

# 최종 정리

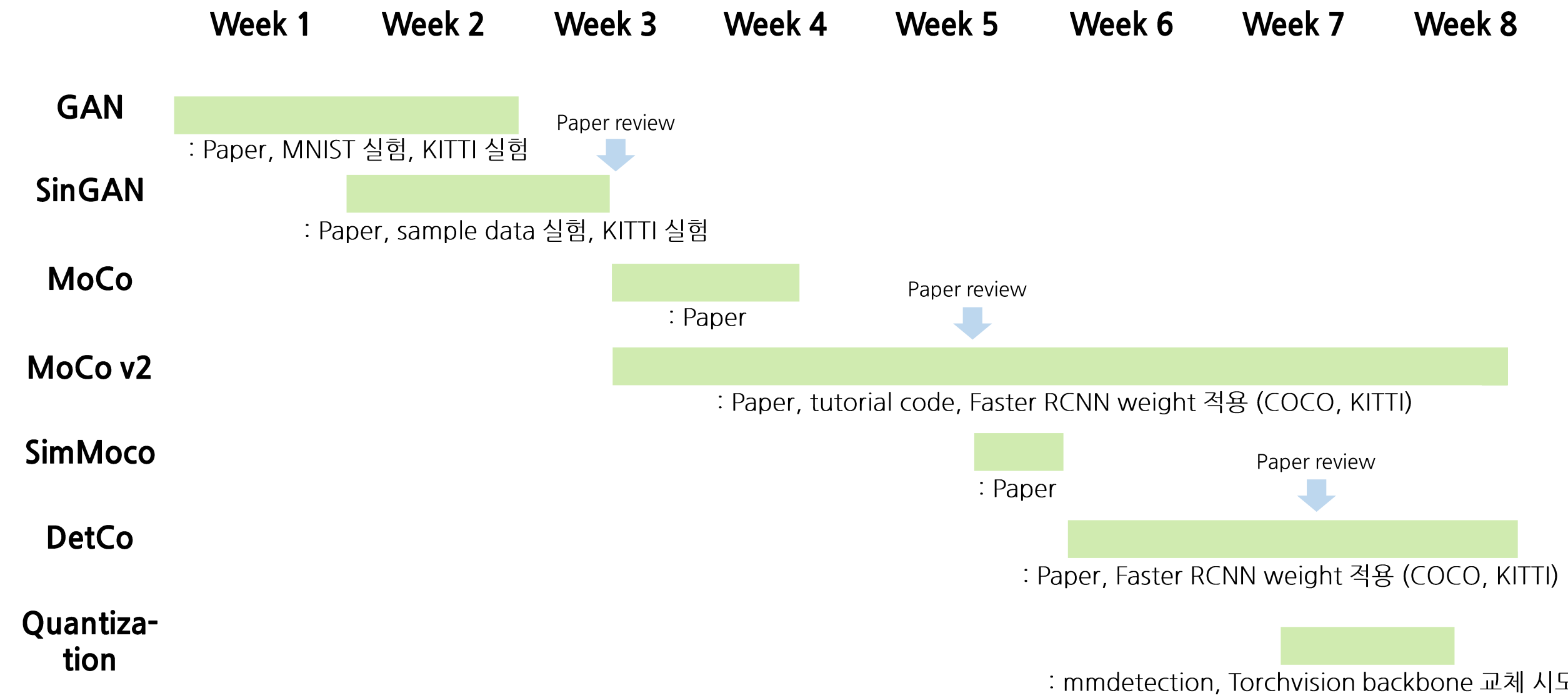
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2022.08.12 Fri.

