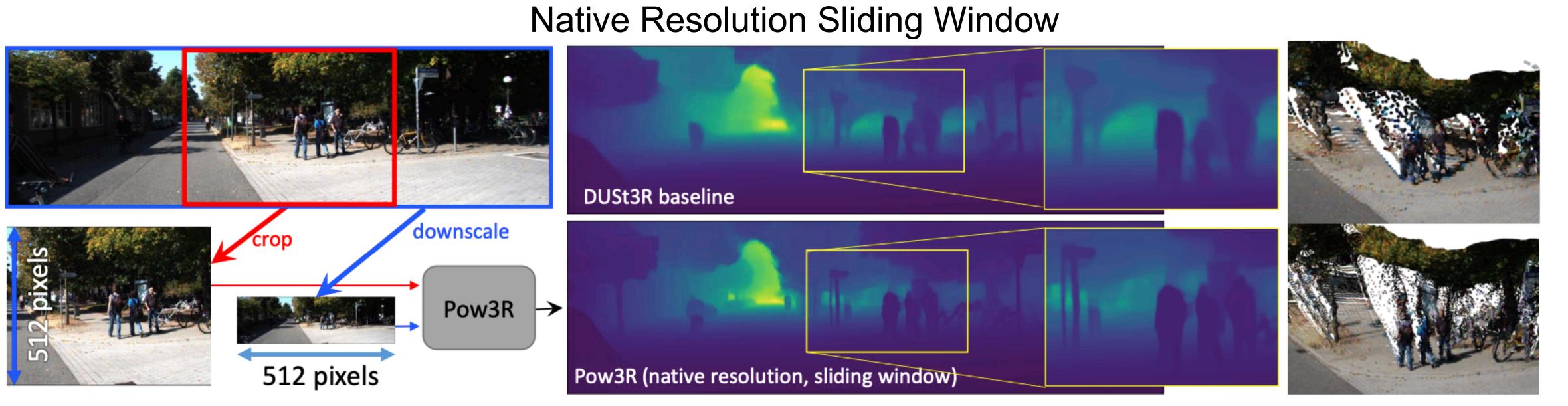


	aux. mod		alitie	s	focal	depth	rel.	pose	
	K 1	K2	D1	D2	RT	acc@1.015	τ @1.03	RRA@2°	RTA@2°
DUSt3R	×	×	×	×	×	36.6	77.6	69.2	49.7
	×	×	×	×	×	39.4	79.4	71.9	53.8
	\checkmark	×	×	×	×	75.4(+36.0)	80.6 (+1.2)	77.1 (+5.3)	62.8 (+8.9)
	×	\checkmark	\times	\times	×	67.3(+27.9)	80.3 (+0.9)	74.5 (+2.6)	59.1 (+5.2)
	\checkmark	\checkmark	\times	\times	×	98.0(+58.6)	81.4 (+2.0)	80.3 (+8.5)	74.2(+20.3)
	×	\times	\checkmark	\times	×	48.9 (+9.5)	89.1 (+9.7)	82.5(+10.6)	64.9 (+11.0)
D	×	\times	\times	\checkmark	×	49.5(+10.1)	91.0 (+11.7)	83.4(+11.5)	64.8(+10.9)
Pow3R	×	\times	\checkmark	\checkmark	×	58.2(+18.9)	95.4 (+16.0)	89.6 (+17.7)	77.6(+23.8)
	×	\times	\times	\times	\checkmark	48.6 (+9.2)	81.6 (+2.2)	92.3(+20.5)	77.0(+23.1)
	\checkmark	\checkmark	\checkmark	\checkmark	×	99.2(+59.8)	95.4 (+16.0)	95.7(+23.9)	94.3(+40.5)
	\checkmark	\checkmark	×	×	\checkmark	98.1(+58.7)	82.9 (+3.6)	95.1(+23.2)	87.3(+33.5)
	×	×	\checkmark	\checkmark	\checkmark	68.6(+29.2)	95.4 (+16.0)	98.1(+26.2)	91.3(+37.5)
	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	68.6(+29.2) 99.3(+59.9)	95.4 (+16.0)	99.0 (+27.2)	98.1 (+44.3)



