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Faculty of witchcraft and wizardry

Lifelong Learner

Quick guide to thesis or get piled higher and deeper

Group GROUP2019

Qualification paper – Master of Science Dissertation
Field of study 01.01.01 Linear Happiness

Program: Dark Time Manipulation

Supervisor:
Professor (Associate Professor),
PhD. Merlin

June 2019

Declaration of Authorship

I, Lifelong Learner, declare that this thesis titled, 'Quick guide to thesis or get piled higher and deeper' and the work presented in it is my own. I confirm that this work submitted for assessment is my own and is expressed in my own words. Any uses made within it of the works of other authors in any form (e.g., ideas, equations, figures, text, tables, programs) are properly acknowledged at any point of their use. A list of the references employed is included.

Signed: _____

Date: _____

"Don't begin social contact with anyone, be engineer."

David Vernon

"If I have seen further than others, it is by standing upon the shoulders of giants."

Isaac Newton

Abstract

The abstract should be approximately 200 words long. It normally takes at least ten revisions to achieve a good abstract.

The abstract should be written after the thesis has been completed.

- What is the subject matter of the thesis: what did you do?
- Motivation: why is it important?
- Significance: what contribution does the thesis make?

The page is kept centered vertically so can expand into the blank space above the title too. ...

Acknowledgements

This project's successful outcome was the result of a massive effort of the Isaac Newton and his team, with team members across Mathematics, Mechanical Engineering, Electrical Engineering, Computer Science, Business Management and Administration units. This work could not have been completed without their contribution to the project.

The Stephen Hawking team was fortunate to have sponsors, supporters, press, who generously provided help and funding for this project, their support is hereby acknowledged and well appreciated.

Additionally, we would like to thank Albert Einstein and Nikola Tesla for their work.

Contents

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Abbreviations

MAG	**M**astering **A**t **G**aming
MG	**M**astering **G**ravity

Symbols

a	distance	m
P	power	W (Js^{-1})
ω	angular frequency	rads^{-1}

First of all, I would like to express my deep gratitude to Prof. Quirrell, who supervised and guided my research work. From the very beginning, he trusted and motivated me to strive for the highest goals. While I was struggling with some hard research problems, he encouraged me to continue, stay focused, be accurate, and showed me the big picture. Second, thanks to all people, who helped me gain a solid academic training. Without these people, I would never gain new knowledge and different perspectives to determine what is really going on. Furthermore, I want to thank Eliezer Yudkowsky, with whom I have worked closely during this thesis. The cooperation with him was always constructive and meant a lot of fun for both of us. Special thanks deserve Arkady Natanovich Strugatsky and Boris Natanovich Strugatsky for proof-reading my master's thesis. I know, it was not an easy task. Moreover, I would like to thank Ernest Cline for in-time comment about the testing chapter. Finally, and most deeply, I want to thank my big family and friends, grandparents and parents, whom I definitely saw too rarely during my time in Moscow. Without their endless support, love, and belief in me I would not have been able to accomplish this thesis. I am eternally grateful to them and dedicate this thesis to them.

Chapter 1

Introduction

This is general template for those wizards, who rose above and beyond Word. From now on, they can manipulate the reality and matter with new so advanced tool LaTeX.

Blown Away By Magic!

1.1 Motivation

1.1.1 Abstract

Figure 1.1 see more in.

