University of Zurich
Department of Informatics

ai lab
Robotics and Perception Group

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Quadcopter pose estimation using the dynamic vision sensor

Semester Thesis

Robotics and Perception Lab
University of Zurich

Supervision

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February 2013

Contents

Abstract

Compress the introduction in a few key sentences. No more than half a page.

Chapter 1

Introduction

Describe the problem and the motivation for this research.

1.1 Related Work

Describe the current state of the art. Provide all neccessary citations.

Chapter 2

Approach

Describe the main steps in your algorithm. An illustration is always helpful.

Here are some LaTeX tips:

2.1 Headings

Your report can be structured using several different types of headings. Use the commands \chapter{.}, \section{.}, \subsection{.}, and \subsubsection{.}. Use the asterisk symbol * to suppress numbering of a certain heading if necessary, for example, \section*{.}.

2.2 References

References to literature are included using the command \cite{.}. For example [?, ?]. Your references must be entered in the file bibliography.bib. Making changes or adding new references in the bibliography file can be done manually or by using specialized software such as *JabRef* which is free of charge. Cross-referencing within the text is easily done using \label{.} and \ref{.}. For example, this paragraph is part of chapter **??**; more specifically on page **??**.

2.3 Writing Equations

The most common way to include equations is using the equation environment. Use \eqref{.} to reference an equation, e.g. (**??**).

$$C(\mathbf{x}) = \frac{1}{2} \sum_{i \in \mathcal{I}} \sum_{k \in \mathcal{K}_i} \mathbf{e}_{i,k}(\mathbf{x})^T \ \mathbf{W}_{i,k} \ \mathbf{e}_{i,k}(\mathbf{x})$$
$$\hat{\mathbf{x}}^{LS} = \text{argmin}_{\mathbf{x}} \ C(\mathbf{x}), \tag{2.1}$$

$$\mathtt{T}_i = \begin{bmatrix} \mathbf{R}_i & \mathbf{p}_i \\ 0 & 1 \end{bmatrix} \quad \text{with} \quad \mathbf{R}_i \in SO(3), \ \ \mathbf{p} \in \mathbb{R}^3. \tag{2.2}$$

2.4   Including Graphics

The easiest way to include figures in your document is to use pdf figures if you use `pdflatex` to compile. Figure **??** was created with the use of the open source program `ipe`.
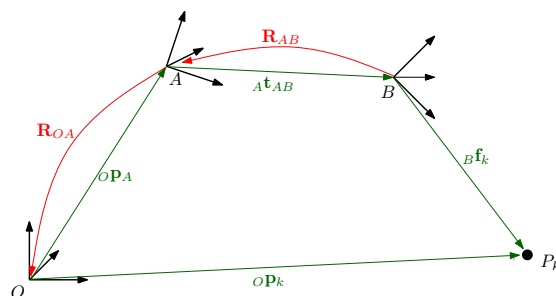

Figure 2.1: Example of a figure.

2.5   Including Code in your Document

You may include samples from your Matlab code using the `lstlistings` environment, for example

Listing 2.1: Matlab Example

```
% Evaluate y = 2x
for i = 1:length(x)

   y(i) = 2*x(i);

end
```

Listing 2.2: C++ Example

```
% sum all elements in a list
int sum=0;
for(list<int>::iterator it=mylist.begin(); it!=mylist.end(); ++it)
   sum += *it;
```

Chapter 3

Results

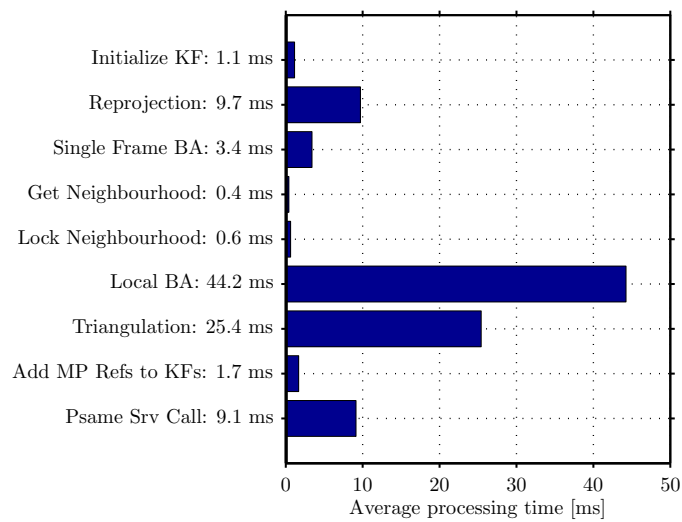Provide numerical results, plots and timings. Interpret the data.

Figure 3.1: Example of a figure.

Chapter 4

Discussion

Explain both, the advantages and limitations of your approach.

4.1 Future Work

How would you extend the work? Can you propose another approach?

Appendix A

Something

In the appendix you can provide some more data, a tutorial on how to run your code, a detailed proof etc.

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Robotics and Perception Group

Title of work:

Quadcopter pose estimation using the dynamic vision sensor

Thesis type and date:

Semester Thesis, February 2013

Supervision:

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