

LV4 - Određivanje dominantne ravnine na 2.5D slici RANSAC Metodom

Zadatak jest učitati slike te njezinu dubinsku mapu te RANSAC metodom se treba detektirati i označiti dominantnu ravninu.

Najprije se radi RANSAC petlja koja svake iteracije izvlači 3 nasumične 3D točke $[u \ v \ d]$ iz 2.5D slike.

Zatim se iz nasumičnih točaka $[u \ v \ d]$ određuje pravac formulom:

$$R = \begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} u_1 & v_1 & 1 \\ u_2 & v_2 & 1 \\ u_3 & v_3 & 1 \end{bmatrix}^{-1} \begin{bmatrix} d_1 \\ d_2 \\ d_3 \end{bmatrix}$$

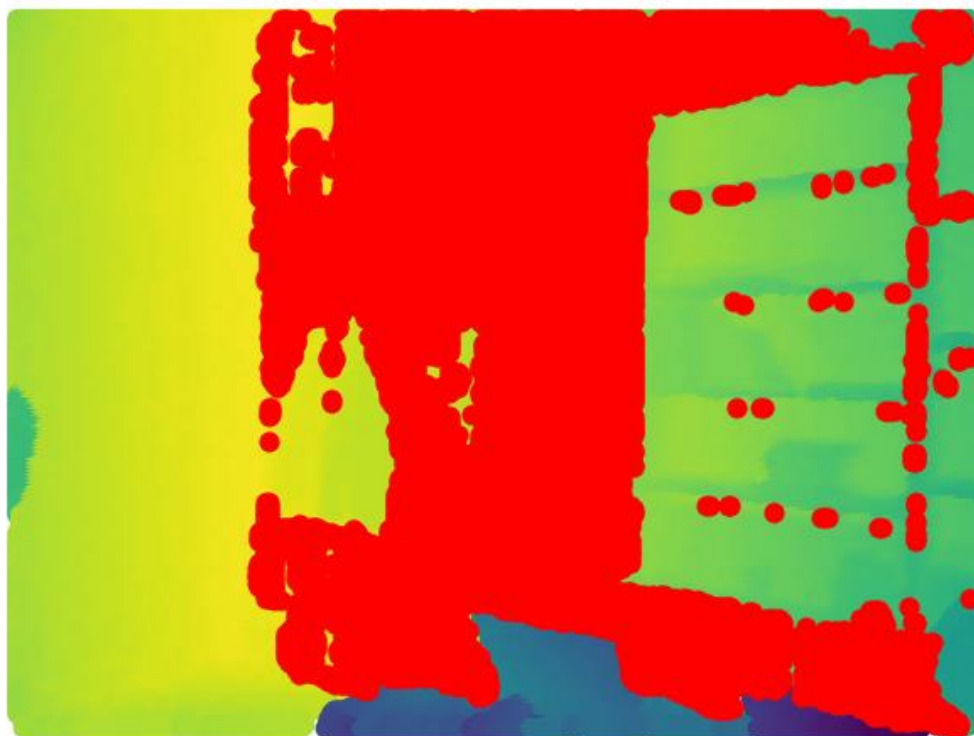
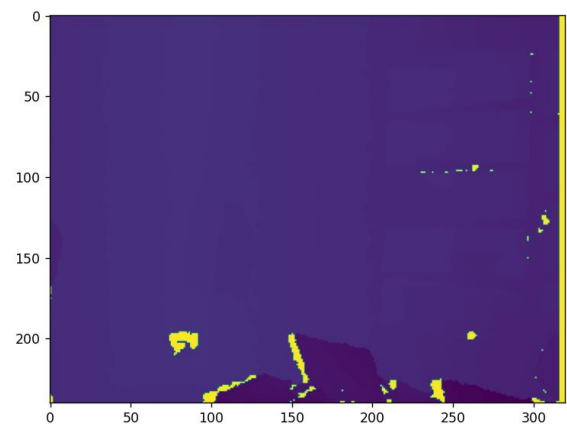
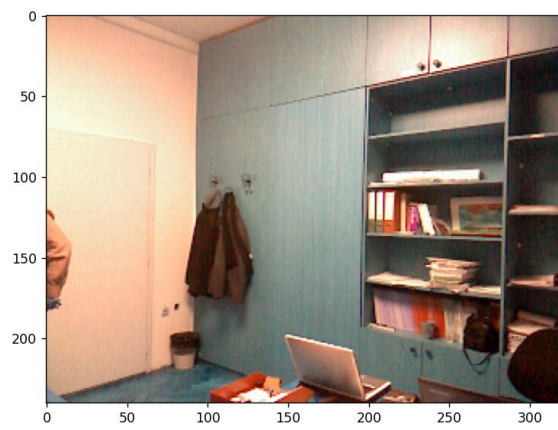
A onda se dodavaju sve točke koje zadovoljavaju:

$$|d' - (au' + bv' + c)| < e$$

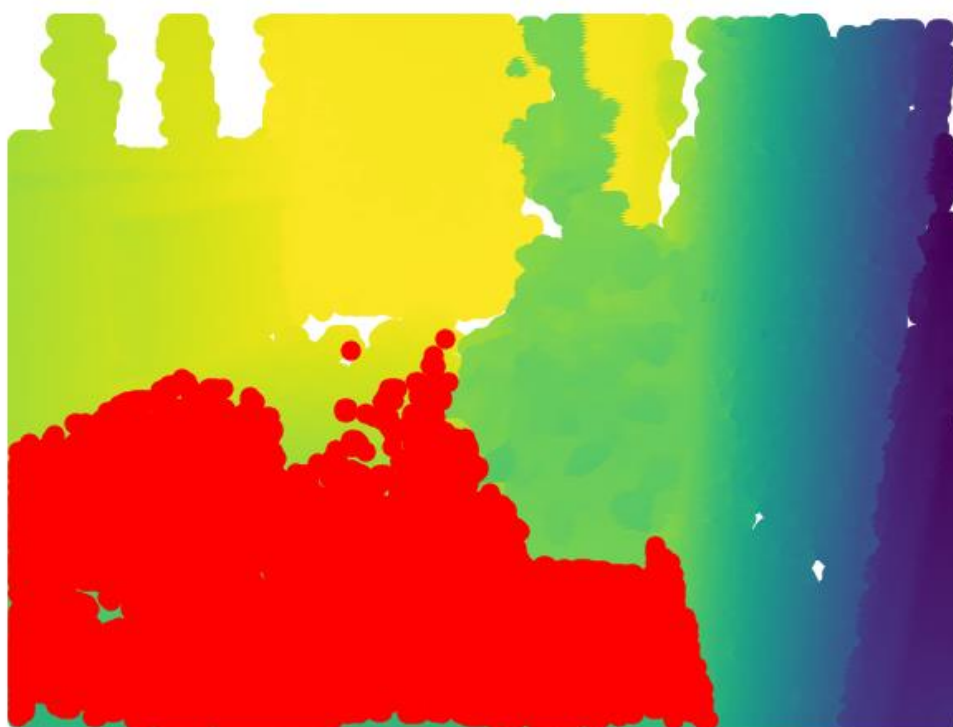
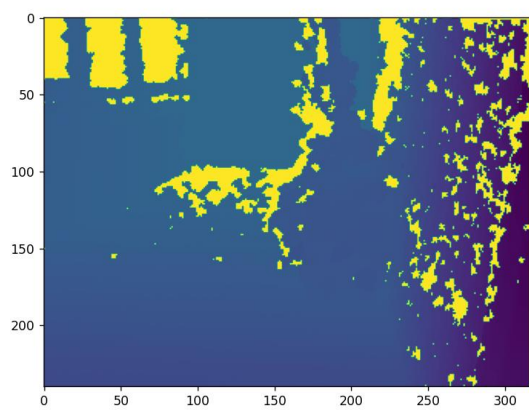
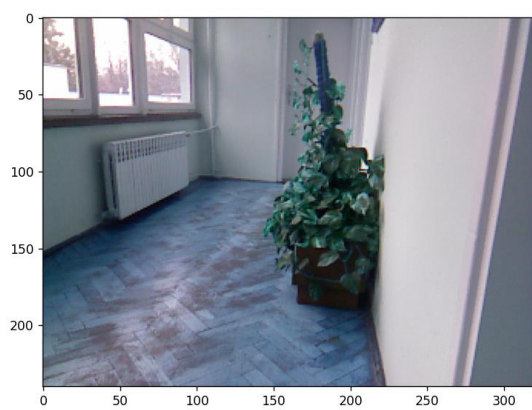
To se ponavlja svake iteracije, tražeći pravac R sa najviše točaka.

