

### Data acquisition and preparation



Bi-temporal  
Images



### Siamese Variational Autoencoder



$\mu_1$   
 $\sigma_1$

Z1

Decoder



$\mu_2$   
 $\sigma_2$

Z2

Decoder

Concat

Z

SoftMax

Classification  
Map

$$CE = - \sum T \log Y$$

$$\begin{aligned} Z1 &= N(\mu_1, \sigma_1^2) \\ Z2 &= N(\mu_2, \sigma_2^2) \\ Z &= Z1 + Z2 \end{aligned}$$

### Performance analysis

SVAEDesert

SCNN

SRNN

Accuracy

Recall

F1-score

Precision

CE Loss

Best model performance