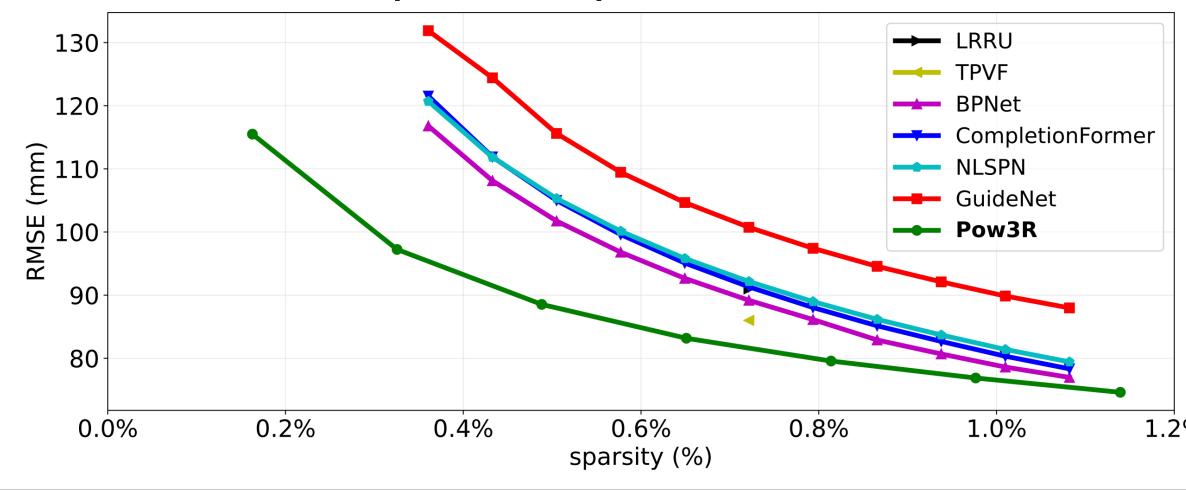
Jerome Revaud[†] **University College London***

3. Native Resolution, Depth Completion, Controllability



Performance with Native Resolution										
aux.	mod.	High-	KI'	ГТІ	Тð	T&T				
Ks	RT	Res.	rel↓	$\tau\uparrow$	rel↓	$\tau \uparrow$	(sec)↓			
×	×	×	5.4	49.5	3.3	75.1	0.13			
\checkmark	\checkmark	×	5.3	48.7	3.2	78.2	0.13			
\checkmark	\checkmark	(n)	7.5	34.4	3.9	68.0	0.48			
\checkmark	\checkmark	\checkmark	4.6	53.5	2.5	82.3	0.40			
	aux. Ks	erforma aux. mod. Ks RT \times \times \checkmark \checkmark \checkmark \checkmark	aux. mod. High- Ks RT Res. $\times \times \times$ \times	aux. mod.High-KI'KsRTRes.rel \times \times \times 5.4 \checkmark \checkmark \times 5.3 \checkmark \checkmark (n)7.5	aux. mod.High-KITTIKsRTRes. $rel\downarrow$ $\tau\uparrow$ \times \times \times 5.449.5 \checkmark \checkmark \times 5.348.7 \checkmark \checkmark (n)7.534.4	aux. mod.High-KITTIT&KsRTRes.rel \downarrow $\tau\uparrow$ rel \downarrow \times \times \times 5.449.53.3 \checkmark \checkmark \times 5.348.73.2 \checkmark \checkmark (n)7.534.43.9	aux. mod.High-KITTIT&TKs RTRes. $\operatorname{rel}\downarrow$ $\tau\uparrow$ $\operatorname{rel}\downarrow$ $\tau\uparrow$ ×××5.449.53.375.1✓✓×5.348.73.278.2✓✓(n)7.534.43.968.0			

Depth Completion on NYDv2



Impact of $X^{2,2}$ head

Method	with $X^{2,2}$	Single Forward	Focal acc@1.015	Depth τ @1.03	RRA@2 (Pro) (PnP)	RTA@2 (Pro) (PnP)	Avg.
DUSt3R	х	×	36.8	85.4	69.2 72.4	49.8 57.3	60.5
DUG42D #	\checkmark	×	38.9	79.1	71.7 74.4	52.9 59.2	62.7
DUSt3R-ft	\checkmark	\checkmark	38.3	78.5	73.1 74.4	56.3 59.2	63.3
	×	×	66.0	85.7	81.9 83.8	68.6 73.3	76.5
Pow3R	\checkmark	×	67.2	86.1	82.9 84.7	70.0 74.6	77.6
	\checkmark	\checkmark	64.8	85.0	84.2 84.7	73.0 74.6	77.7