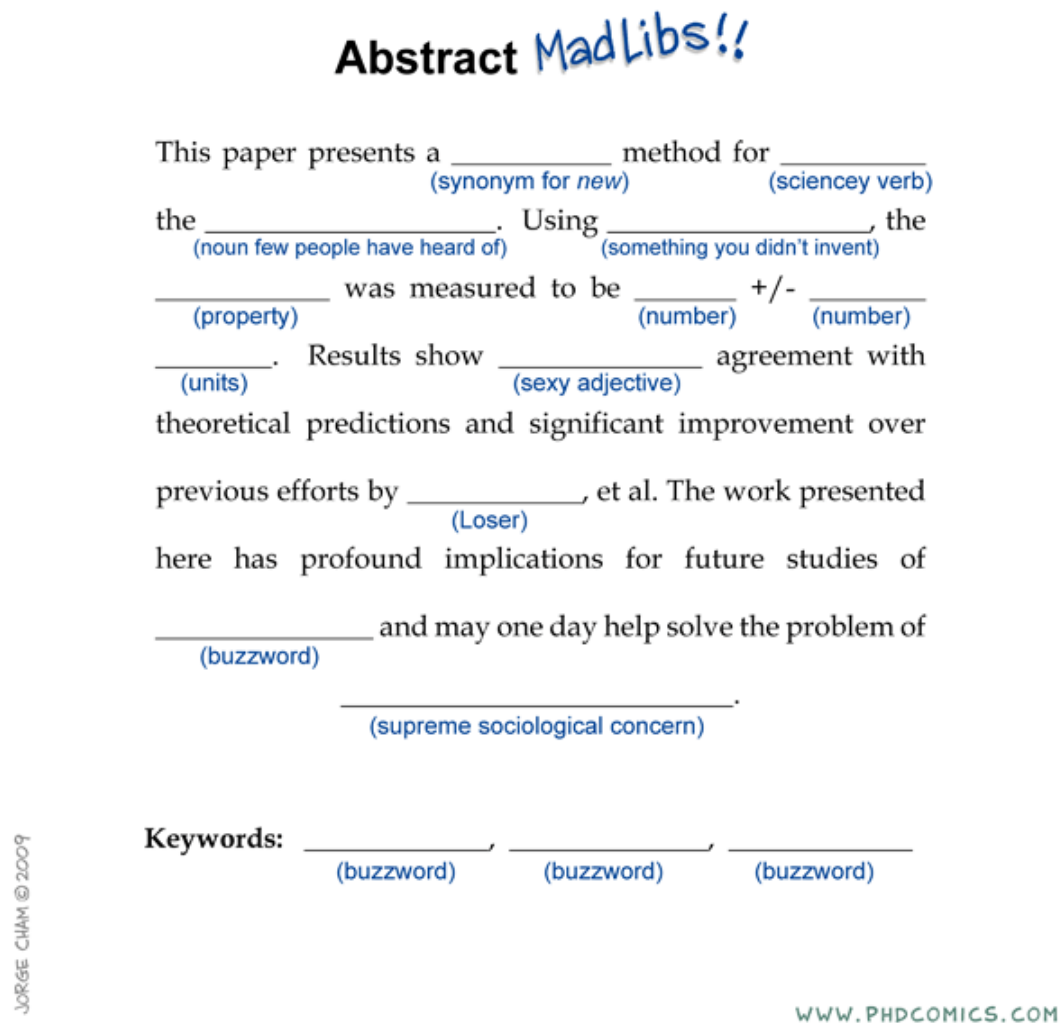

FIGURE 1.1: Abstract

1.1.2 Outline

Look other your outline Figure 1.2 see more link.

