

Real Time, Autonomous Drone Landing using Only Embedded Processing

PhD Thesis Proposal

Joshua Springer

Reykjavík University

January 2022



Presentation Structure

(1) Introduction

- Problem Description
- Motivation

(2) Current Progress

- Completed/ongoing projects
- Challenges

(3) Research Plan

- Methods
- Risk Analysis



Introduction

How to get help:

- <http://tug.ctan.org/macros/latex/contrib/beamer/doc/beameruserguide.pdf>
- <http://tex.stackexchange.com> *but Caveat Emptor!*
- <http://overleaf.com>
- latex@list.ru.is for template related questions



Preparing the Presentation

- Give sources for all pictures and cite information sources e.g. [VFP18]
- More pictures, less text.
- More slides, less time per slide.
- 45–60 seconds per slide, no more.
- Tell a story (make sure it flows).
- Spellcheck!
- Freeze any changes at least an hour before you present: *last minute changes confuse the presenters*



Dealing with graphics

- Put them in the `graphics/` folder, not where the `.tex` is. This will keep your folders from becoming messy.
- Reduce the image sizes to a maximum of 1920×1080 e.g using ImageMagick (<https://imagemagick.org>):

```
mogrify -size 1920x1920 *.jpg
```

will resize all jpg files in that folder to keep their aspect ratios but have no dimension bigger than 1920.

- Give credit and/or a source if the presenters did not create the graphic or photo.



Giving the Presentation

- Grab the interest of the audience in the first 2 slides
- Practice until you can do the slides without looking at them. If you must have notes, put them on cards. Do not read from a page nor the slides. It looks bad.
- Scan and look around the audience.
- Take a breath or drink instead of saying “um” and “herna”.
- Slow down.
- Move around: don’t just stand at the podium. Having a pointer really helps with this.



Citations

- When in doubt, cite!
- Anything in your presentation that you did not personally create should be cited
- Use JabRef to manage your `.bib` files.
- This template uses 4 separate libraries as a demonstration
 - `references.bib` References for this particular presentation
 - `references-ad.bib` References of a particular subject (Axiomatic Design[Suh90; Suh01])
 - `references-foley.bib` References from the author's CV library
 - `references-collections.bib` References for multi-author books, proceedings, and other collections. They need to be separated so they can be used as “crossref” and avoid typing in the information every time.



Highlighting Stuff

In this slide, some important text will be **highlighted** because it's important. Please, don't abuse it. [Ove19]

Remark

Sample text

Important theorem

Sample text in red box

Examples

Sample text in green box. The title of the block is "Examples".



Proof Example: There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

Proof.

- (1) **Suppose p were the largest prime number.**
- (2) Let q be the product of the first p numbers.
- (3) Then $q + 1$ is not divisible by any of them.
- (4) But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.



Source: [Wri17]



Proof Example: There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

Proof.

- (1) Suppose p were the largest prime number.
- (2) Let q be the product of the first p numbers.
- (3) Then $q + 1$ is not divisible by any of them.
- (4) But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.



Source: [Wri17]



Proof Example: There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

Proof.

- (1) Suppose p were the largest prime number.
- (2) Let q be the product of the first p numbers.
- (3) Then $q + 1$ is not divisible by any of them.
- (4) But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers. □

Source: [Wri17]



Graphics demonstration: Þingvellir National Park



Figure 1: The site of the Icelandic parliament meetings of old. (Credit: J. Foley 2018)



Two Column Format: Strokkur at Geysir

- Hot
- Wet
- Where we get the English word “Geyser” from.



Credit: J. Foley 2018



References

Thank you for your time. Questions?

- [Ove19] Overleaf. *Beamer*. 2019. URL: <https://www.overleaf.com/learn/latex/Beamer>.
- [Suh01] Nam Pyo Suh. *Axiomatic Design - Advances and Applications*. Oxford University Press, 2001.
- [Suh90] Nam Pyo Suh. *The Principles of Design*. Oxford University Press, 1990.
- [VFP18] Danielle M. Vossebeld, Joseph T. Foley og Erik Puik. “The Complexity of Mapping Customer Needs ... (and the myth of a Unanimous Customer)”. Í: *12th International Conference on Axiomatic Design (ICAD)*. Gefið út af Erik Puik o.fl. October. 9–11. Reykjavík, Iceland: MATEC Web of Conferences, 2018, bls. 7.
- [Wri17] Joseph Wright. *The Beamer class: User Guide for version 3.56*. Comprehensive TeX Archive Network, 2017. URL: <http://tug.ctan.org/macros/latex/contrib/beamer/doc/beameruserguide.pdf>.