한 다 희 Han Dahee



# Project Timeline



~~Task 1. GAN을 활용한 특수 케이스 이미지 생성~~

~~1. GAN~~

~~2. SinGAN~~

→ 중간 발표

Task 2. Faster-RCNN에 MoCo v2 weight를 적용한 것과 from\_scratch 비교

~~Task 1. GAN을 활용한 특수 케이스 이미지 생성~~

~~1. GAN~~

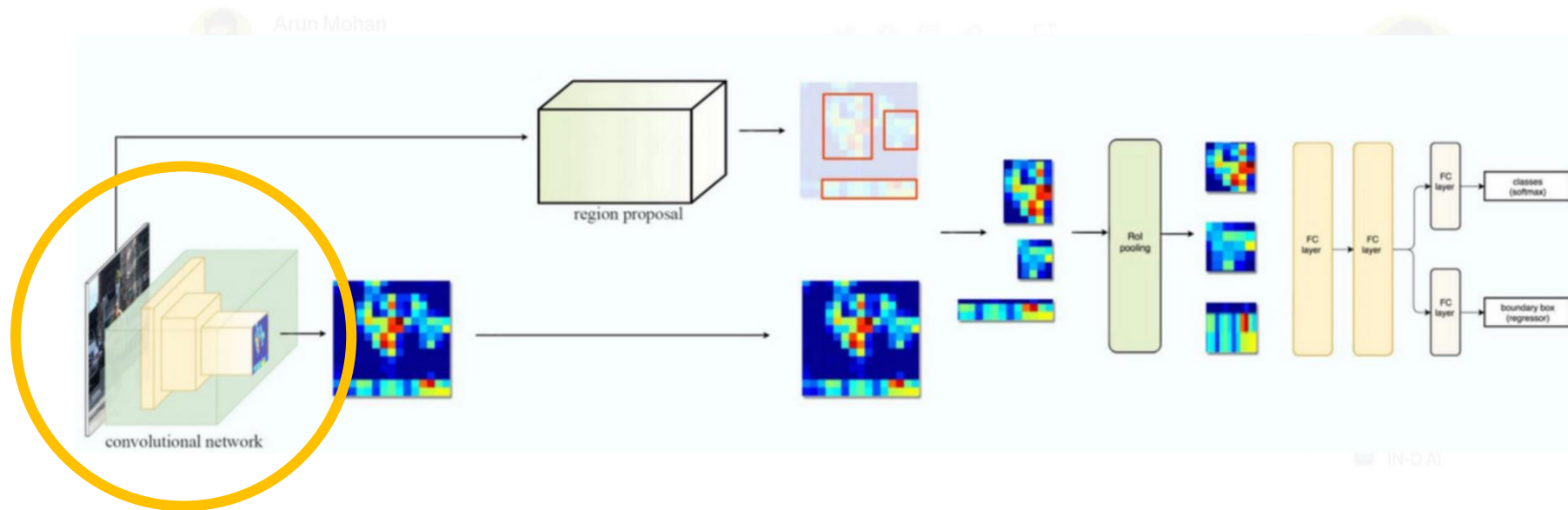
~~2. SinGAN~~

→ 중간 발표

~~Task 2. Faster-RCNN에 MoCo v2 weight를 적용한 것과 from\_scratch 비교~~

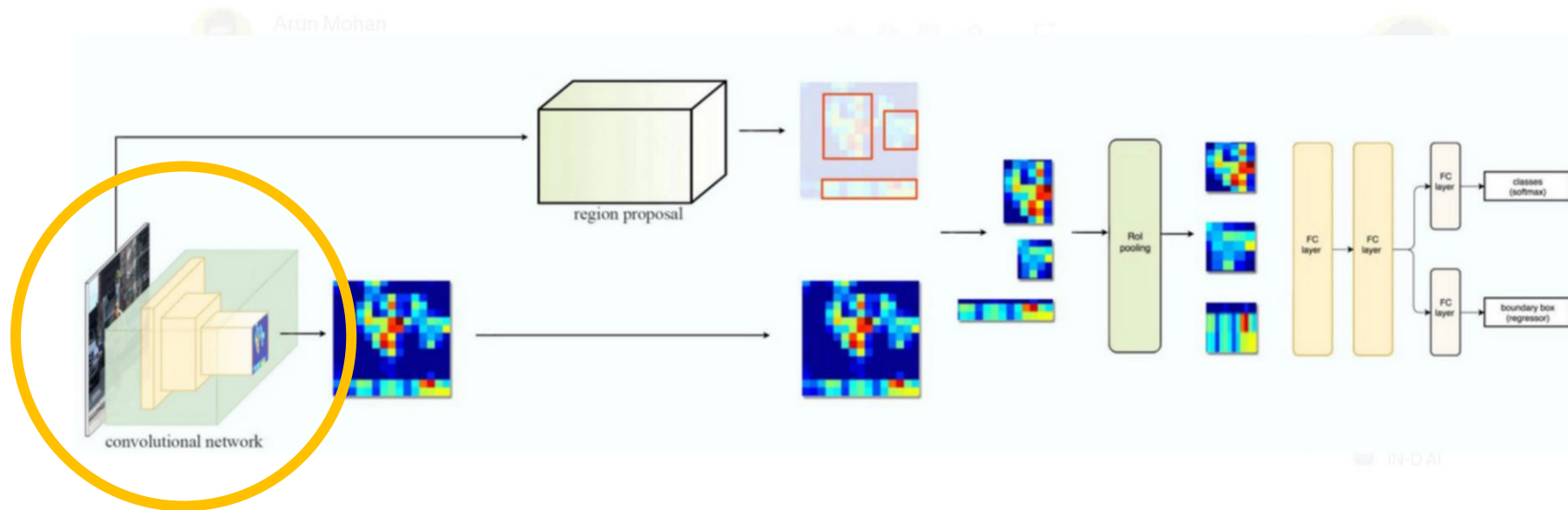
→ Task 2. Faster-RCNN에 Resnet50, MoCo v2, Detco weight 적용 & 비교

