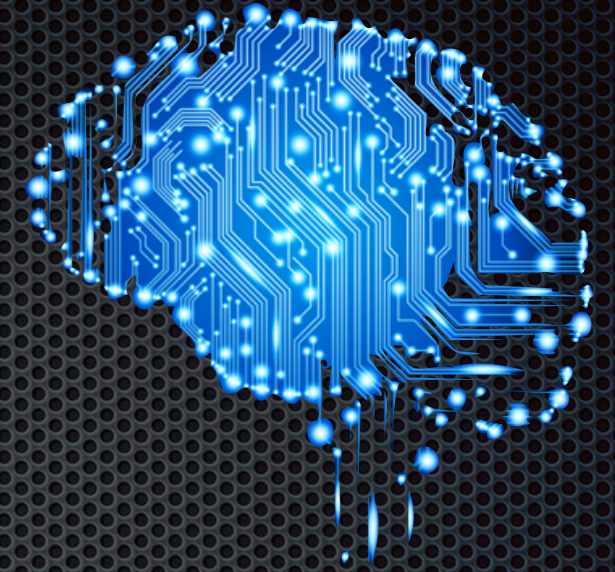


Engineering of Information Systems

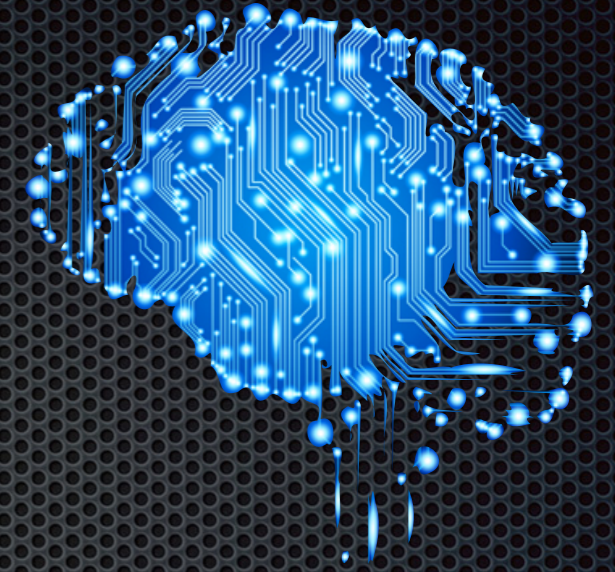
How to write a Master Thesis on a subject with a dominant engineering aspect

Basic Principles



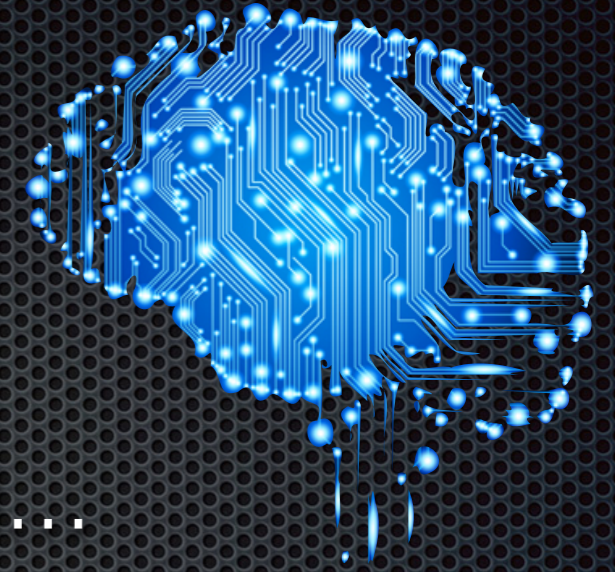
- Everything stated previously applies
- Yet some features are specific to it

Specific Features



- Your work will include a significant portion of “doing”, i.e., of computer science / engineering work, such as, algorithms/software design, programming, etc...
- The methodology is often implicit and not discussed much, as it usually has a design approach flavor