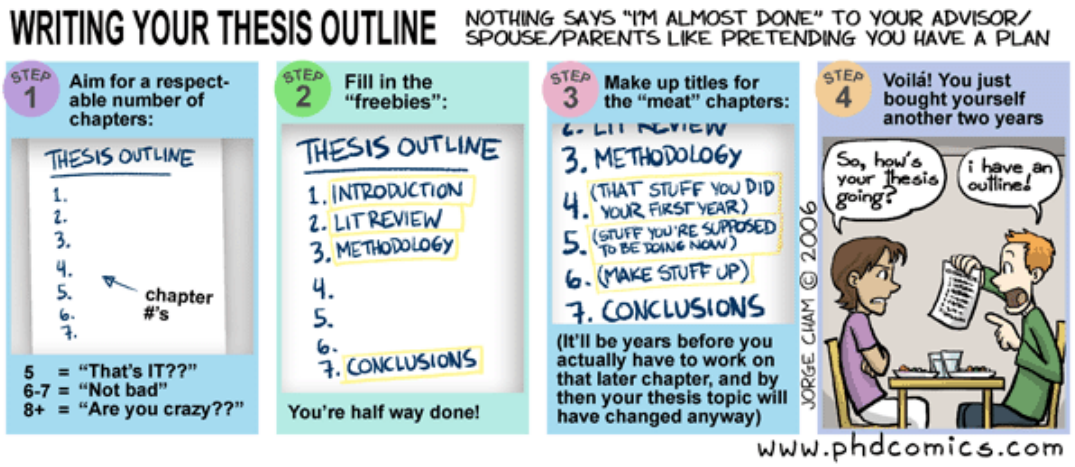

FIGURE 1.2: Outline

1.2 Background

1.2.1 Typical Structure of a Thesis

- Title Page (Figure 1.3)
- Specific title of the thesis (e.g. "Multi-stage Learning in Biomimetic Search and Rescue Robots")
- General Title (i.e. "Final Year Project Report")

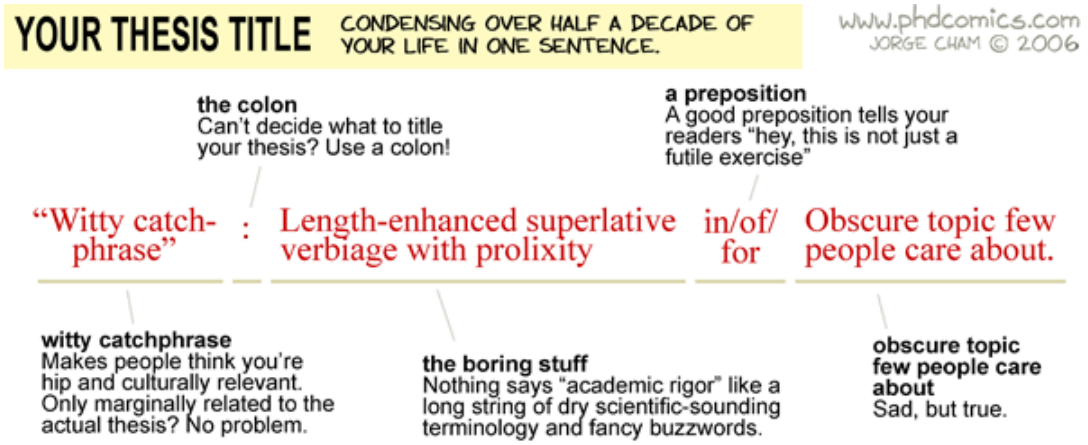

FIGURE 1.3: Title

- Degree (e.g. Ph.D., M.Sc., B. Sc.)
- Author (name and student identification number)
- Institution

- Supervisor
- Date
- Table of Contents
- Chapters
- Sections
- Acknowledgements (Help from friends, colleagues, and staff. Support from sponsor... Support from Parents, etc...)
- Chapter 1. Introduction Overview
- Chapter 2. Literature Survey
- Chapter 3. Theoretical Foundations: Background Material
- Chapter 4. Formal Model: Theoretical Development (use additional chapters if necessary)
- Chapter 5. Algorithmic Considerations
- Chapter 6. Implementation Issues
- Chapter 7. Evaluation
- Chapter 8. Discussion and Critical Appraisal
- References
- Appendices
- Key Software listings, Code, Diagrams
- Mechanical schematics
- Mathematical proofs

1.2.2 Items

1. One
2. Two
3.
4.

5.

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7.

