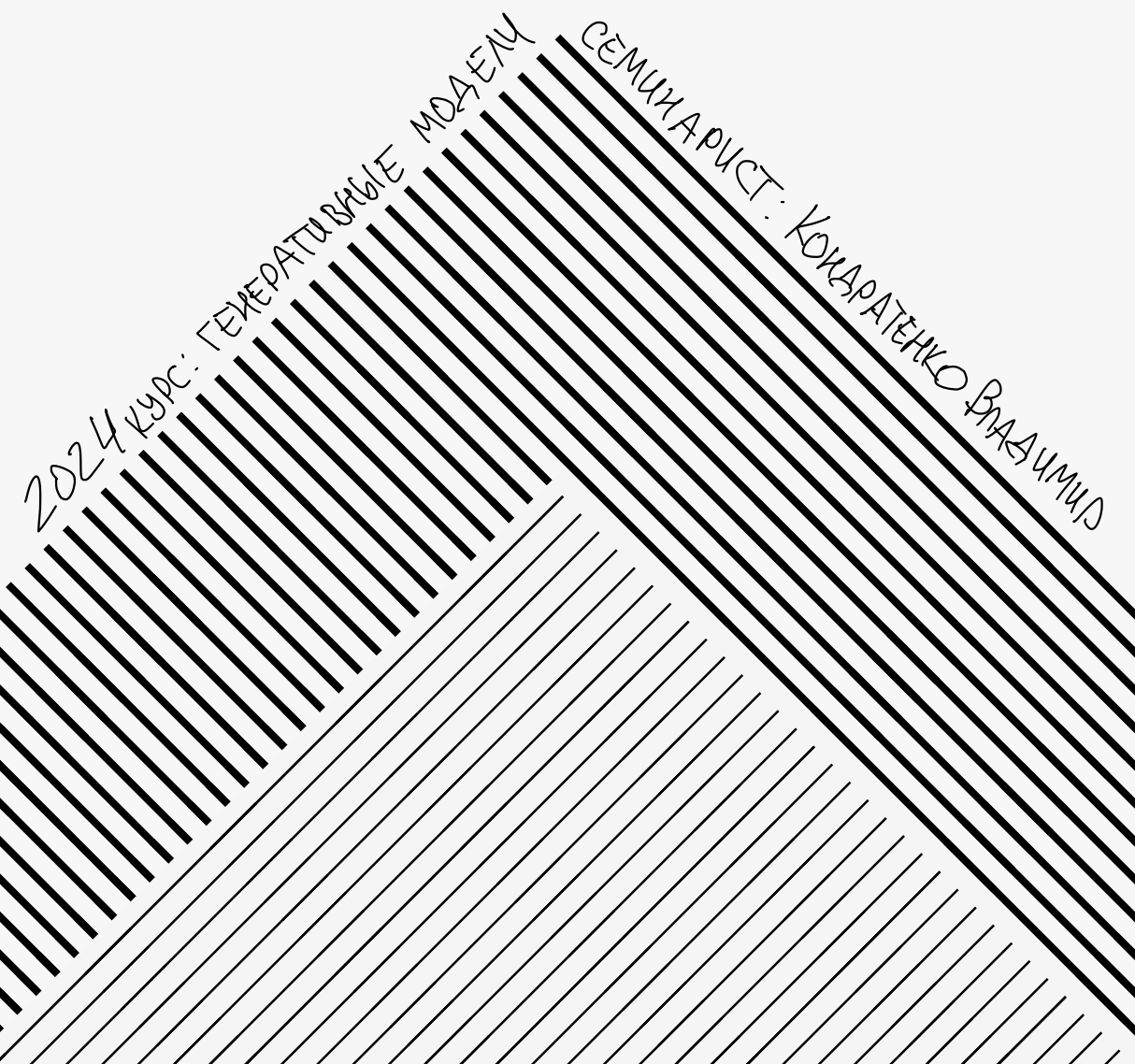
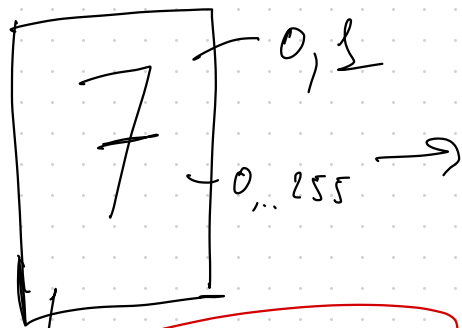


# Семінар 2

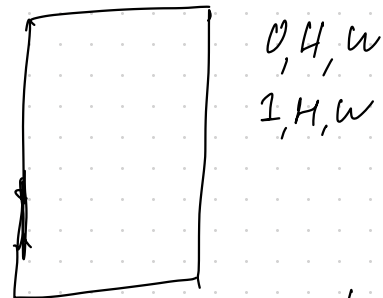


2024 КРС: ГЕНЕРАТУРНІЕ МОДЕЛІ

СЕМІНАРСТ: КОМАРЕНКО ВІАЧСЛАВ



Pixel CNN  $\rightarrow$



$(bs, c, H, w)$



$\times [0...255]$  — 256 напран  
 $[0, 1]$  — 2 нап 1

$P(x_{i+1} | x_{1:i}, \theta)$   
 $(bs, k, c, H, w)$

$\times_{1:i}, P(x_{i+1} | x_{1:i}, \theta)$   
 2 sampling

$x_{1:i+1}$

$$(\gamma) \rightarrow [P] \rightarrow p(x_1 | \theta) \sim x_{1:1}$$

$$x_{1:1} \rightarrow [P] \rightarrow p(x_2 | x_{1:1}, \theta) \sim x_{1:2}$$

...

$$x_{1:i} \rightarrow [P] \rightarrow p(x_{i+1} | x_{1:i}, \theta) \sim x_{1:i+1}$$

Sampling :

image  
( $b_s, c, H, w$ )

$x_{1:i}$

$\rightarrow$

$p(x_{i+1} | x_{1:i}, \theta)$   
dist  
( $b_s, k, c, H, w$ )

sampling

$x_{1:i+1}$   
( $b_s, c, H, w$ )

# TRAINING

$$\begin{pmatrix} p(x_1 | \theta) \\ p(x_2 | x_{1:i-1}, \theta) \\ \dots \\ p(x_{1:i} | x_{1:i-1}, \theta) \\ \dots \end{pmatrix} \xrightarrow{k} N \times k = \begin{pmatrix} p_1(x_i | x_{1:i-1}) & \dots & p_k(x_i | x_{1:i-1}) \\ \dots & \dots & \dots \end{pmatrix}$$

ML game framework? = Cross Entropy