng, Jiani Hu, Jun Guo, Extended SRC: Undersampled Face Recognition via Intra-Class Variant Dictionary, IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), vol. 34, no. 9, pp. 1864-1870, 2012.

Representative citations:

1) **Shankar Sastry**, a member of the American Academy of Engineering and a professor at the University of California, Berkeley, cited our work in a total of 8 places in his paper published in IJCV 2015 and pointed out that the proposed method has similarity with our ESRC method due to the inclusion of the same dictionary of intraclass variations in the sparsely-represented recognition objective function.



Sparse Illumination Learning and Transfer for Single-Sample Face Recognition with Image Corruption and Misalignment

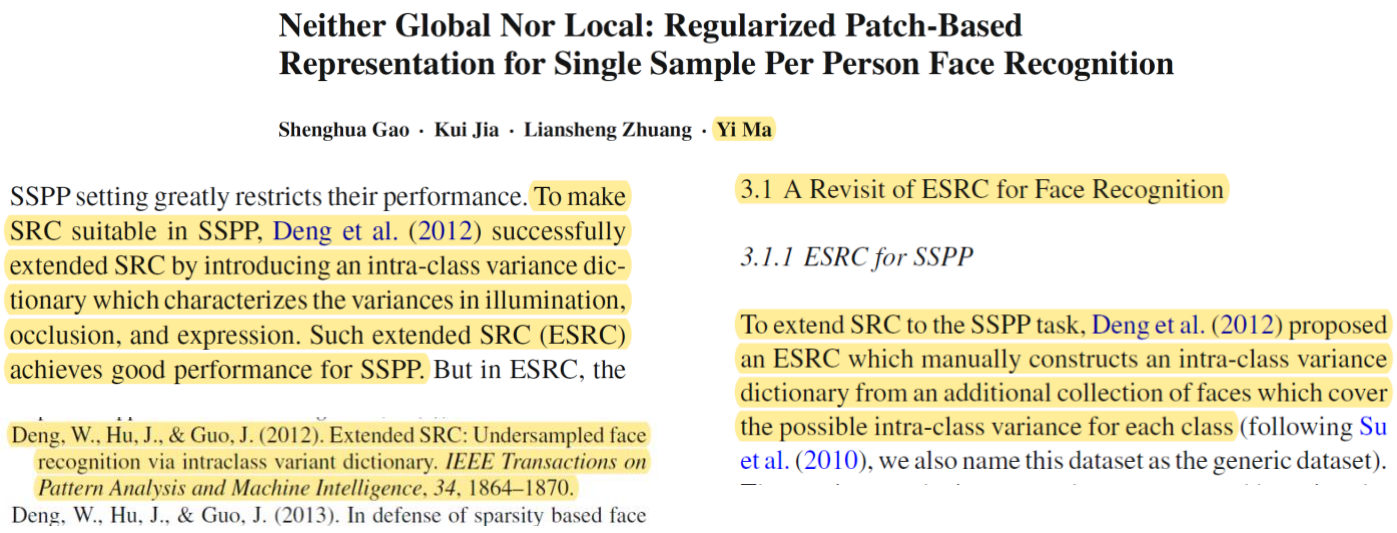
Liansheng Zhuang · Tsung-Han Chan · Allen Y. Yang · S. Shankar Sastry · Yi Ma

This paper bears resemblance to the work called Extended SRC (Deng et al. 2012), whereby an intraclass variant dictionary was similarly added to be a part of the SRC objective function for recognition. Our work differs from Deng et al.

Deng, W., Hu, J., & Guo, J. (2012). Extended SRC: Undersampled face recognition via intraclass variant dictionary. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *34*, 1864–1870.

Do, C., & Ng, A. (2005). Transfer learning for text classification. In *Proceedings of NIPS*.

2) **Yi Ma**, IEEE Fellow and professor at UC Berkeley, cited our proposed ESRC model in detail in his paper published in IJCV 2015 with an independent chapter (A Revisit of ESRC for Face Recognition), and commented that the work **successfully extended** the SRC method and achieved **good performance** on the single-sample face recognition problem.



Neither Global Nor Local: Regularized Patch-Based Representation for Single Sample Per Person Face Recognition

Shenghua Gao · Kui Jia · Liansheng Zhuang · Yi Ma

SSPP setting greatly restricts their performance. To make SRC suitable in SSPP, Deng et al. (2012) successfully extended SRC by introducing an intra-class variance dictionary which characterizes the variances in illumination, occlusion, and expression. Such extended SRC (ESRC) achieves good performance for SSPP. But in ESRC, the

Deng, W., Hu, J., & Guo, J. (2012). Extended SRC: Undersampled face recognition via intraclass variant dictionary. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *34*, 1864–1870.

Deng, W., Hu, J., & Guo, J. (2013). In defense of sparsity based face

3.1 A Revisit of ESRC for Face Recognition

3.1.1 ESRC for SSPP

To extend SRC to the SSPP task, Deng et al. (2012) proposed an ESRC which manually constructs an intra-class variance dictionary from an additional collection of faces which cover the possible intra-class variance for each class (following Su et al. (2010), we also name this dataset as the generic dataset).