Na sljedećim stranicama su prikazi 2.5D slika sa označenim točkama koje pripadaju dominantnoj ravnini označeno crvenom bojom.

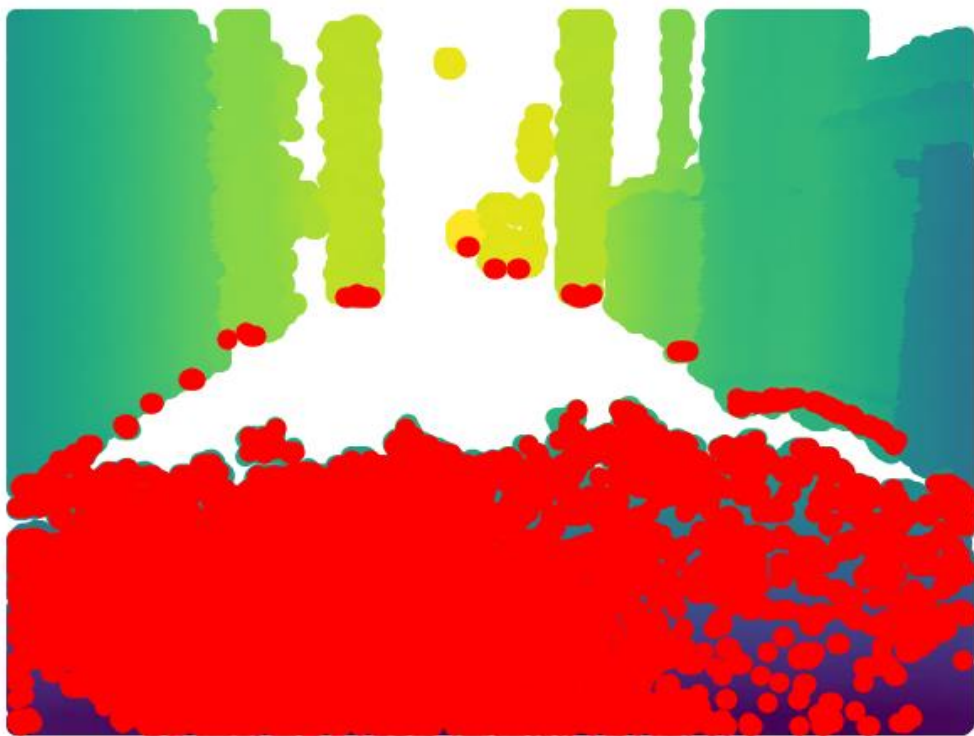
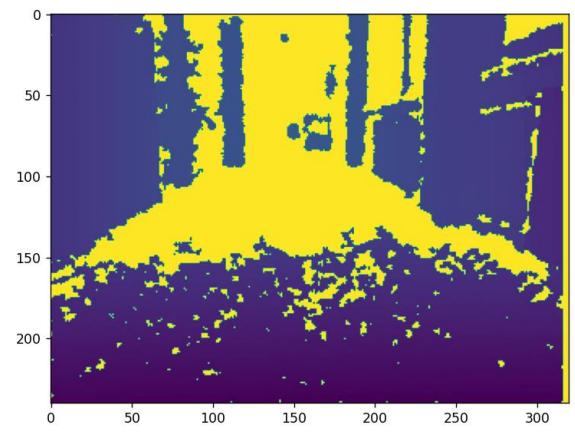
