Module	Heading	Main Paper	Additional Readings
	No paper discussion		
Learning the convolutional Filters	**Convolutions**	All about convolutions : A guide to convolution arithmetic for deep learning	Xception: Deep Learning with Depthwise Separable Convolutions
			Multi-Scale Context Aggregation by Dilated Convolutions
	LeNet	Gradient-Based Learning Applied to Document Recognition	Activation Functions: Comparison of trends in Practice and Research for Deep Learning
	Activation, weight init	Understanding the Difficulty of training Deep feedforward Neural Networks	Visualizing the Loss Landscape of Neural NetsLinks to an external site.
			Delving Deep into Rectifiers: Surpassing Human-Level Performance on ImageNet Classification
	AlexNet	ImageNet Classification with Deep Convolutional Neural Networks	Visualizing and Understanding Convolutional Networks
			Dropout: A Simple Way to Prevent Neural Networks from Overfitting
	VGGNet	Very Deep Convolutional Networks for Large-Scale Visual Recognition	
	Deep-supervision	Deeply supervised nets	Batch Normalization
			Layer Normalization
			Group Normalization
			Instance Normalization
			Weight Standardization
	Knowledge Distillation	Distilling the Knowledge in a Neural Network	Network in Network (additional notes)
	Inception Models	GoogLeNet: Going Deeper with Convolutions	Deformable convolutional networks
			Inception v3: Rethinking the inception architecture for computer vision
	Residual Networks	Deep Residual Learning for Image Recognition	Identity Mapping in Deep Residual Networks (additional Notes)
		Aggregated Residual Transformations for Deep Neural Networks	Deep Networks with Stochastic Depth
		Wide Residual Networks	
Transformer	**Transformer**	Attention is all you need	The Illustrated Transformer
	Vision Transformer	An Image is Worth 16x16 Words: Transformers for Image Recognition at Scale	Transformers are Graph Neural Networks
	DieT	Training data-efficient image transformers & distillation through attention	
	Swin Transformer	Swin Transformer: Hierarchical Vision Transformer using Shifted Windows	
			Swin Transformer v2
			A ConvNet for the 2020s
	convolution in ViT	CvT: Introducing Convolutions to Vision Transformers	Demystifying local vision transformers: sparse connectivity, weight sharing, and dynamic weight
	Locality in ViT	Local ViT: Bringing Locality to vision transformers	Densely Connected Convolutional Networks
			inception-Densenet
Spring Break			
Segmentation	**U-Net**	U-Net: Convolutional Networks for Biomedical Image Segmentation	Eff-UNet: A Novel Architecture for Semantic Segmentation in Unstructured Environment
	FPN	Feature pyramid network for object detection	
	PVT	Pyramid Vision Transformer	Pyramid Vision Transformer V2
Generative Models	**VAEs**	Auto-Encoding Variational Bayes	
	GANs	Generative Adversarial Networ	Conditional Generative Adversarial NetworksLinks to an external site.
	Diffusion Models	2015: Deep Unsupervised Learning using Nonequilibrium Thermodynamics.Links to an external site.	
		Generative Modeling by Estimating Gradients of Data Distribution.	
		Denoising Diffusion Probabilistic Models.Links to an external site.	Improved Denoising Diffusion Probabilistic Models
		Cold Diffusion: Inverting Arbitrary Image Transforms Without Noise.Links to an external site.	
