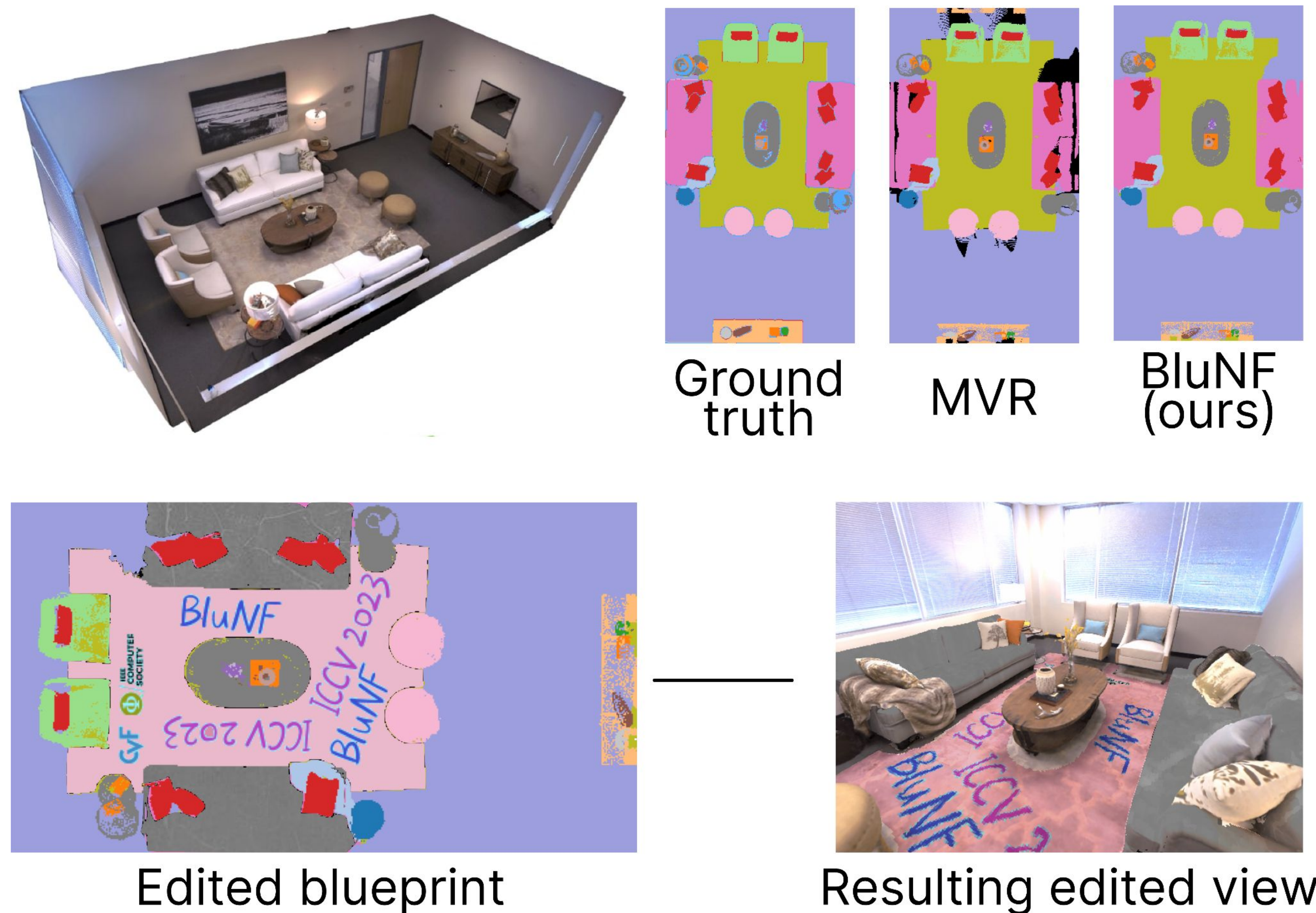


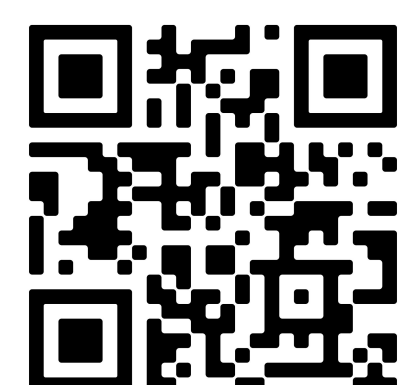
BluNF: Blueprint Neural Field

Robin Courant^{1*}, Xi Wang^{1*}, Marc Christie², Vicky Kalogeiton¹
¹LIX, Ecole Polytechnique, IP Paris ²Inria, IRISA, CNRS, Univ. Rennes



Contributions:

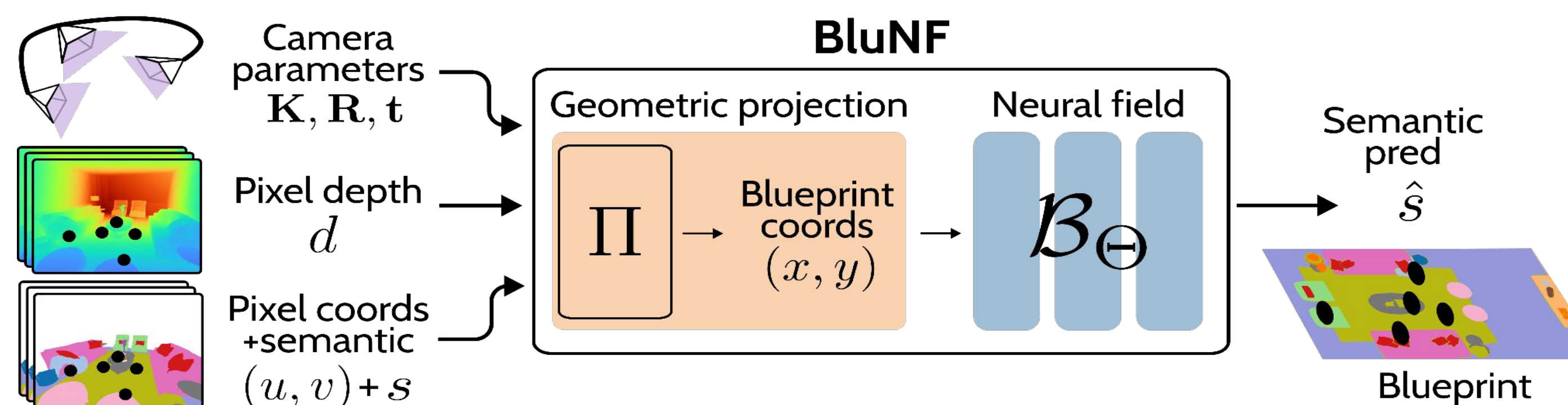
- BluNF: a novel scene blueprint generator:** generating blueprints using implicit learning, free from explicit geometric constraints and supervision.
- Robustness:** BluNF is an underlying representation robust to noise and noisy observations enabling reliable semantic layer identification.
- Seamless editing with NeRF:** BluNF combined with NeRF facilitates user-friendly scene editing through 2D blueprint manipulations.



Scan to visit our project page for more information (demo, video, paper).

