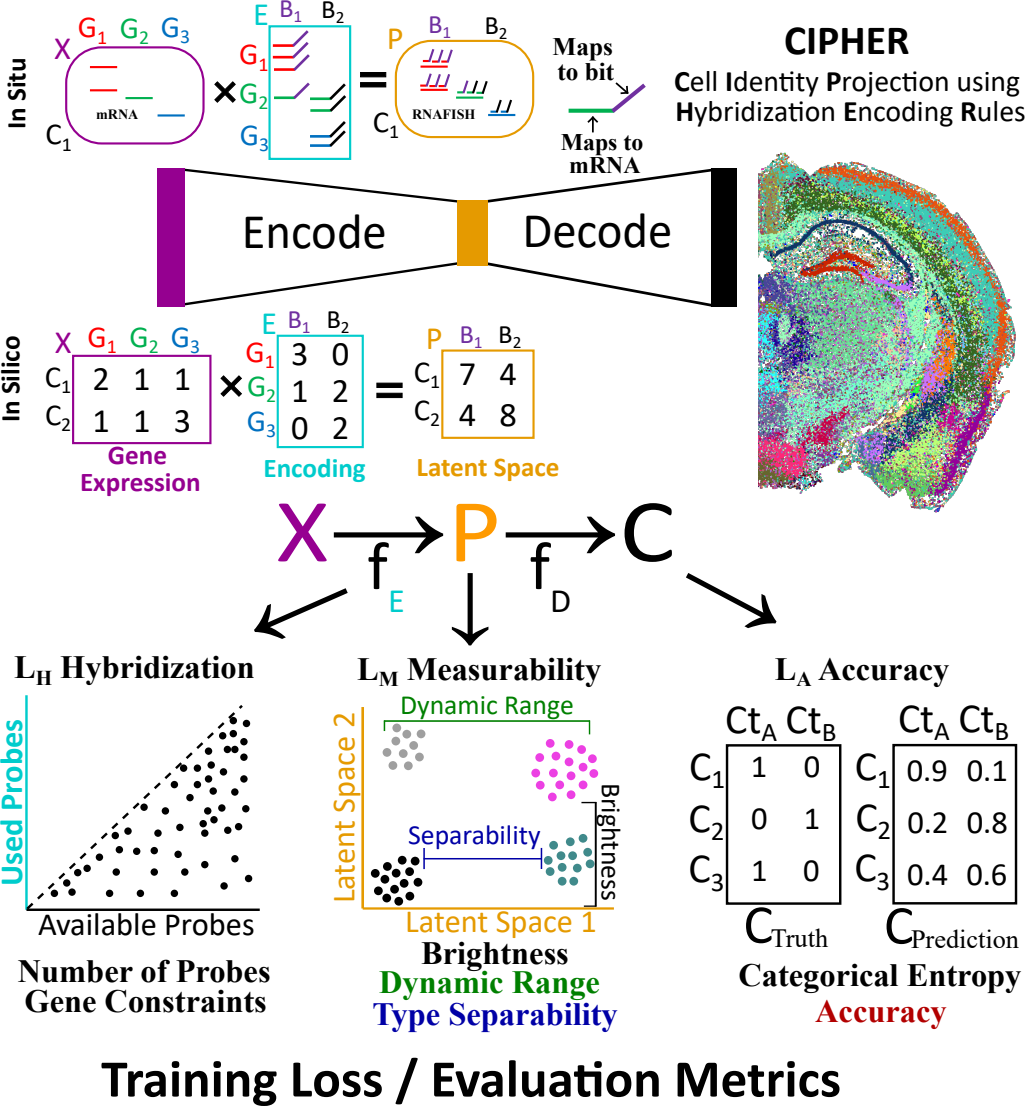
In Situ
X
G1 G2 G3
mRNA
C1
E
B1 B2
G1
G2
G3
P
B1 B2
RNAFISH
C1
Maps to bit
Maps to mRNA
CIPHER
Cell Identity Projection using Hybridization Encoding Rules
Encode
Decode
In Silico
X
G1 G2 G3
C1 2 1 1
C2 1 1 3
Gene Expression
E
B1 B2
G1 3 0
G2 1 2
G3 0 2
Encoding
P
B1 B2
C1 7 4
C2 4 8
Latent Space
X
f E
P
f D
C
L H Hybridization
Used Probes
Available Probes
Number of Probes
Gene Constraints
L M Measurability
Dynamic Range
Latent Space 2
Brightness
Separability
Latent Space 1
Brightness
Dynamic Range
Type Separability
L A Accuracy
Ct A Ct B
C1 1 0
C2 0 1
C3 1 0
C Truth
Ct A Ct B
C1 0.9 0.1
C2 0.2 0.8
C3 0.4 0.6
C Prediction
Categorical Entropy
Accuracy
Training Loss / Evaluation Metrics