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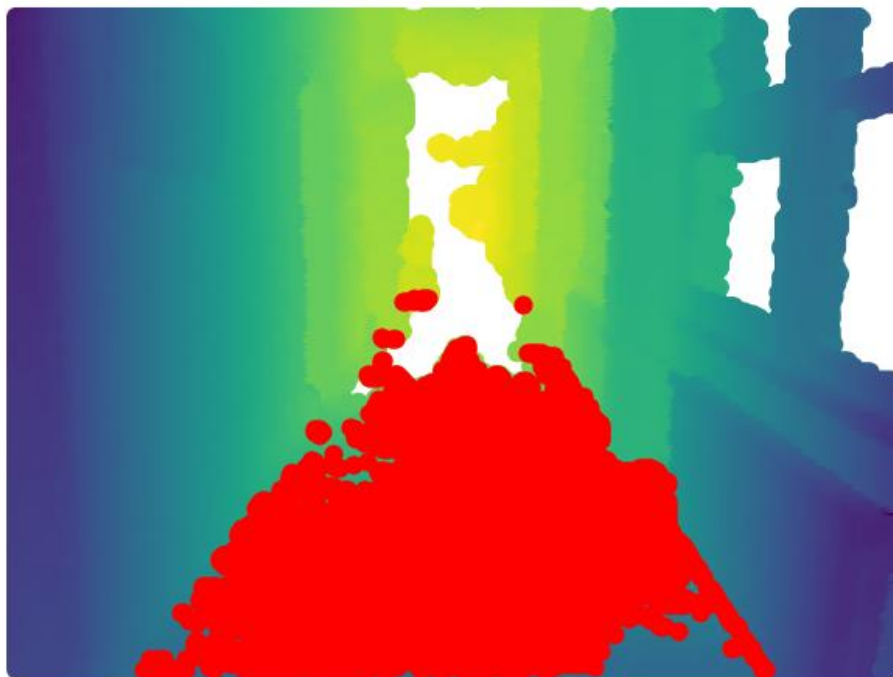
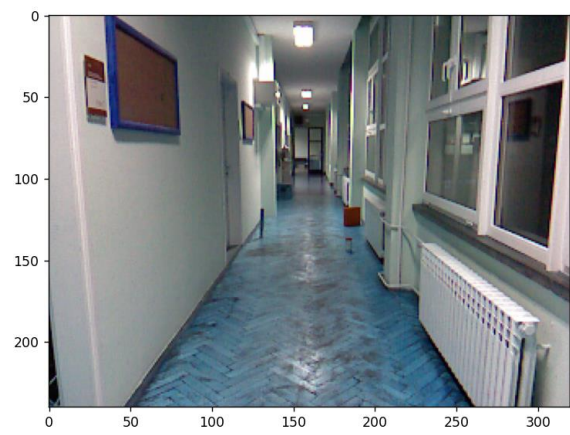
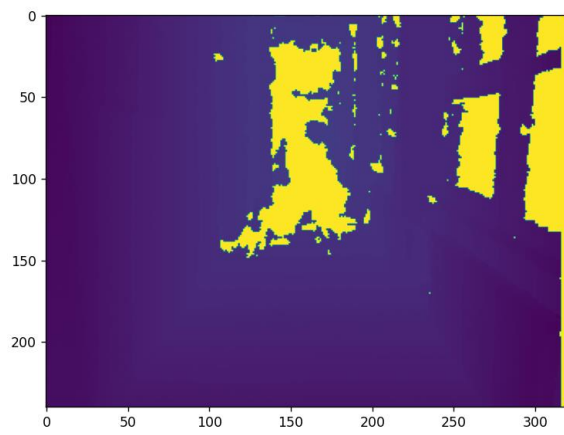