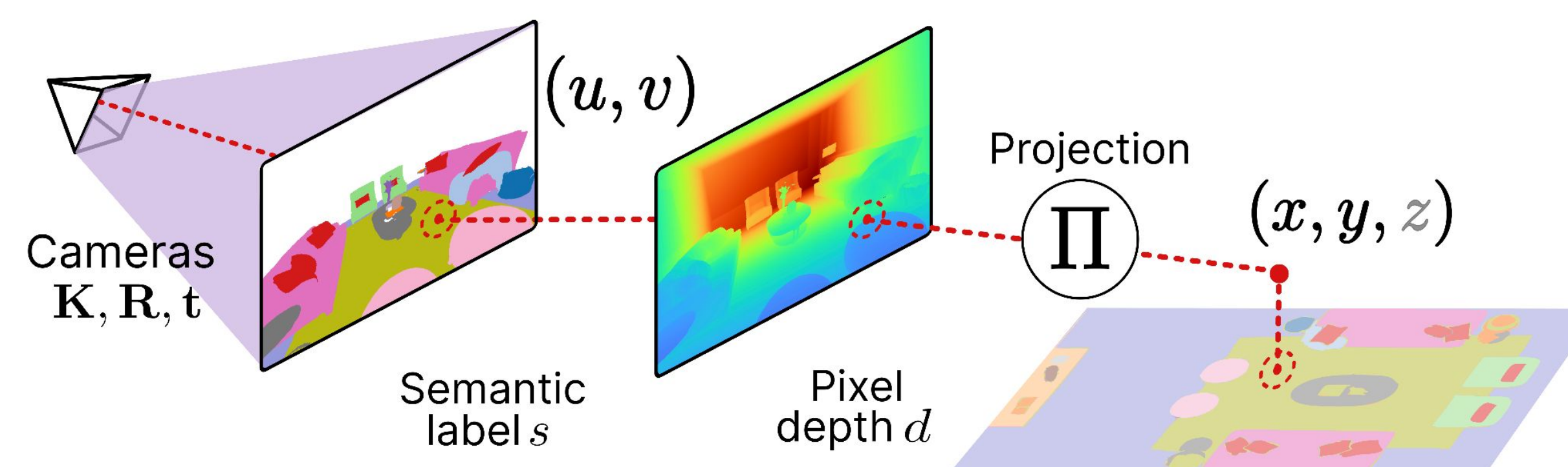
Training of BluNF:

The neural field predicts semantic labels from projected blueprint coordinates and train with a cross-entropy loss.



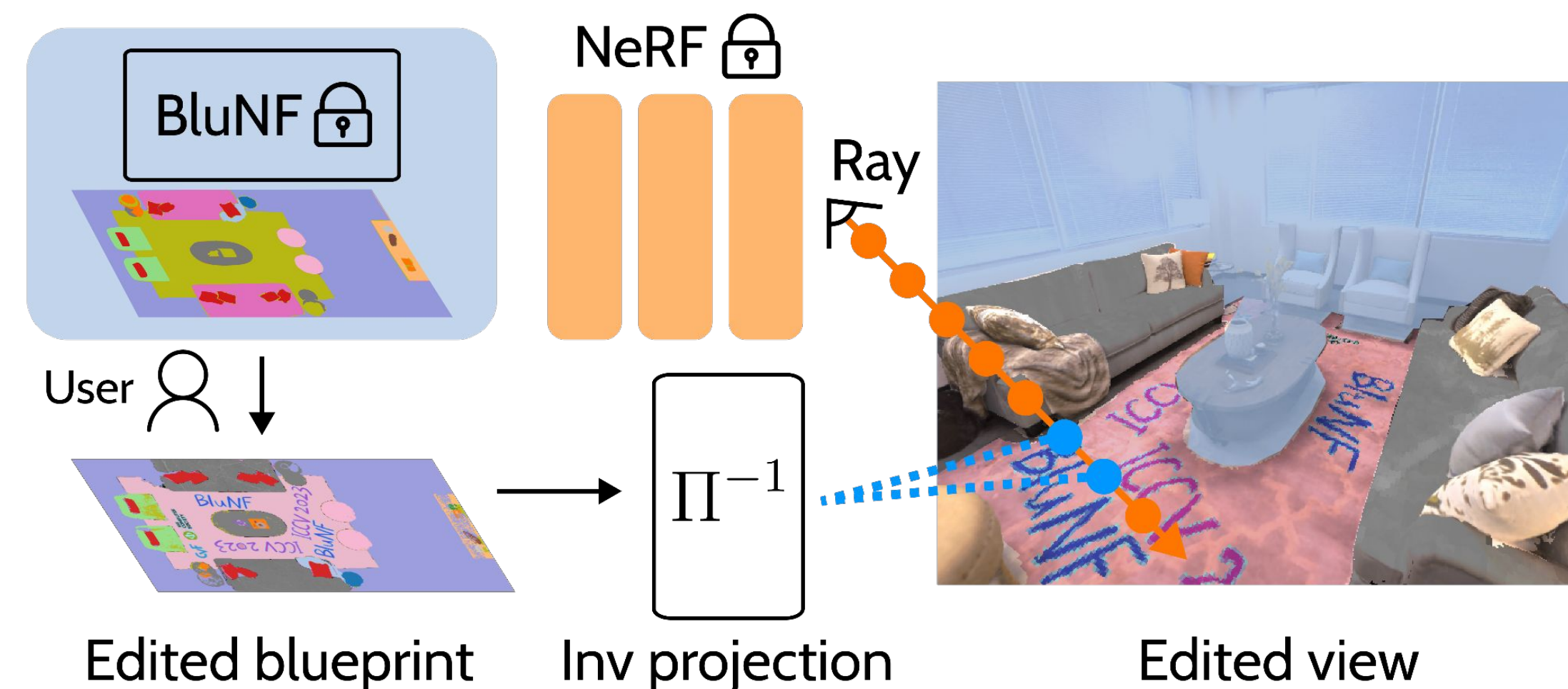
Projection module:

It transforms camera view coordinates into blueprint coordinates to get the input training samples.

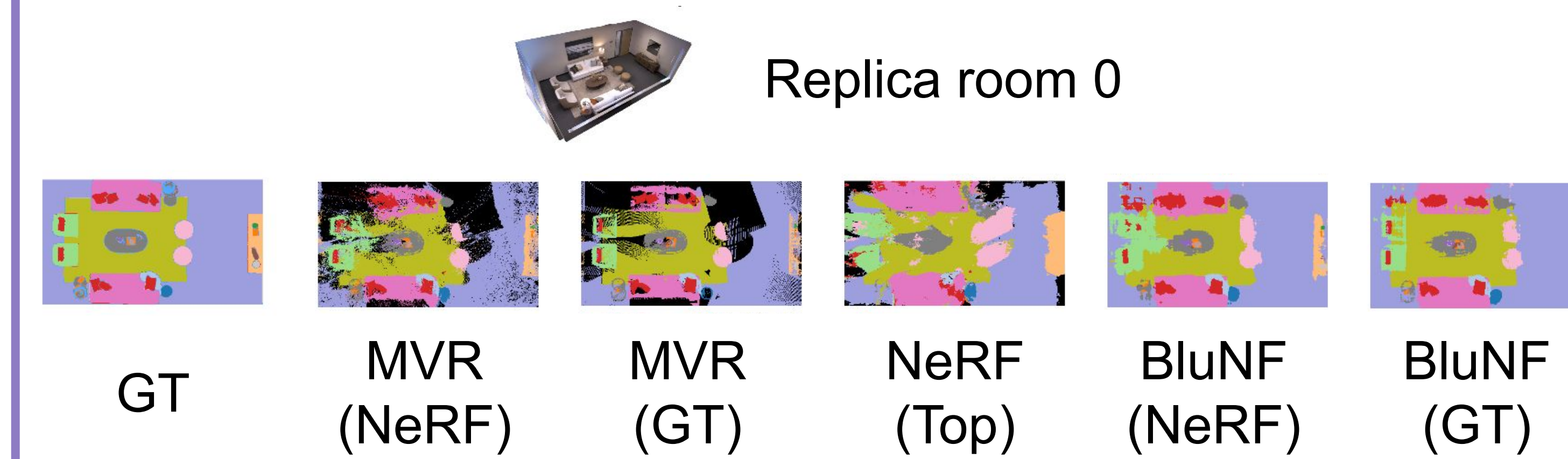


Editing with BluNF:

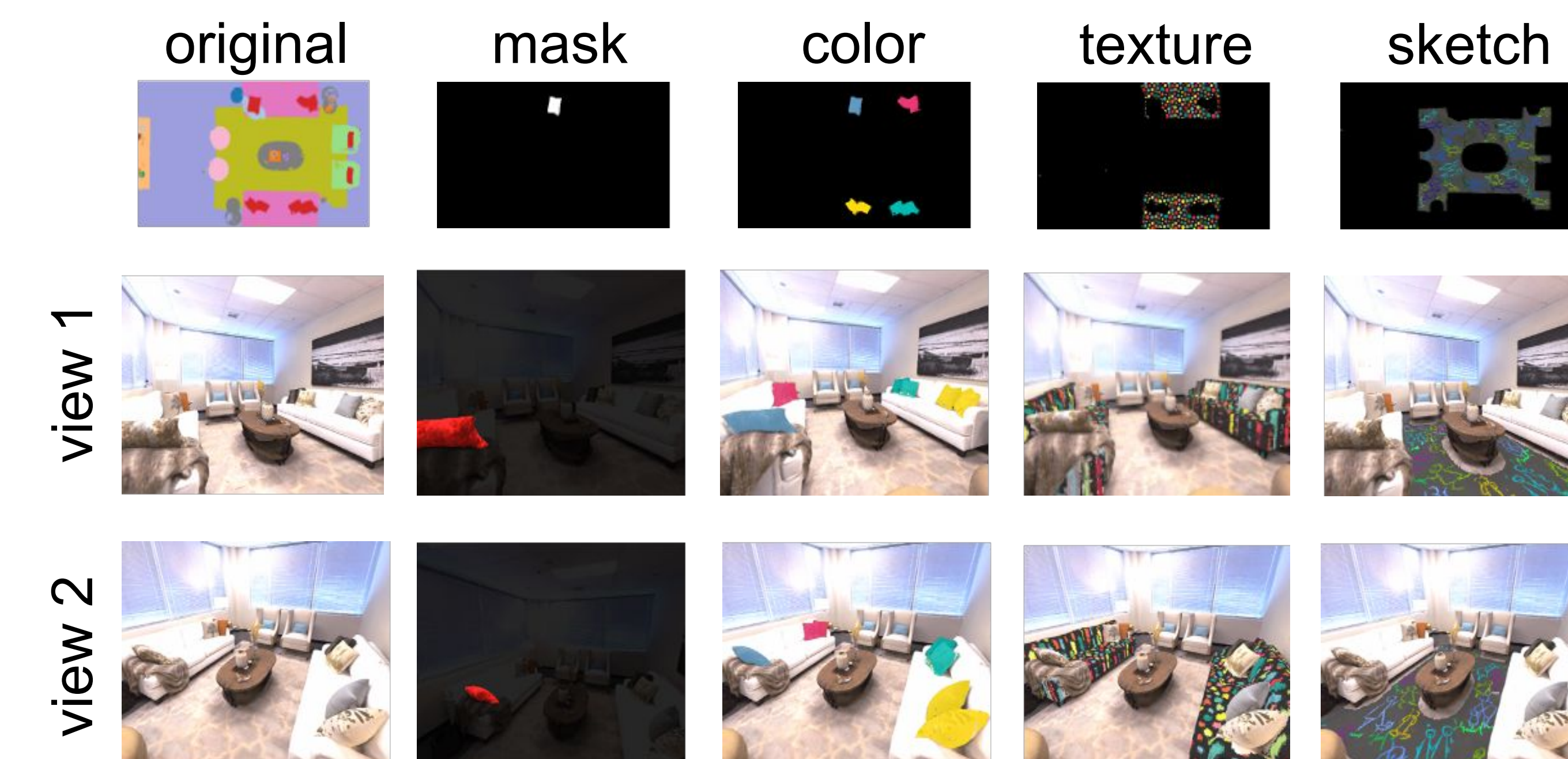
BluNF associated with NeRF and user interaction allows 3D scene editing (texture change, object removal, ...).



Blueprint results:



Editing results:



Editing comparison:

BluNF is able to select specific instances and to avoid artifacts, demonstrating its flexibility and generalization power.