- 1
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-
-

1.3 Problem

1.4 Goals

1.5 Objectives

1.6 Contributions

1.7 Future goals

1.8 Outline

We will preside this thesis in a following structure [1], [2]:

- Chapter 1: Introduction, Background, Motivation, Problem statement, Goals, Restrictions, Overview;
- Chapter 2: Literature Survey and Background: Research method, Methodology of Software Development, Literature review, Related Works

- Chapter 3: Theoretical Foundations: Background Material, State of art, Theory on hardware, Architecture
- Chapter 4: Protocol and systems(services and programs) used to build the system.
- Chapter 5: Formal Model: Theoretical Development, Implementation / Use cases, Testing
- Chapter 6: Algorithmic Considerations
- Chapter 7: Implementation Issues, Results and Evaluation
- Chapter 8: Discussion, Critical Appraisal, Conclusions
- Chapter 9: Future Work

Chapter 2

Background

2.1 Business justification for your work

2.1.1 Market research

2.2 Research methods

There are different methodologies, which can be used in order to conduct a research. Most of the researches apply scientific method see Figure 2.1 .

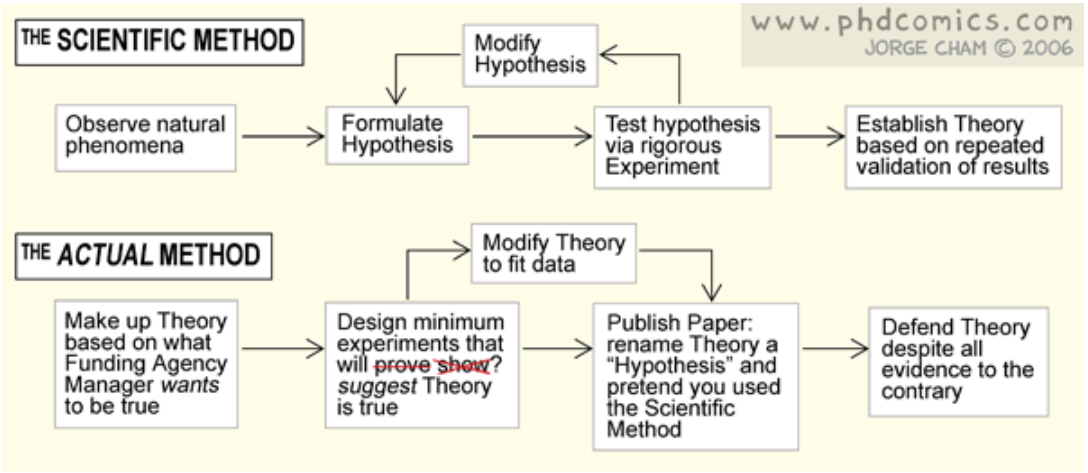

FIGURE 2.1: Sci method

Depending on the study, there are different techniques, which can be applied. In our case, during our project we did conduct few studies. In order to conduct our research we preside following steps:

1. Formulating the research problem;
2. Extensive literature survey;
3. Developing hypothesis;
4. Preparing the research design;
5. Determining sample design;
6. Collecting data;
7. Execution of the project and Implementation of the project;
8. Analysis of data;
9. Hypothesis testing;
10. Generalization and interpretation;
11. Preparation of the report / presentation of our results [**?**].

To be more precise, we had two major different studies in our hands. First one was about user experience of our application. Second one was about drawing conclusions and results from insulin sensor data.

We used qualitative and quantitative research method approaches to our problems due to data type. So, we are going to explain research types and their differences (see Table 2.1) As well as, how we applied this methods.

