Academic Slides

a template based on Beamer, TikZ, ...

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Outline

Basic Examples

Basic Examples

Text

测试

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Basic Examples

Color

Apricot	Aquamarine	Bittersweet	Black
Blue	BlueGreen	BlueViolet	BrickRed
Brown	BurntOrange	CadetBlue	CarnationPink
Cerulean	CornflowerBlue	Cyan	Dandelion
DarkOrchid	Emerald	ForestGreen	
Goldenrod	Gray	Green	GreenYellow
JungleGreen	Lavender	LimeGreen	Magenta
Mahogany	Maroon	Melon	MidnightBlue
Mulberry	NavyBlue	OliveGreen	Orange
OrangeRed	Orchid	Peach	Periwinkle
PineGreen	Plum	ProcessBlue	Purple
RawSienna	Red	RedOrange	RedViolet
Rhodamine	RoyalBlue	RoyalPurple	RubineRed
Salmon	SeaGreen	Sepia	SkyBlue
SpringGreen	Tan	TealBlue	Thistle
Turquoise	Violet	VioletRed	White
WildStrawberry	Yellow	YellowGreen	YellowOrange

Figure 1: Colors supported by xcolor package with dvipsnames option
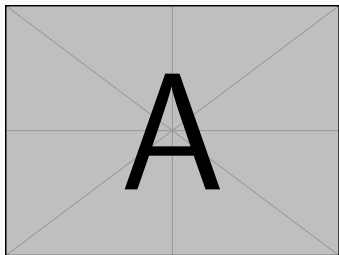
Basic Examples

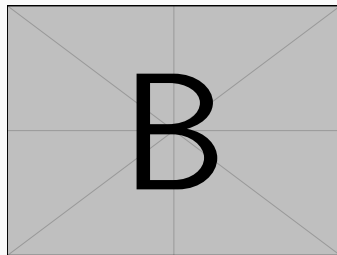## Figure

Look at figure 2 and 3.

Figure 2: Image A

Figure 3: Image B

Example Images

Basic Examples

Table

Methods	LPIPS ↓	SSIM ↑	PSNR dB ↑	Depth L1 cm ↓	ATE RMSE cm ↓	mIoU % ↑	FPS Hz ↑
NIDS-SLAM	0.011	0.980	35.76	0.56	0.80	82.37	-
DNS-SLAM	0.119	0.963	22.96	3.16	0.45	84.77	-
SNI-SLAM	0.235	0.935	29.43	0.77	0.46	87.41	-
MonoGS	0.068	0.954	34.83	-	0.58	N/A	1.7
SplaTAM	0.10	0.97	34.11	0.49	0.36	N/A	1.1
NEDS-SLAM	0.088	0.962	34.76	0.47	0.35	90.78	-
SemGauss-SLAM	0.062	0.982	35.03	0.50	0.33	94.22	-
SGS-SLAM	1.096	0.973	34.15	0.36	0.41	92.72	-
Ours	0.086	0.975	34.73	-	0.67	91.14	0.8

Table 1: Comparison of average performance on Replica dataset

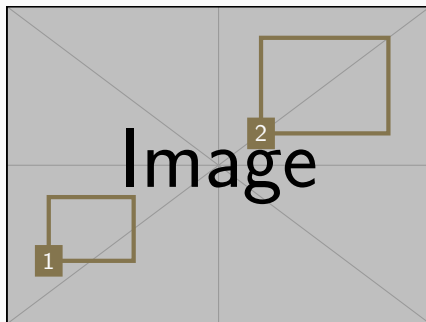# Basic Examples

Animation

TODO

TODO

Tikz Examples

Tikz Examples

Figure Annotation

1 Hello

2 Hi

Tikz Examples

Equation Annotation

Recommendations on Color Palette

- Marknode: super-low saturation & super-high brightness.
- Annotation: high saturation & low brightness.

$$\Theta_k = \left\{ \mathbf{x}_k, \mathbf{q}_k, \mathbf{s}_k, \alpha_k, \mathbf{c}_k, \mathbf{f}_k \right\} \tag{1}$$

optimizable attributes

$\in \{0, 1, \cdots, N\}$, index of Gaussians

$\in \mathbb{R}^D$, semantic embedding

$\in \mathbb{R}^{3n}$, color

$\in [0, 1]$, opacity

$\in \mathbb{R}^3$, scale

$\in \mathrm{SO}(3)$, orientation

$\in \mathbb{R}^3$, position

A counter-example,

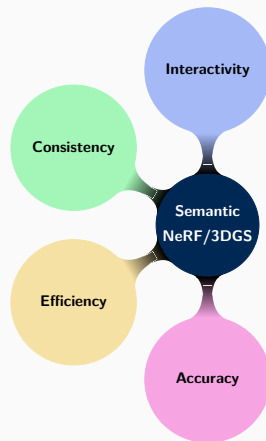$$\Theta_k = \left\{ \mathbf{x}_k, \mathbf{q}_k, \mathbf{s}_k, \alpha_k, \mathbf{c}_k, \mathbf{f}_k \right\} \tag{2}$$

optimizable attributes

$\in \{0, 1, \cdots, N\}$, index of Gaussians

$\in \mathbb{R}^D$, semantic embedding

$\in \mathbb{R}^{3n}$, color

$\in [0, 1]$, opacity

$\in \mathbb{R}^3$, scale

$\in SO(3)$, orientation

$\in \mathbb{R}^3$, position

Tikz Examples

Mindmap

MonoGS
- Visual Odometry
  - Tracking
  - Mapping
- Online Pipeline
  - Keyframe Management
  - Gaussian Management