3) **Alan L. Yuille**, IEEE Fellow and Professor at UCLA, cited our proposed ESRC model in detail in his paper published in TIP 2017 in a whole paragraph, evaluating that our method can address the limitations of SRC (Sparse Representation Classification) when facing the problem of insufficient number of samples for each class to construct a complete dictionary, and claiming that the improvement based on ESRC can achieve good results on the single-sample recognition problem. It is also claimed that the improvement based on ESRC can achieve **good results** on the single sample recognition problem.

Semi-Supervised Sparse Representation Based Classification for Face Recognition With Insufficient Labeled Samples

Yuan Gao, Jiayi Ma, and Alan L. Yuille, *Fellow, IEEE*

(*e.g.* different persons may wear the same sunglasses). Recent improvements on ESRC can give good results for this problem even when the subject only has a single labeled sample (namely the Single Labeled Sample Per Person problem, *i.e.* SLSPP) [14]–[17].

Recently, ESRC was proposed to address the limitations of SRC when the number of samples per class is insufficient to obtain an over-complete dictionary, where a variation dictionary is introduced to represent the linear variation [13].

[13] W. Deng, J. Hu, and J. Guo, "Extended SRC: Undersampled face recognition via intraclass variant dictionary," *IEEE Trans. Pattern Anal. Mach. Intell.*, vol. 34, no. 9, pp. 1864–1870, Sep. 2012.

4) **Massimo Tistarelli**, editorial board member of IEEE TPAMI and professor at the University of Sassari, Italy, commented in his paper published in ACCV 2012 that our work has achieved **promising results**.

Cohort Normalization based Sparse Representation for Undersampled Face Recognition

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one sample per person face recognition [9]. In [10], an auxiliary intra-class variant dictionary was introduced to extend SRC to undersampled face recognition and achieved promising results.

10. Deng, W.H., Hu, J.N., Guo, J.: Extended SRC: undersampled face recognition via intra-class variant dictionary. IEEE PAMI **34** (2012) 1864–1870

5) **Edwin R. Hancock**, Vice President of IAPR, IEEE Fellow, and Professor at the University of York, UK, in his paper published in Pattern Recognition 2018, claims to have been **motivated by** our work, and **followed by** our work to construct the original intrinsic face change dictionary, **according to** that work to construct reflectance and build a change dictionary.

Recovering variations in facial albedo from low resolution images

Xu Chen[a], Zhihong Zhang[a,*], Beizhan Wang[a], Guosheng Hu[b], Edwin R. Hancock[c]

[a] *Xiamen University, Xiamen, China*
[b] *Anyvision Company, Belfast, UK*
[c] *Department of Computer Science, University of York, York, YO10 5GH, UK*

occlusion. Motivated by Chen et al. [24], Deng et al. [25], in this work, we model the problem of albedo estimation as follow:

where $\mathbf{V}_0$ is the raw intrinsic facial variation dictionary constructed according to [25], and $\|\cdot\|_*$ represents the nuclear norm. This pro-

the variation dictionary $\mathbf{V}$. The construction of albedo and variation dictionaries are adopted from ESRC [25] followed by the filtering step introduced in Section 3.3.1. The images from the FERET

[25] W. Deng, J. Hu, J. Guo, Extended SRC: undersampled face recognition via intraclass variant dictionary, IEEE Trans. Pattern Anal. Mach. Intell. 34 (9) (2012) 1864–1870.

6) **Bin Hu**, IEEE Fellow and professor at Lanzhou University, claimed in his paper published in TIM 2021 that our proposed method makes the sparse representation theory in Euclidean space **greatly promoted**.

Epileptic Seizure Detection in EEG Signals Using Discriminative Stein Kernel-Based Sparse Representation

Chang Lei, Shuzhen Zheng, Xuan Zhang, Dixin Wang, Hongtong Wu, Hong Peng, *Member, IEEE*, and Bin Hu, *Senior Member, IEEE*

nition. Although SR theory has been greatly promoted in the Euclidean space like the kernel SRC (KSRC) [23] and the extended SRC (ESRC) [24], the representation in the non-Euclidean space is rarely studied. In this article, the SR

[24] W. Deng, J. Hu, and J. Guo, "Extended SRC: Undersampled face recognition via intraclass variant dictionary," *IEEE Trans. Pattern Anal. Mach. Intell.*, vol. 34, no. 9, pp. 1864–1870, Sep. 2012.

7） **Yiu-ming Cheung**, IEEE/AAAS/IET/AAIA Fellow and Professor at Hong Kong Baptist University, evaluated our method in his paper published in TNNLS 2021 (representative paper 4) as **a state-of-the-art generic learning method**.

DisP+V: A Unified Framework for Disentangling Prototype and Variation From Single Sample per Person

Meng Pang, Binghui Wang, *Member, IEEE*, Mang Ye, Yiu-ming Cheung, *Fellow, IEEE*, Yiran Chen, *Fellow, IEEE*, and Bihan Wen, *Member, IEEE*

nation. In Fig. 1(a), we show a failed reconstruction example of a state-of-the-art generic learning method, i.e., superposed linear representation classifier (SLRC) [26], when dealing with the pose variation. It is observed that the reconstructed image

[26] W. Deng, J. Hu, and J. Guo, "Face recognition via collaborative representation: Its discriminant nature and superposed representation," *IEEE Trans. Pattern Anal. Mach. Intell.*, vol. 40, no. 10, pp. 2513–2521, Oct. 2018.