Qualitative	**Quantitative**
Direct observation, Open-ended surveys, Focus group, In-depth interviews, Oral history, Participant observation, Ethnographic observation, Content analysis. In UX we could apply: Interviews (directed, non-directed, ethnographic), Surveys, Questionnaires, Usability Tests (moderated, unmoderated, guerrilla), Card sorting, Tree testing, A/B testing, Persona development, and so on ...	Surveys, structured interviews, observations, reviews of records / numeric information: Study population, Sampling, Data collection, Data analysis, Statistical analysis
Primarily inductive process used to formulate theory / hypotheses	Primarily deductive process used to test pre-specified concepts, constructs, and hypotheses that make up a theory
More subjective: describes a problem / condition from the point of view of those experiencing it	More objective: provides observed effects (interpreted by researchers) of a program on a problem or condition
Text-based, Descriptive data	Number-based, Numerical data
More in-depth information on a few cases	Less in-depth but more breadth of information across a large number of cases
Unstructured or semi-structured response options	Fixed response options
No statistical tests	Statistical tests are used for analysis
Can be valid and reliable: largely depends on skill and rigor of the researcher	Can be valid and reliable: largely depends on the measurement device or instrument used
Time expenditure lighter on the planning end and heavier during the analysis phase	Time expenditure heavier on the planning phase and lighter on the analysis phase
Less generalizable	More generalizable

TABLE 2.1: Difference between quantitative and qualitative research methods applied

2.2.1 Qualitative research - User Experience

We formulated a research problem as - smoothing user experience of glucose monitoring systems in Android devises. While doing literature survey, we stumbled upon a study

with a schematic diagram of the tailored mobile coaching system on diabetes management (see Figure **??**). Their application design was developed for teaching about diabetes, however we realized - that we could tailor their solution a little and get an application for our case. As a result, we decided to formulate hypothesis, where we deduced, that an a diabetic Android application for controlling glucose level should combine functionality of: statistics on Iot devise, everyday dosages of insulin, diary on food and exercises, medical record keeper, notifications for regular and emergency situations.

For a research design we used different methods. First, we conducted direct Interviews. Second, we used persona development method in order to identify categories of our main uses. Finally, we conducted usability tests for different prototypes. In each step, we changed the design by analyzing responses of our focus group. Furthermore , we challenged our hypothesis one more time. Next, we generalized and interpreted results, by which our first hypothesis were true. Therefor, we implemented final version of out design.

Qualitative research method was helpful in our case because we were dealing with text-base data. As well as, we have to take into account, that it is more subjective data. Also, we (researchers) had to interpreted the data, which been collected from individuals with diabetes and their reaction to InsuPad with Android Application. Moreover, we were shoving images of different prototypes as well as different design of InsuPad itself. The final result of design of application is presented in next chapters.

2.3 Software Development Methodology

During development process we have to use a methodology in order to satisfy an end quality of the product. In our case, due to a limited time and specific requirements, which have to be implemented, we preseed with Dr. Winston W. Royce first described the Waterfall Model (see Figure 2.2). This model with no iteration, sometimes called “stagewise”. However, in Dr. Winston W. Royce’s paper did not use the term “waterfall”, he described the process itself. It was firs mentioned in relation to developing software in “Managing the Development of Large Software Systems”. The model includes the following steps: System requirements, Software Requirements, Analysis, Program Design, Coding, Testing, and Operations. As we can see, an unmodified waterfall process does not allow iteration like: going back to previous steps. This places a heavy planning burden on the earlier steps, as well as risks management. Also, since each subsequent step cannot begin until the previous step ends, any delays in earlier steps cause delays to the later steps.