Methodology

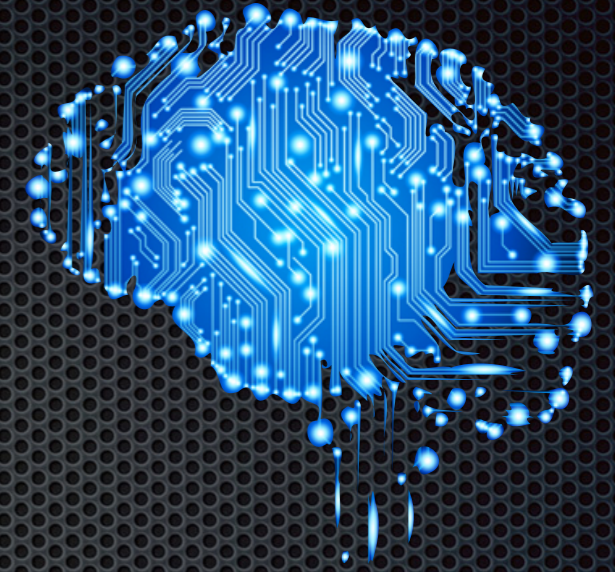


- Analyse requirements, implement software and...
...evaluate it (effectiveness, efficiency, etc.)
- Isolate a computer science problem, solve it and...
...validate your solution (algorithm proof, simulation, etc.)
- Understand an existing IT solution, its context and...
...assess it (alignment, user adoption, etc.)
- Or... whatever works!

Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution.

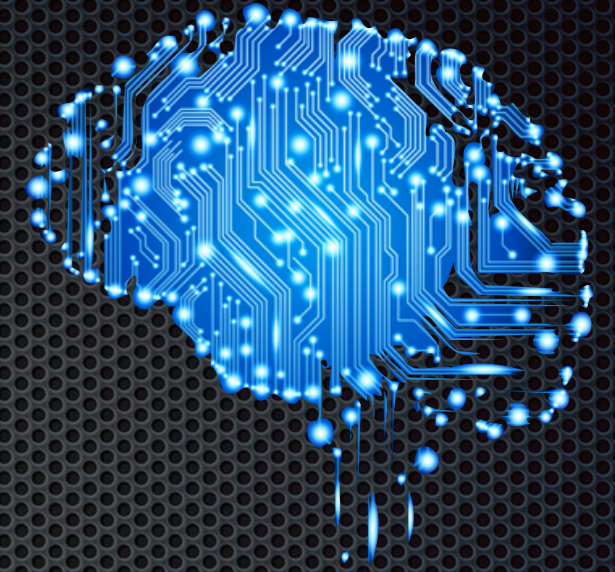
Albert Einstein

Key Questions



- Why should you bother implementing?
- How we evaluate and grade your implementation?
- What is the weight of the report in your final grade?

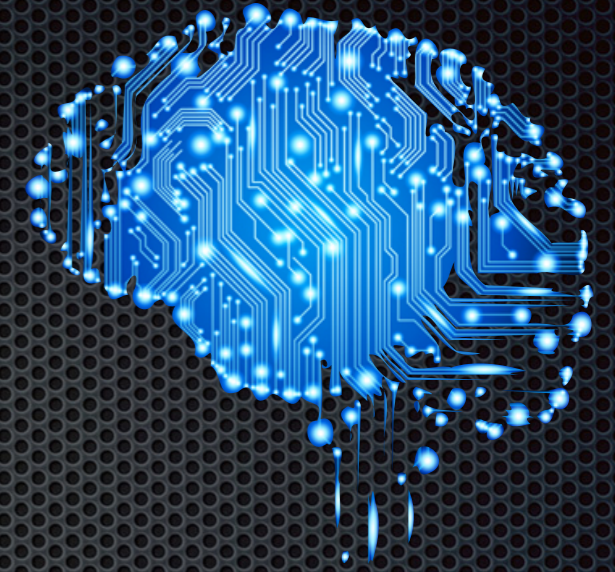
Why bother implementing?



- ✦ To validate a concept
- ✦ To assess a technology
- ✦ To solve a problem
- ✦ ...

Why bother implementing?

The Actual Reason



because you want to be this guy...

rather than this guy...



