Nonlinear State Space Linear Latent Space $X_{t+1} = F(X_t)$ $Y_{t+1} = KY_t$ Project Lift Back **Observations:** $\{X_1,X_2,\ldots,X_t,X_{t+1},\ldots,X_T\}$ $X = [x^{(1)}, x^{(2)}, \dots, x^{(N)}]$ Encoder Decoder **K Network** K K **Data-driven Koopman** X_t X_{t+1} Framework Y_{t+1} Y_t