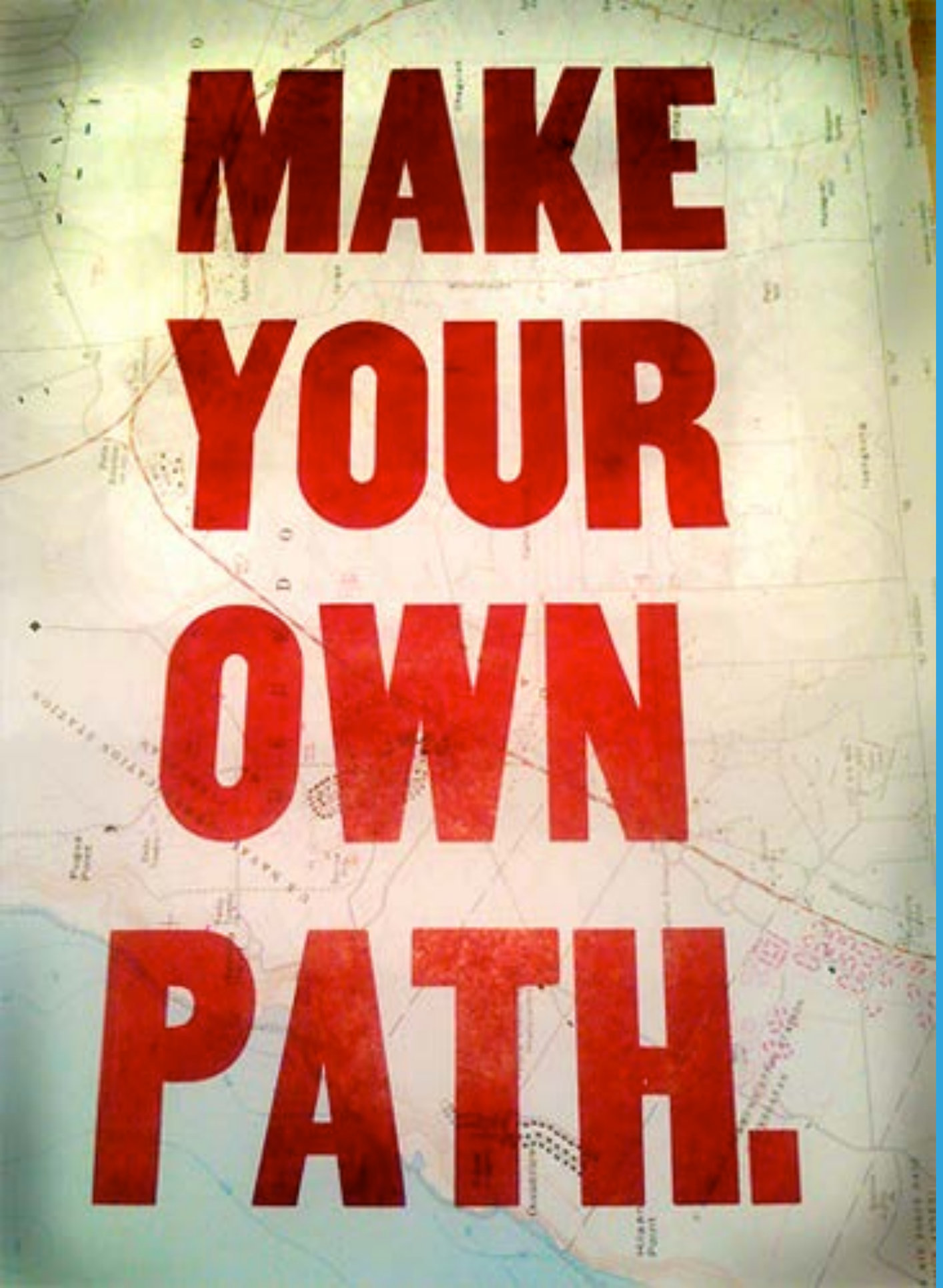

ECa: Industrial Development Practices

Make your own research work!

Motivation

- Academia and Industry are not in silo!
- Most of software paradigms come from academia
- Most of software experiences are reported to academia
- The scientific rigor is expected/appreciated by both academia and industry
  - Side note: PhD is more and more recognized in the French industry (and since along in most of the foreign countries)
- Software Engineers must build their own visions

Objective

- **Technical skills**
  - Learn some software foundations and industrial practices
  - Step back on software technologies and build your own vision
    - *Think outside the box!*

- **Soft skills**
  - Discover scientific literature
    - *A first meet with scientific literature reading for most of you?*
  - Report on scientific contribution

Organization

- Choose an article/topic and make a group of ~4/5
- Iterate
  - Read the reference(s), and make your own path from related work
  - Brainstorm with your colleagues to confront your vision on the contribution
  - Extract the essence of the contribution and make your own (group) analysis
  - Define pro and cons, expected and concrete impact, and perspectives

- Important note: Let Me Google***(scholar)*** It For You ☺
  - https://scholar.google.fr
  - But also: https://arxiv.org, https://hal.inria.fr, researcher or lab websites…
  - And if eventually you look for a scientific paper that you can not access, send me the link of the paywall.

Timeline

- Monday Oct. 2nd: choice of the article

- Monday Oct 9th: open hours (during ECc, 14h-16h)
- Thursday Oct 14th: open hours (during ECb, ***moved*** to 16h-18h)

  ⇒ **You must validate your presentation outline during the open hours**

  ⇒ **You may also use open hours to discuss with your colleagues**

- Wednesday Oct. 18th: presentation (and will serve for the evaluation)

Evaluation

- A presentation of 15min (+5min discussion) reporting on the topic addressed by the group
  - Speech can be in French but the slides must be in English
  - All members of the group may present a part of the presentation, but no more than 1 switch per person
- Proposed outline in 5 main parts:
  - **Context**: set the ground of the scientific/technological/industrial field
  - **Problem**: explain the problem, and position the proposed contribution
  - **Contribution**: may be a general approach, an architecture overview…
  - **Results**: may include an evaluation, discussion about pros and cons, reported impact…
  - **Conclusion and Perspectives**: give your own summary of the contribution, and give (your own) perspective

Topics: https://combemale.github.io/teaching/ice/m1/eca/

- Programming Language
  - Typing
  - Approximate computing
  - Aspect-Oriented Software Development
- Software analysis and testing
  - Mutation testing
  - Model-Based Testing
  - Software analysis and mining
- Software Architecture
  - Component Based Software Engineering
  - Large-scale infrastructure
- Software engineering principles
- Political and social impact of software