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## 1 Papers Revisit

- Cascade Pose Regression
- Robust Cascade Pose Regression
- Discriminative Fitting Response Maps
- Face Alignment at 3000fps via Local Binary Features
- Supervised Descent Method
- Global Supervised Descent Method
- Unconstrained Face Alignment via CCL
- Deep Regression Networks Coupled with De-corrupted Autoencoder

## 2 Experiment

- Robust Cascade Pose Regression
- Local Binary Features
- Discriminative Fitting Response Maps



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### 2 Experiment

- Robust Cascade Pose Regression
- Local Binary Features
- Discriminative Fitting Response Maps



- Cascaded Pose Regression <sup>[1]</sup>
- Robust Cascaded Pose Regression <sup>[2]</sup>
- Discriminative Fitting Response Maps <sup>[3]</sup>
- Supervised Descent Method <sup>[4]</sup>
- Global Supervised Descent Method <sup>[5]</sup>
- Face Alignment at 3000fps via Local Binary Features <sup>[6]</sup>
- Unconstrained Face Alignment via Cascaded Compositional Learning <sup>[7]</sup>
- Deep Regression Networks Coupled with De-corrupted Autoencoder <sup>[8]</sup>



- Main idea:
- Features:
- Model:



- Main idea:
- Features:
- Model:



- Main idea:
- Features:
- Model:



- Main idea:
- Features:  
Random Forest Local Binary Features
- Model:  
Cascaded Regression Model





- Main idea:
- Features:  
SIFT
- Model:  
Cascaded Regression Model



- Main idea:  
DHDs(Domains of Homogenous Descent)
- Features:  
SIFT
- Model:



- Main idea:
- Features:  
Revised LBF
- Model:  
DHDs Model



- Main idea:  
cascading a Autoencoder to de-corrupt the occlusion part of the face;  
And benefit regression networks and de-corrupt autoencoder from each other.
- Features:
- Model:  
DRDA



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## 2 Experiment

- Robust Cascade Pose Regression
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- RCPR
- LBF
- DFRM



Result:



Result:





Result:



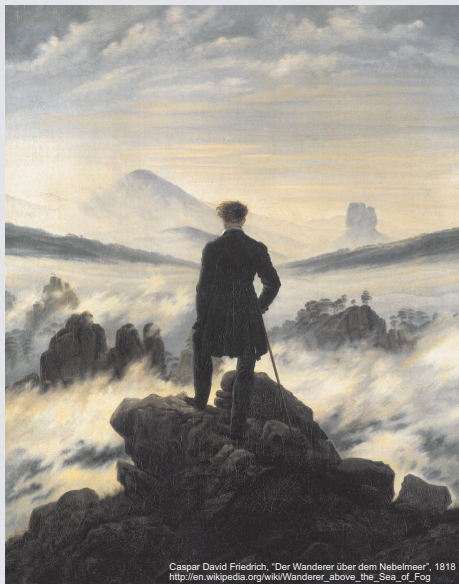
# Thank you.

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Caspar David Friedrich, "Der Wanderer über dem Nebelmeer", 1818  
[http://en.wikipedia.org/wiki/Wanderer\\_above\\_the\\_Sea\\_of\\_Fog](http://en.wikipedia.org/wiki/Wanderer_above_the_Sea_of_Fog)





1. P. Dollr, P. Welinder, and P. Perona. Cascadedpeepopenose regression. In *Computer Vision and Pattern Recognition (CVPR), 2010 IEEE Conference on*, pages 1078–1085, June 2010. doi: 10.1109/CVPR.2010.5540094.
2. X. P. Burgos-Artizzu, P. Perona, and P. Dollr. Robust face landmark estimation under occlusion. In *2013 IEEE International Conference on Computer Vision*, pages 1513–1520, Dec 2013. doi: 10.1109/ICCV.2013.191.
3. A. Asthana, S. Zafeiriou, S. Cheng, and M. Pantic. Robust discriminative response map fitting with constrained local models. In *Computer Vision and Pattern Recognition (CVPR), 2013 IEEE Conference on*, pages 3444–3451, June 2013. doi: 10.1109/CVPR.2013.442.
4. X. Xiong and F. De la Torre. Supervised descent method and its applications to face alignment. In *Computer Vision and Pattern Recognition (CVPR), 2013 IEEE Conference on*, pages 532–539, June 2013. doi: 10.1109/CVPR.2013.75.
5. X. Xiong and F. De la Torre. Global supervised descent method. In *2015 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 2664–2673, June 2015. doi: 10.1109/CVPR.2015.7298882.
6. S. Ren, X. Cao, Y. Wei, and J. Sun. Face alignment at 3000 fps via regressing local binary features. In *2014 IEEE Conference on Computer Vision and Pattern Recognition*, pages 1685–1692, June 2014. doi: 10.1109/CVPR.2014.218.
7. Shizhan Zhu, Cheng Li, Chen-Change Loy, and Xiaoou Tang. Unconstrained face alignment via cascaded compositional learning. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2016.
8. Jie Zhang, Meina Kan, Shiguang Shan, and Xilin Chen. Occlusion-free face alignment: Deep regression networks coupled with de-corrupt autoencoders. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2016.