Generative AI – Diffusion Models

CS course 236759, Technion

List of Papers for the Presentation Project

#	Title	Link
Architecture and Training		
100	Elucidating the Design Space of Diffusion-Based Generative Models	https://arxiv.org/abs/2206.00364
101	Analyzing and Improving the Training Dynamics of Diffusion Models	https://arxiv.org/abs/2312.02696
102	Guiding a Diffusion Model with a Bad Version of Itself	https://arxiv.org/abs/2406.02507
103	Masked Diffusion Transformer is a Strong Image Synthesizer	https://arxiv.org/abs/2303.14389
104	Scalable High-Resolution Pixel-Space Image Synthesis with Hourglass Diffusion Transformers	https://arxiv.org/abs/2401.11605
105	SANA: Efficient High-Resolution Image Synthesis with Linear Diffusion Transformers	https://arxiv.org/abs/2410.10629
SDE		
200	DPM-Solver: A Fast ODE Solver for Diffusion Probabilistic Model Sampling in Around 10 Steps	https://arxiv.org/abs/2206.00927
	DPM-Solver++: Fast Solver for Guided Sampling of Diffusion Probabilistic Models	https://arxiv.org/abs/2211.01095
201	Parallel Sampling of Diffusion Models	https://arxiv.org/abs/2305.16317
202	Soft Diffusion: Score Matching for General Corruptions	https://arxiv.org/abs/2209.05442
Distillation and Acceleration		
300	Flow Straight and Fast: Learning to Generate and Transfer Data with Rectified Flow	https://arxiv.org/abs/2209.03003
301	Consistency Models	https://arxiv.org/abs/2303.01469
	Improved Techniques for Training Consistency Models	https://arxiv.org/abs/2310.14189
302	TRACT: Denoising Diffusion Models with Transitive Closure Time-Distillation	https://arxiv.org/abs/2303.04248
303	Deep Equilibrium Approaches to Diffusion Models	https://arxiv.org/abs/2210.12867
304	Inductive Moment Matching	https://arxiv.org/abs/2503.07565

305	Flow matching for generative modeling	https://arxiv.org/abs/2210.02747
Inverse Problems		
400	Diffusion with Forward Models: Solving Stochastic Inverse Problems Without Direct Supervision	https://arxiv.org/abs/2306.11719
401	A Variational Perspective on Diffusion-Based Generative Models and Score Matching	https://arxiv.org/abs/2305.04391
402	Improving Diffusion Inverse Problem Solving with Decoupled Noise Annealing	https://arxiv.org/abs/2407.01521
403	Diffusion Posterior Sampling for Linear Inverse Problem Solving: A Filtering Perspective	https://openreview.net/forum?id=tplXNcHZs1
404	CFG++: Manifold-constrained Classifier Free Guidance for Diffusion Models	https://arxiv.org/abs/2406.08070
405	Inversion by direct iteration: An alternative to Denoising Diffusion for image Restoration	https://arxiv.org/abs/2303.11435
406	Stochastic interpolants with data-dependent couplings	https://arxiv.org/abs/2310.03725
Text-to-Image + Editing + Personalization		
500	Prompt-to-prompt	https://arxiv.org/abs/2208.01626
501	DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation	https://arxiv.org/abs/2208.12242
502	Imagic: Text-Based Real Image Editing with Diffusion Models	https://arxiv.org/pdf/2210.09276
503	TokenVerse: Versatile Multi-concept Personalization in Token Modulation Space	https://arxiv.org/pdf/2501.12224
504	DreamFusion: Text-to-3D using 2D Diffusion	https://arxiv.org/abs/2209.14988
505	Diffusion model alignment using direct preference optimization	https://arxiv.org/abs/2311.12908
506	Lumiere: A space-time diffusion model for video generation	https://arxiv.org/abs/2401.12945
507	An edit friendly ddpm noise space: Inversion and manipulations	https://arxiv.org/abs/2304.06140
508	Plug-and-Play Diffusion Features for Text-Driven Image-to-Image Translation	https://arxiv.org/abs/2211.12572
Non-Image Modalities + Extra Applications		
600	An Image is Worth One Word: Personalizing Text-to-Image Generation using Textual Inversion	https://arxiv.org/abs/2208.01618
601	Motion Prompting: Controlling Video Generation with Motion Trajectories	https://arxiv.org/abs/2412.02700

602	Discrete Diffusion Modeling by Estimating the Ratios of the Data Distribution	https://arxiv.org/abs/2310.16834
603	Simple and Effective Masked Diffusion Language Models	https://arxiv.org/abs/2406.07524
604	Large Language Diffusion Models	https://arxiv.org/abs/2502.09992
605	Lossy Compression with Pretrained Diffusion Models	https://arxiv.org/abs/2501.09815
606	Multidiffusion: Fusing diffusion paths for controlled image generation	https://arxiv.org/abs/2302.08113