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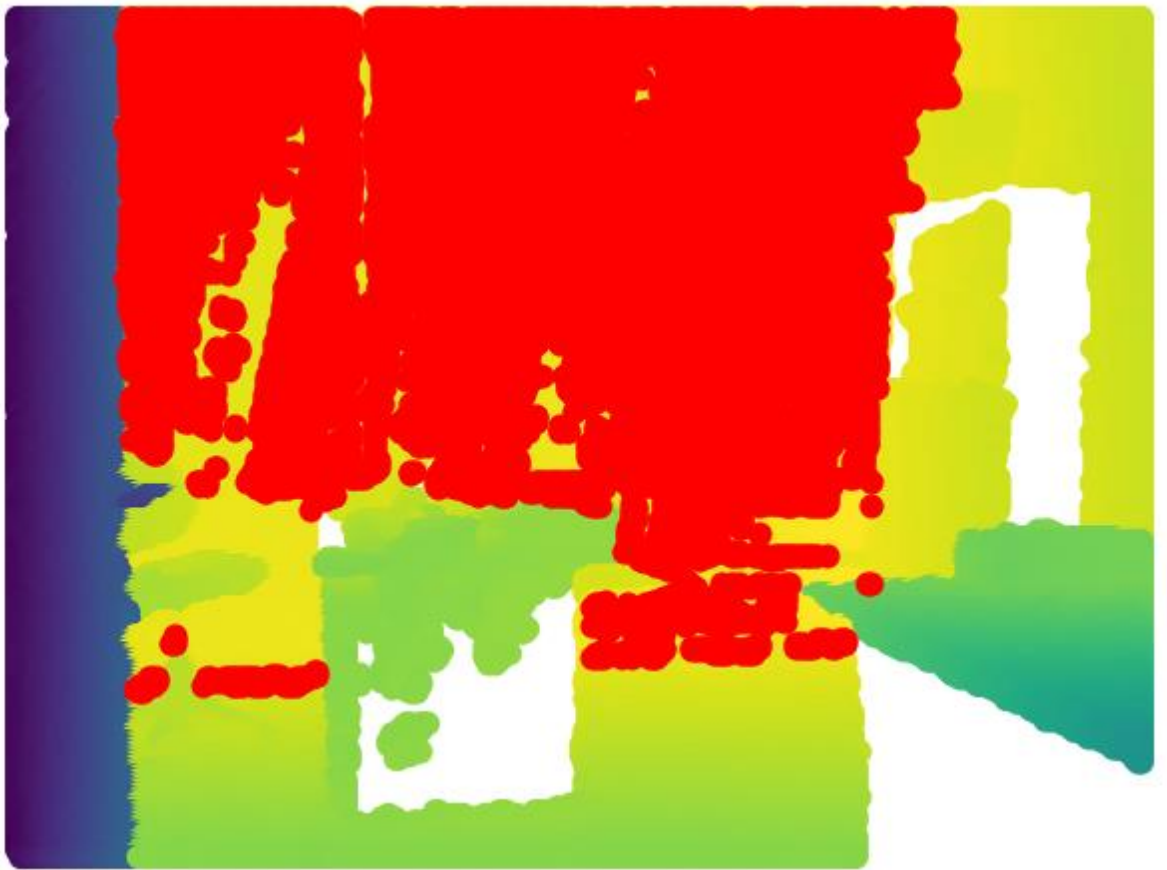
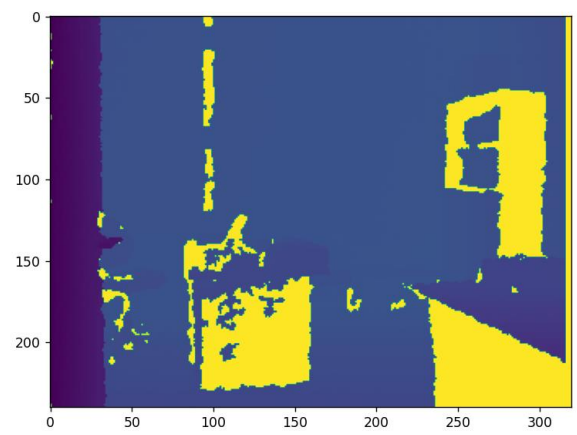
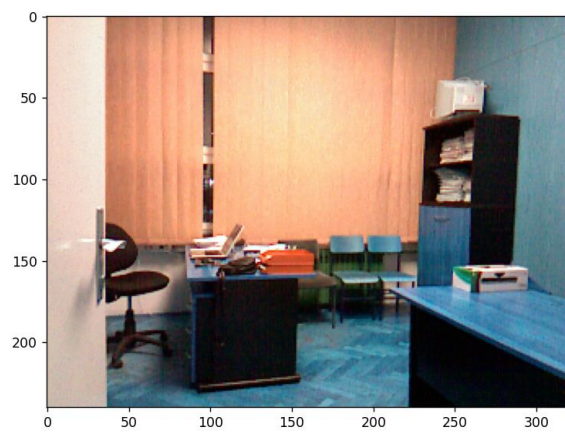
