Deep Learning for Computer Vision. Paper Review

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1 Paper

- **Title:** Siamese Cascaded Region Proposal Networks for Real-Time Visual Tracking
- **Authors:** Heng Fan, Haibin Ling
- **Link:** http://openaccess.thecvf.com/content_CVPR_2019/papers/Fan_Siamese_Cascaded_Region_Prop Time_Visual_Tracking_CVPR_2019_paper.pdf
- **Tags:** Region Proposal Networks, Siamese network, Real-Time Visual Tracking, Feature Transfer Block
- **Year:** 2019

2 Summary

- **What:**
  - They introduce a novel multistage tracking framework, the Siamese Cascaded RPN (CRPN), to solve the problem of class imbalance.
  - Use a feature transfer block (FTB) which enables to fuse the high-level features into low-level RPN, which further improves its discriminative power to deal with complex background.
- **How:**
  - Basic method
    - Their approach cascades a sequence of RPNs to address the data imbalance by performing hard negative sampling.
    - Th eapproach progressively refines anchor boxes for better target localization using multi-regression.
    - Using multi-level features for tracking.

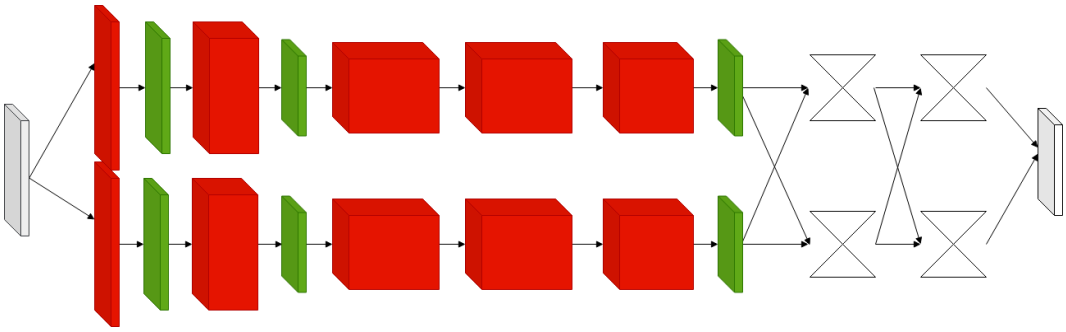

Figure 1: AlexNet Scheme

    - They propose a feature transfer block to fuse the features across layers for each RPN
  - Architecture
    - C-RPN contains two subnetworks: Siamese network and the cascaded RPN.
    - As a Siamese network branch they adopted the modified AlexNet Figure [1].

- **Results:**

  Report is in progress now ...