

Winterstorm prediction

Nikita Kornilov

Moscow Institute of Physics and Technology

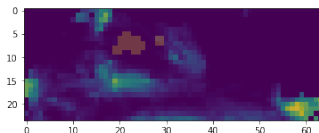
Course: My first scientific paper
(Strijov's practice)/Group 904

Expert: Y. Maximov

2022

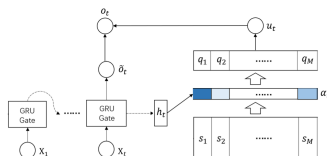
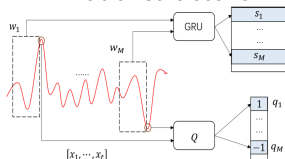
One-slide talk

(24, 64) class and feature maps example



Goal: predict both maps in time t

Model structure



Extreme Value Loss or EVL with γ

$$EVL(u_t, v_t) = -\beta_0 \left(1 - \frac{u_t}{\gamma}\right)^\gamma v_t \log(u_t) - \beta_1 \left(1 - \frac{1-u_t}{\gamma}\right)^\gamma (1 - v_t) \log(1 - u_t)$$

$$\beta_i = Pr(v_t = i), i \in \{0, 1\}$$

Total loss

$$\|o_t - y_t\|_F^2 + \lambda EVL(u_t, v_t)$$

o_t - predicted feature map

u_t - predicted class map

λ - hyperparameter