Multi-view Pose Estimation

Method	GT		Co3Dv2	RealEstate10K	Speed		
Wiediod	intrinsics	RRA@15	RTA@15	mAA(30)	mAA(30)	(fps)	
Colmap+SG [79]	\checkmark	36.1	27.3	25.3	45.2	-	
PixSfM [52]	\checkmark	33.7	32.9	30.1	49.4	-	
RelPose [124]	×	57.1	-	-	-	-	
(a) PoseDiff [102]	×	80.5	79.8	66.5	48.0	-	
RelPose++ [49]	×	85.5	-	-	-	-	
RayDiff [125]	×	93.3	-	-	-	-	
DUSt3R (PnP) [105]	×	94.3	88.4	77.2	61.7	3.2	
(b) Pow3R (PnP)	×	94.8	89.9	78.5	62.5	3.2	
Pow3R (Pro)	×	94.6	90.3	78.1	66.3	30.9	
Pow3R w/ K (Pro)	\checkmark	95.0	92.1	82.2	72.5	30.1	





Controllability Median focal ratio 25-75 percentiles 10-90 percentile 0.5 0.8 1 1.2 1.5 2 2.5 3 0.3 0.5 0.8 1 1.2 1.5 2 2.5 3 input focal ratio input focal ratio identity Median pose error (d 25-75 percentiles 10-90 percentiles

4. Experiments : X^{2,2}, Multi View Depth/Pose, MVS

MVS evaluation on DTU											
Method $Acc.\downarrow Comp.\downarrow Overall\downarrow$											
DUSt3R [†] [105]	2.677	0.805	1.741								
DUSt3R (repr.)	2.191	1.598	1.894								
Pow3R	2.116	1.370	1.743								
Pow3Rw/ K	1.722	1.119	1.420								
Pow3Rw/ Rt	2.205	1.429	1.817								
Pow3Rw/ K+RT	1.384	0.846	1.115								

Robust MVD benchmark

Math a d	GT	KITTI		ScanNet		ETH3D		DTU		T&T		Average	
Method	range	rel↓	$ au\uparrow$	rel↓	$ au\uparrow$	rel↓	$ au\uparrow$	rel↓	$ au\uparrow$	rel↓	$ au\uparrow$	rel↓	$ au\uparrow$
COLMAP [82, 83] (K+RT)	X	12.0	58.2	14.6	34.2	16.4	55.1	0.7	96.5	2.7	95.0	9.3	67.8
COLMAP Dense [82, 83] (K+RT)) ×	26.9	52.7	38.0	22.5	89.8	23.2	20.8	69.3	25.7	76.4	40.2	48.8
MVSNet [113] (K+RT)	\checkmark	18.6	30.7	22.7	20.9	21.6	35.6	(1.8)((86.7)	6.5	74.6	14.2	49.7
Vis-MVSNet [122] (K+RT)	\checkmark	9.5	<u>55.4</u>	8.9	33.5	10.8	43.3	(1.8)	(87.4)	4.1	<u>87.2</u>	7.0	61.4
MVS-Former++ [13] (K+RT)	\checkmark	29.2	15.2	15.2	21.9	21.4	32.5	(1.2)(91.9)	7.6	71.5	14.9	46.6
CER-MVS [59] (K+RT)	×	14.3	32.2	21.1	24.3	11.7	47.5	4.1	71.3	6.4	82.1	11.5	51.5
OUSt3R [105]	×	5.4	49.5	(3.1)	(71.8)	3.0	76.0	3.9	68.6	3.3	75.1	3.7	68.2
Pow3R	×	5.7	45.7	(3.2)	(68.8)	3.0	74.7	3.0	74.3	3.3	76.6	3.6	68.0
Pow3R w/ RT	×	5.7	45.8	(3.2)	(69.7)	<u>2.9</u>	75.6	3.3	71.6	<u>3.2</u>	77.9	3.7	68.1
Pow3R w/ K	×	5.3	48.3	(3.1)	(70.8)	2.9	<u>76.0</u>	1.6	89.9	3.2	77.3	3.2	72.5
Pow3R w/ K+RT	×	5.3	48.7	(3.1)	(71.4)	2.8	77.1	<u>1.5</u>	<u>91.1</u>	3.2	78.2	3.2	73.3