## faster rcnn



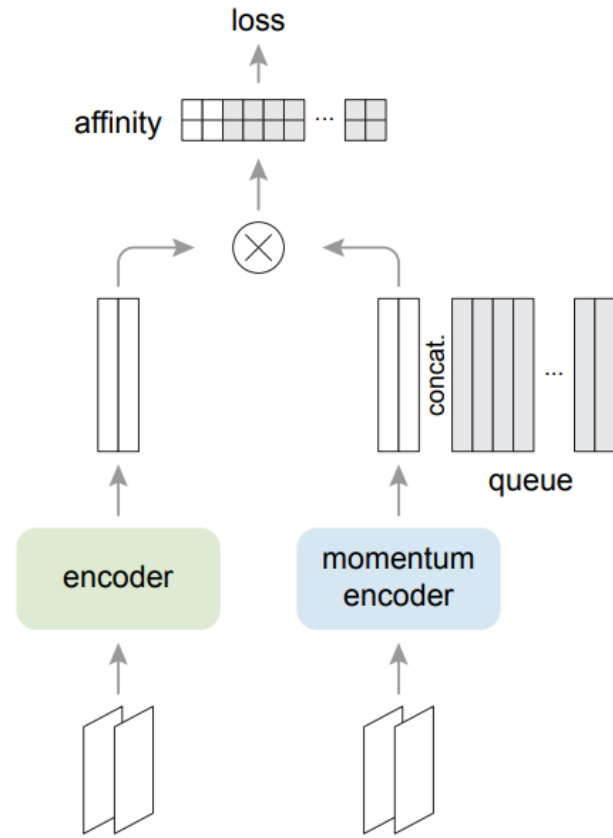
Backbone : Resnet50

## faster rcnn



Backbone : Resnet50

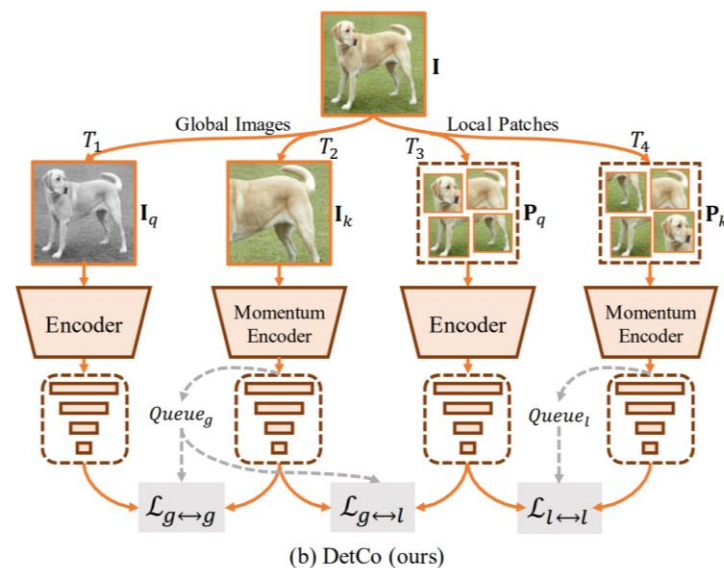
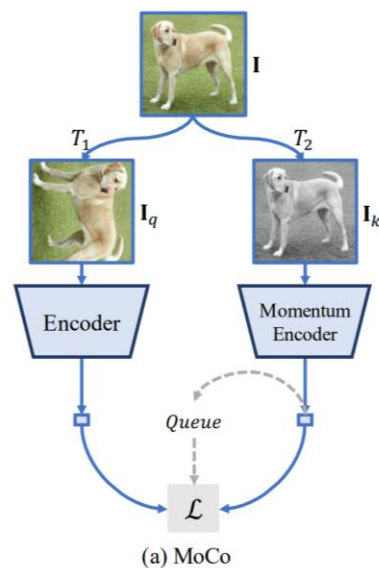
- Backbone weight 교체 & 비교
- Default : Resnet50
- MoCo v2, DetCo pre-trained model on ImageNet



(b) Momentum Contrast

- Unsupervised representation learning
- Contrastive learning → good image representation
- Large dictionary, momentum encoder → key consistency

→ *효과적인 image feature 추출 기대*



- Self-supervised approach
- unsupervised representation learning
- Object detection, image classification 모두 효과적인 image representation 학습
- **MoCo v2 base** + multi-level supervision + contrastive learning between global and local patch

→ 효과적인 image feature 추출 기대



## Result – Validation Set

Backbone weight	Epoch	Learning Rate	mAP	mAP_50	mAP_75
Resnet50	12	0.0025	0.376	<b>0.584</b>	0.409
MoCo v2	12	0.0025	0.351	0.548	0.378
DetCo	12	0.0025	<b>0.377</b>	0.583	<b>0.410</b>

**Object detection on COCO using Faster RCNN**

Backbone weight	Epoch	Learning Rate	mAP
Resnet50	12	0.0025	0.884
MoCo v2	12	0.00025	0.848
DetCo	12	0.0025	<b>0.891</b>

**Object detection on KITTI using Faster RCNN**

# References

## [Paper]

He, K., Fan, H., Wu, Y., Xie, S., & Girshick, R. (2020). Momentum contrast for unsupervised visual representation learning. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition* (pp. 9729-9738).

Chen, X., Fan, H., Girshick, R., & He, K. (2020). Improved baselines with momentum contrastive learning. *arXiv preprint arXiv:2003.04297*.

Xie, E., Ding, J., Wang, W., Zhan, X., Xu, H., Sun, P., ... & Luo, P. (2021). Detco: Unsupervised contrastive learning for object detection. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 8392-8401).

## [Paper Review]

[https://github.com/Dahee9532/paper\\_review\\_ss2022](https://github.com/Dahee9532/paper_review_ss2022)

## [Code]

<https://github.com/Dahee9532/2022si>

Thank you 😊