SCHOOL OF COMPUTATION,
INFORMATION AND TECHNOLOGY

TECHNISCHE UNIVERSITÄT MÜNCHEN

Thesis type (Master's Thesis in Robotics, . . .)

Evaluation of the BeamStellar tracking and pose estimation system for a Beaming Display

Jonas M. Weigand

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Evaluation of the BeamStellar tracking and pose estimation system for a Beaming Display

Auswertung des BeamStellar Verfolgungs- und Positionsschätzungssystems für Beaming Displays.

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Advisor:	Prof. David Plecher
Submission Date:	29.09.2025

I confirm that this thesis type (master's thesis in robotics, ...) is my own work and I have documented all sources and material used.

Munich, 29.09.2025 Jonas M. Weigand

Acknowledgments

Abstract

Contents

1 Introduction

Virtual Reality Headsets and other Head Mounted Displays arrived at the consumer market in the year 2016.

This thesis evaluates a fast 6-DoF Tracking and Pose estimation system for a Beaming Display, a special kind of Head Mounted Displays (HMD). Specifically XXX well established Perspective-n-Point (PnP) pose computation algorithms are implemented in the programmable logic (PL) of a Field Programmable Gate Array (FPGA) for highspeed HMD tracking and projection correction. The resulting pose estimations are validated against ground truth data provided by an outside in tracking sysetem. Also a fesible application volume for the Beaming Dispay station is narrowed down.

1.1 Section

Citation test [Lam94].

1.1.1 Subsection

See Table 2.1, Figure 2.1, Figure 2.2, Figure 2.3.

Table 1.1: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

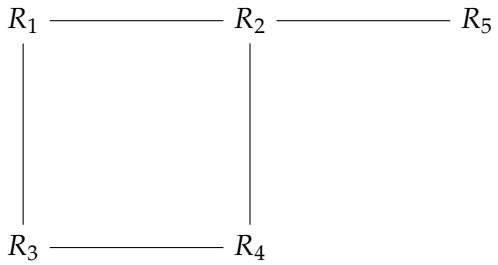

Figure 1.1: An example for a simple drawing.

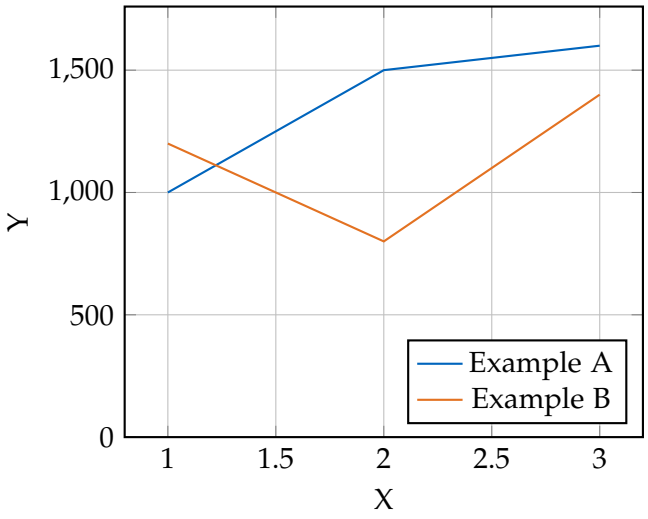

Figure 1.2: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Figure 1.3: An example for a source code listing.

2 Introduction

2.1 Section

Citation test [Lam94].

2.1.1 Subsection

See Table 2.1, Figure 2.1, Figure 2.2, Figure 2.3.

Table 2.1: An example for a simple table.

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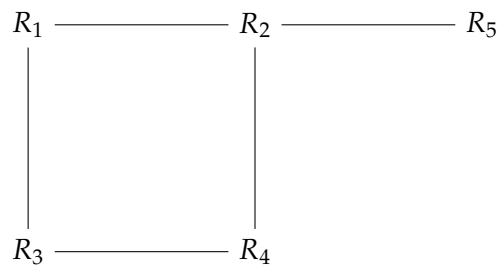

Figure 2.1: An example for a simple drawing.

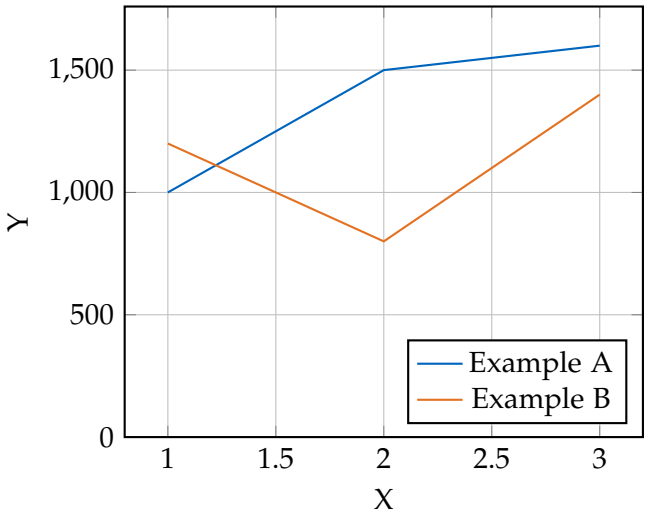

Figure 2.2: An example for a simple plot.

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SELECT * FROM tbl WHERE tbl.str = "str"
```

Figure 2.3: An example for a source code listing.

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Bibliography

[Lam94] L. Lamport. *LaTeX : A Documentation Preparation System User's Guide and Reference Manual*. Addison-Wesley Professional, 1994.