powered by `forest` package

thanks to Drawing Taxonomy Diagram in Latex

```
MonoGS
├── Visual Odometry
│   ├── Tracking ── Inverse Rendering
│   └── Mapping ── Bundle Adjustment
└── Online Pipeline
    ├── Keyframe Management
    │   ├── Registration
    │   └── Removal
    └── Gaussian Management
        ├── Insertion
        └── Pruning
```
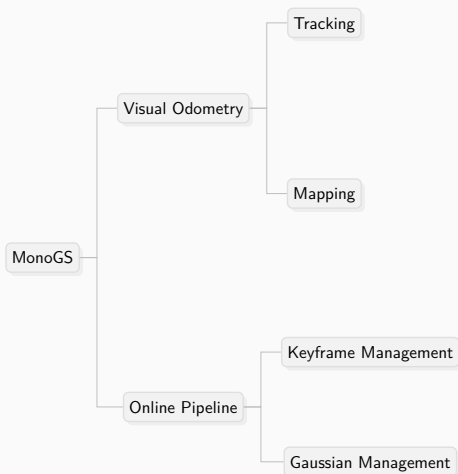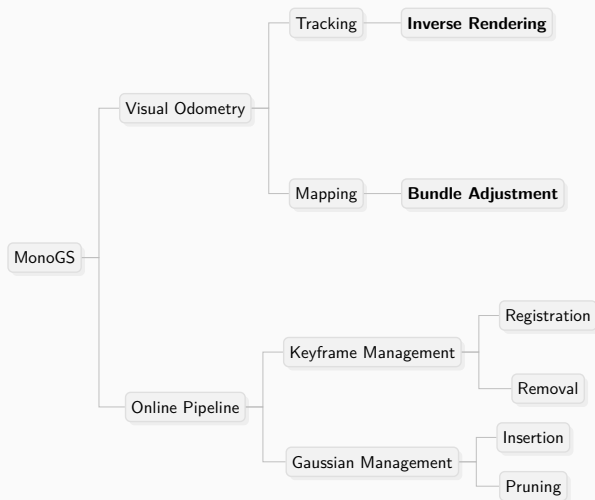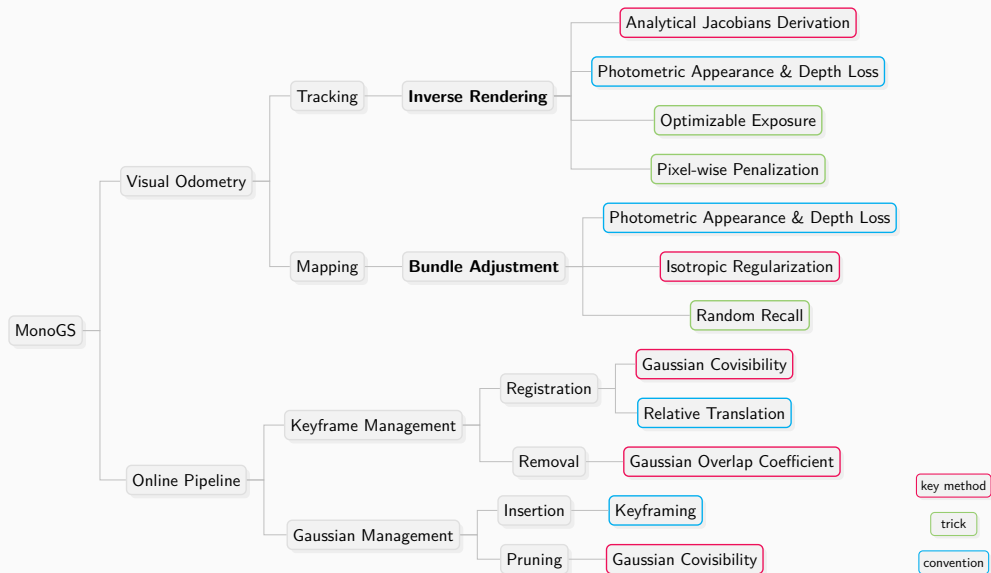
powered by `forest` package

thanks to Drawing Taxonomy Diagram in Latex

Tikz Examples

Timeline

11/2023 - 12/2024	01/2024 - 04/2024	05/2024 - 06/2024
LEGS [1]	CoSSegGaussians [6]	GOI [10]
LangSplat [2]	Semantic Gaussians [7]	RT-GS2 [11]
Feature 3DGS [3]	Feature Splating [8]	SA-GS [12]
Gaussian Grouping [4]	CLIP-GS [9]	Fast-LGS [13]
Segment Any Gaussian [5]		
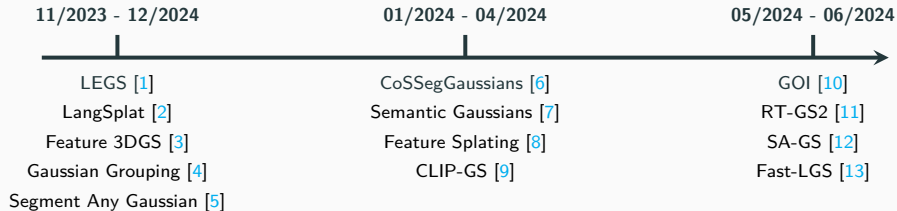
Appendix

Appendix

References

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