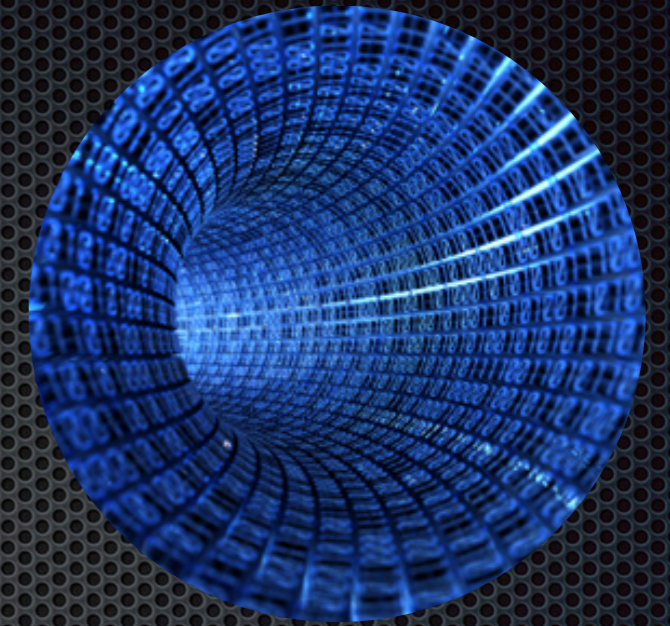
Scoped broadcast & radio propagation models



The objective to this project is threefold:

1. implement a single-hop scoped broadcast using the NS3 network simulator;
2. explore different radio propagation models;
3. test the implemented scoped broadcast with different radio propagation models and compare their results.

Analysis of data models for file storage



The aim of this project is to study the advantages and drawbacks of several data models used to store files. Important criteria are the ability to scale, to keep track of file versions, and to synchronize in real time.

Depending on the student profile, a set of data models may be implemented and evaluated on the early prototype of a storage platform developed with Scala and Akka.

DAG-based Peer-to-Peer Media Streaming



The goal of this project is to design, implement and then deploy a new DAG-based media streaming algorithm using the PlanetLab Europe testbed.

The task of the student is to participate in design meetings with us to elaborate the new algorithm and then, to implement it and to deploy it in PlanetLab Europe.

Porting the ManetLab framework to iOS



The goal of this project is to create an iOS version of ManetLab. The first step of the project will consist in specifying the functionality of the iOS-version of ManetLab, followed by its implementation.

One of the challenges lies in the rather restrictive execution environment offered by iOS when compared to OSX. In a third step, the iOS-based ManetLab will be used to test existing broadcast algorithm implementations.