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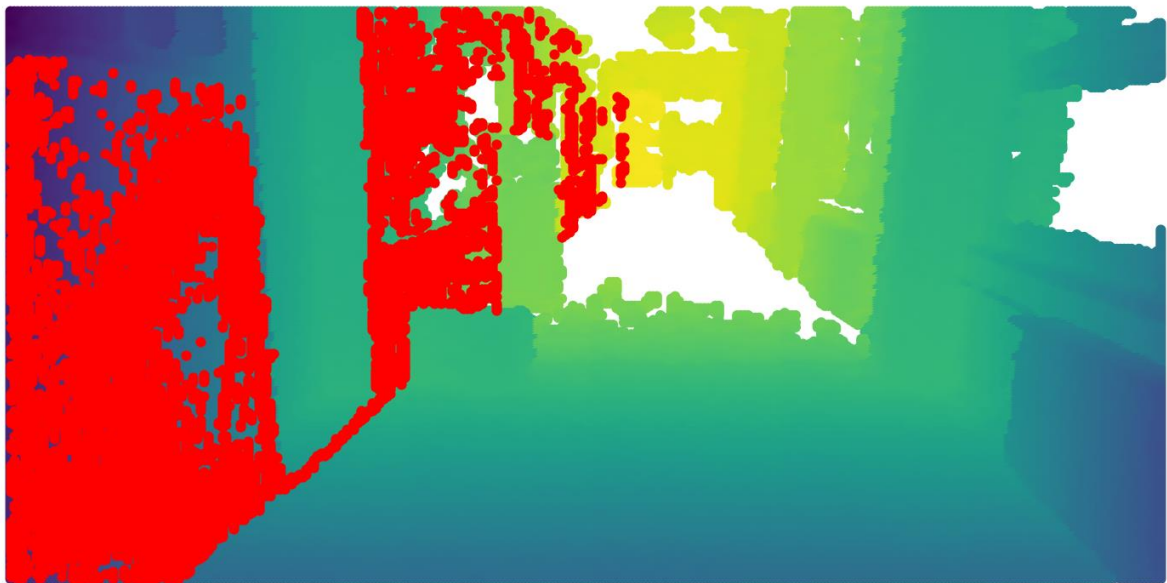
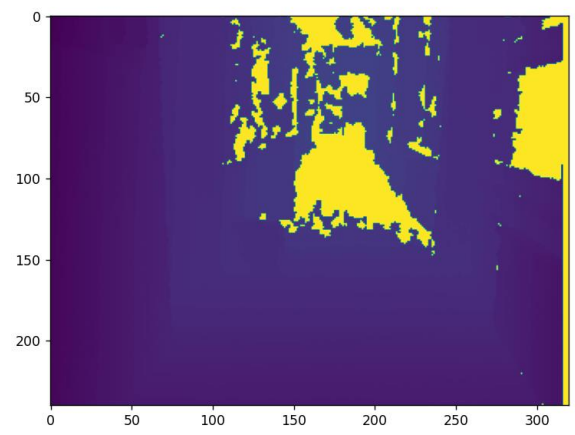
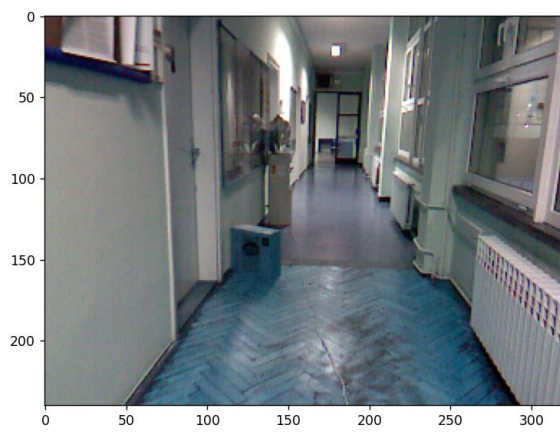