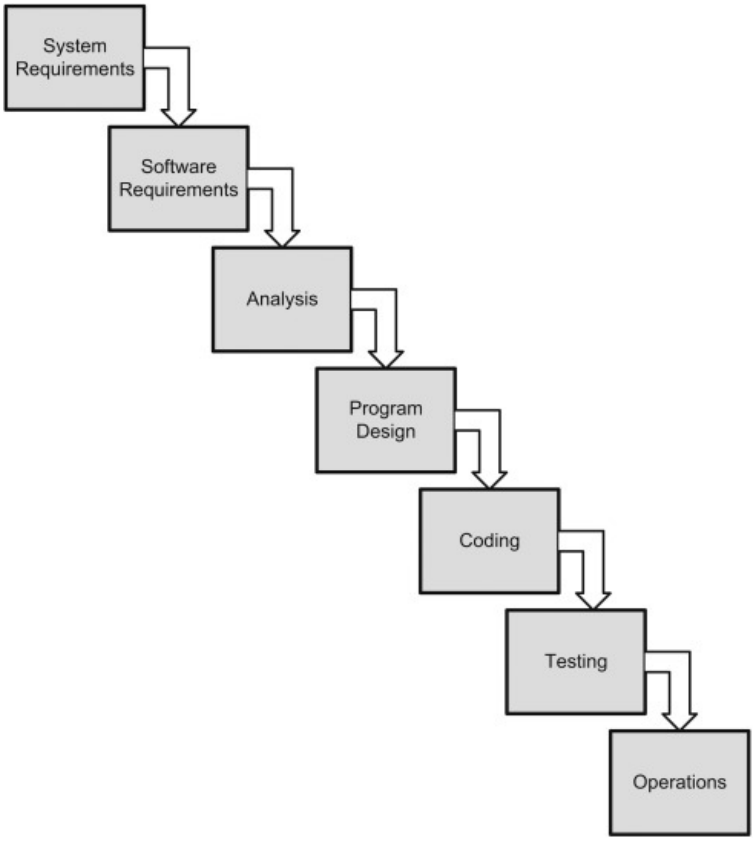

FIGURE 2.2: Unmodified waterfall development model by Dr. Winston W. Royce. [**?**]

At the same time, we have the true demonstration of final thesis draft time-line in a Figure 2.3. Of course planning fallacy can be applied here.

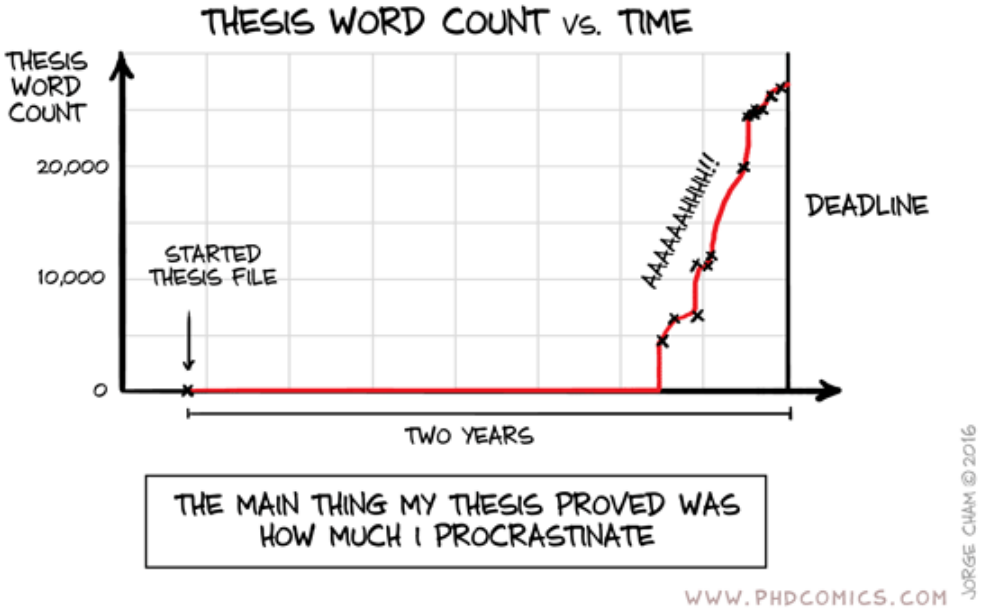

FIGURE 2.3: Thesis time-line

2.4 Literature review

In this section, we are going to look into researches of similar cases and similar applications. As well as, we are going to look into technologies and researches, which were used to make this product.