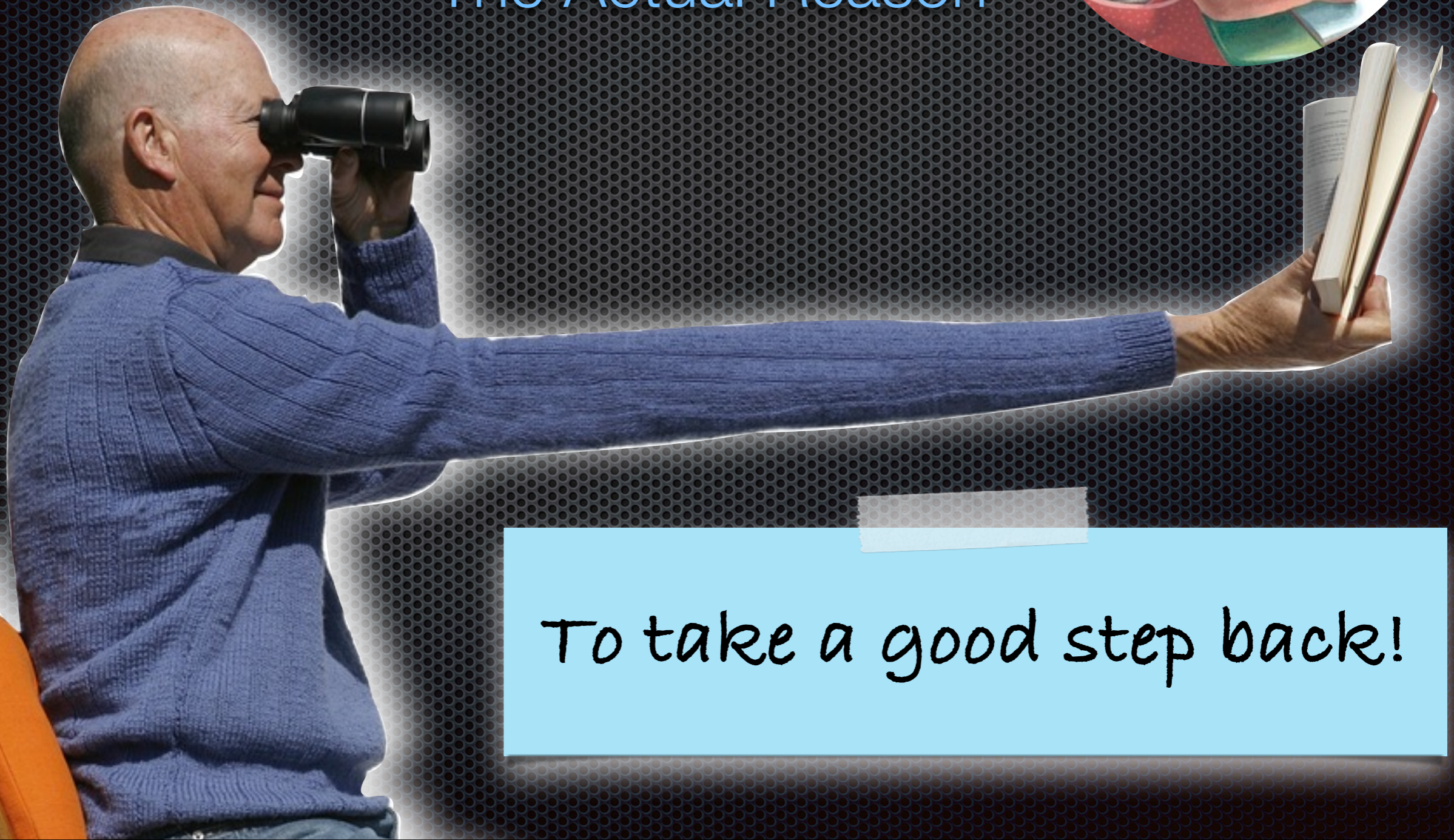
Why bother writing a thesis?



- ✦ The report is the only persistent trace that will remain of your work
- ✦ Even if you did a good engineering work a poorly structured or written report will result in a bad final grade
- ✦ A good implementation is a **necessary** but not **sufficient** condition

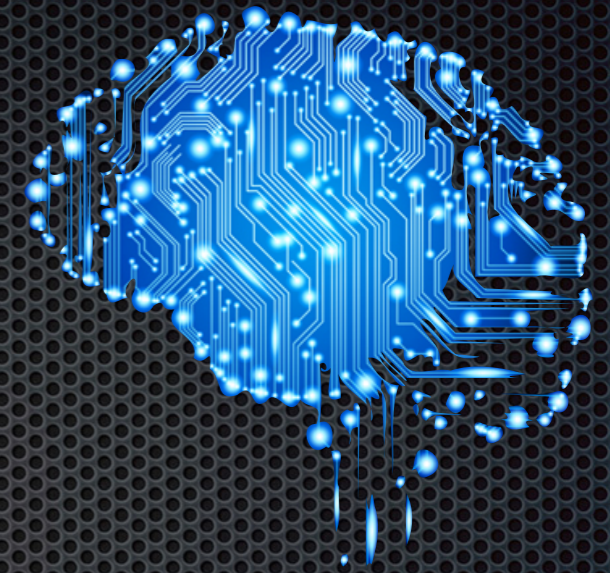
Why bother writing a thesis?

The Actual Reason



To take a good step back!

Back to the evaluation question...



- ✦ How we evaluate and grade your implementation?
- ✦ What is the weight of the report in your final grade?
- ✓ A good implementation is **necessary** but not **sufficient**
- ✓ A good written report is **necessary** but not **sufficient**

Internships



- ✦ An internship report is not a master thesis !
- ✦ Remember that you are still a student and remind this to your company supervisor if necessary
- ✦ Allow time before and during the internship to step back and reflect upon your work and its purpose
- ✦ Allow time during the internship to write your report
- ✦ Meet you academic supervisor on a regular basis and... listen to what she / he has to say 😊