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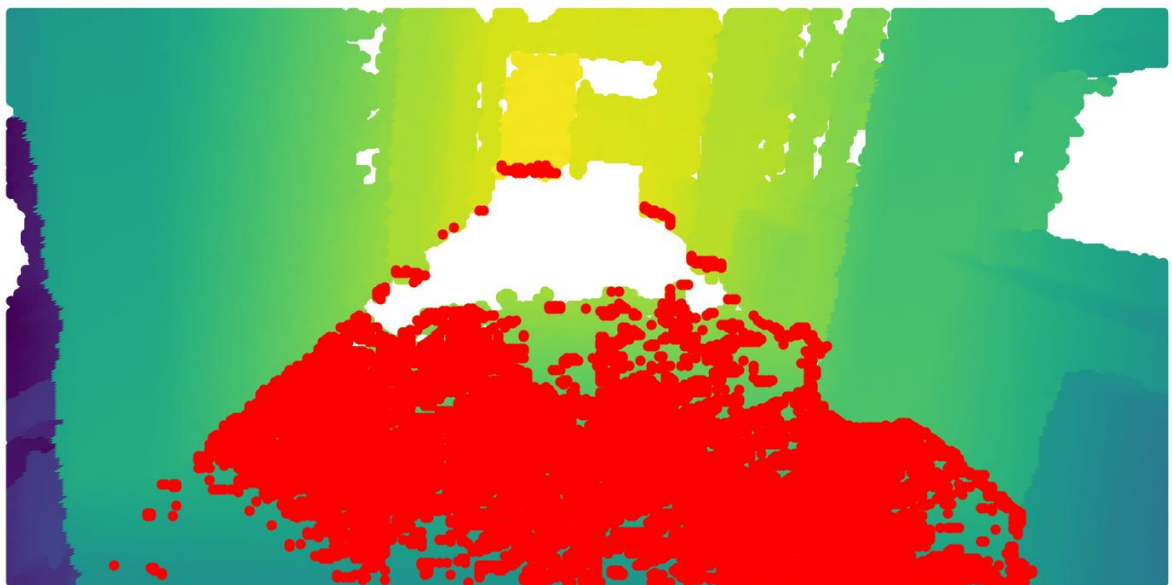
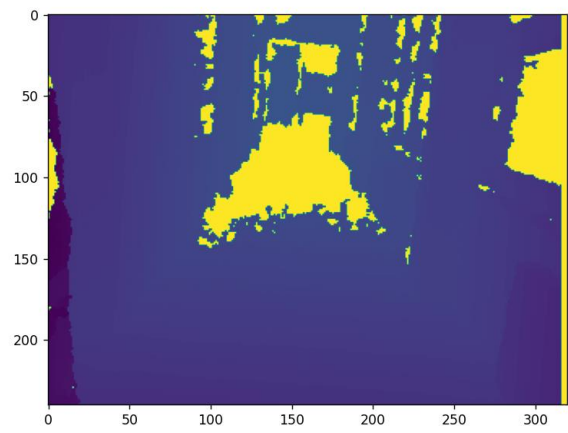
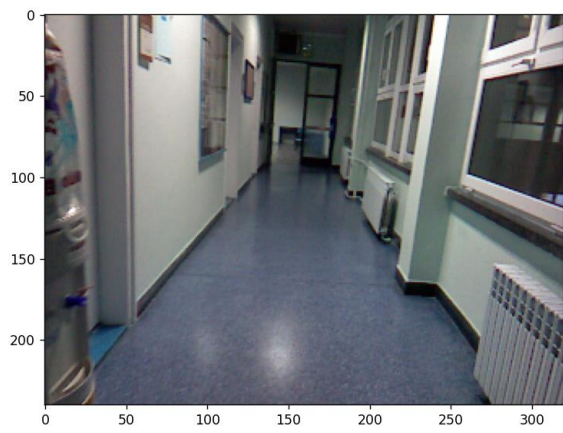
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