2.4.1

Chapter 3

State of the art

3.1

3.2 Architecture

3.2.1

3.2.1.1

3.3

3.3.1

3.3.2

3.3.3 Application Architecture

Chapter 4

Software and Hardware

4.1

4.1.1

4.2

4.2.1

4.2.2

Chapter 5

Design and Implementation

5.1 Functional Requirements

5.2 Non-Functional Requirements

5.3 Implementation

5.4 Use cases

5.5 Testing

5.6 Results

For this section you will probably need some data to fit into other space - therefor just take a glance at your results and fit it into something - see figure 2.3.

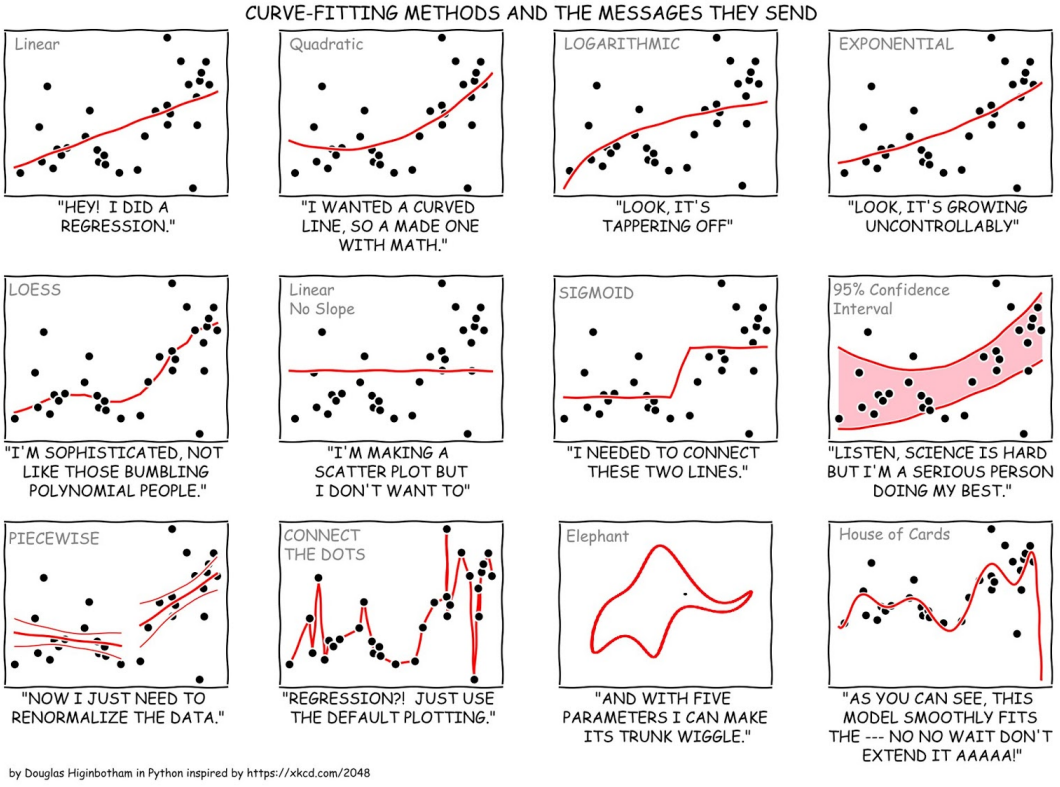

FIGURE 5.1: Fit it

Chapter 6

Algorithmic Considerations

Chapter 7

Implementation Issues, Results and Evaluation

Chapter 8

Discussion, Critical Appraisal, Conclusions

8.1 1

8.1.1 1

8.2 1

8.3 1

8.3.1 1

Chapter 9

Future Work

9.1 Additional Functionality

9.1.1

9.1.2

9.2

9.3

Appendix A

Appendix A

Bibliography

[1] Vernon, D. (2000a). *A Brief Guide to Research Methods of M.Sc. and Ph.D. Degrees.* 1. Press.

[2] Vernon, D. (2000b). *Project Manual for Final Year Students.* 2. Press.