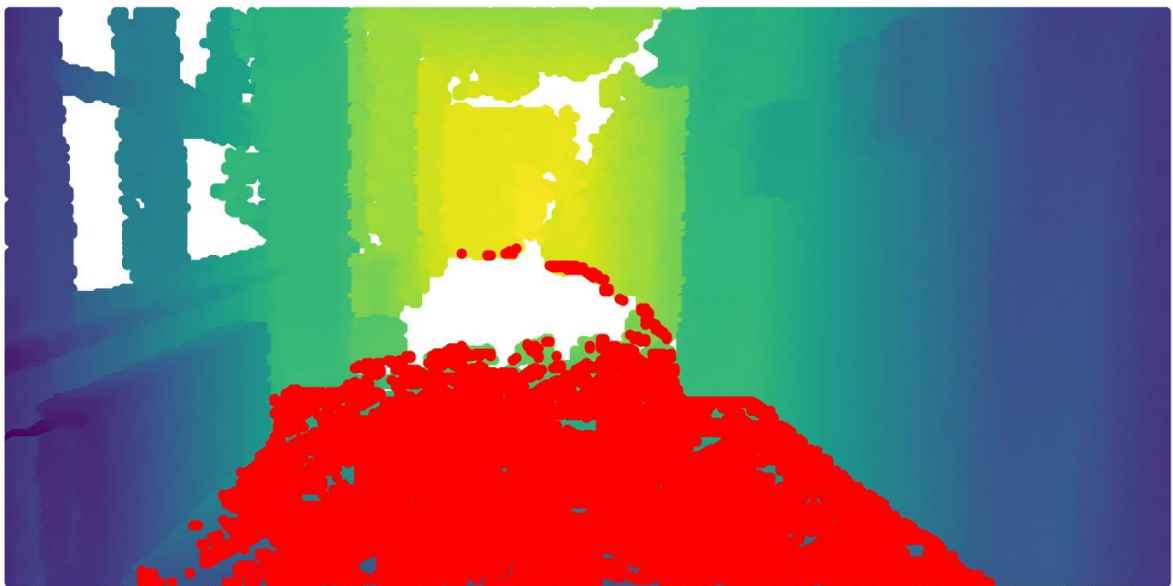
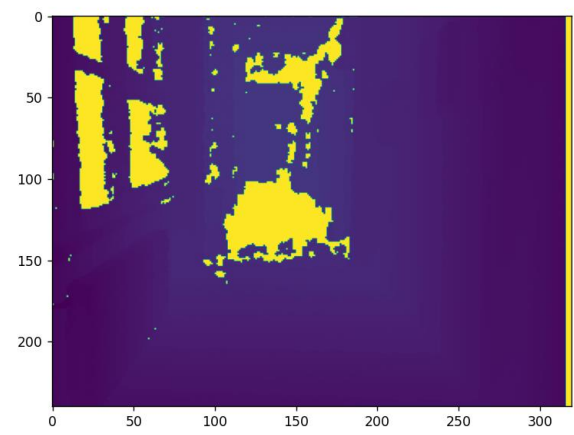
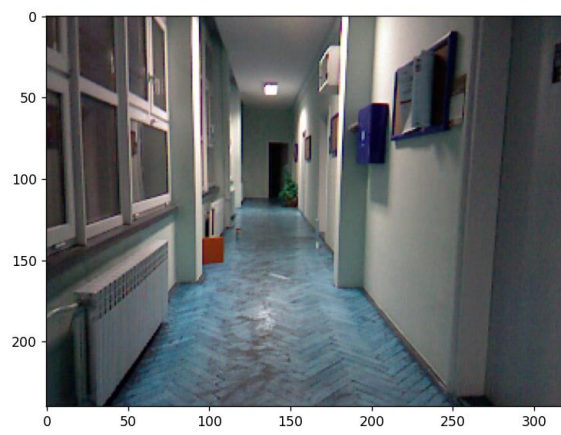
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