Research Internships
Computer Science Department

September 8th 2015

- Who is talking?
  - Olivier Bournez
  - email: bournez@lix.polytechnique.fr

- Assitant:
  - Catherine Bensoussan
  - email: cb@lix.polytechnique.fr

Why doing a research internship?

- To realize:

  - that innovating developments, in particular in the industry, is most of the time based on a solid corpus of theoretical knowledges.

  - the complexity, without any historical precedent, of computer science systems built today.

- To address:

  - a large set and a great variety of questions,

  - to illustrate the importance and the diversity of today's research in computer science.

For which careers?

- A career in research:

  - ▶ To confirm this vocation for a particular domain, and to discover life of laboratories.

- Another career:

  - ▶ To be familiar with the world of research and innovation,

  - ▶ that you will meet, in some way or in another, in your future career.

Training by research

- The opportunity for some of you to choose to do later a PhD (doctorat).

  - The reference diploma in the industry (in computer science and in other fields).

- The proposed subjects are coming from best research centers in France, Europe and International, from Academy or Industry.

A PhD

- Bac+5/Bac+8

- The internationally recognized diploma.

- Concretely: about 3 years

  - to explore a research subject,
  - with a high scientific freedom.

The Master 1 internship

- A moment to discover the world of research.
- A moment of pleasure.

- Prerequisite:

  - It is highly recommended to have followed one of the track (PA) proposed by computer science department to fully profit of a research internship.

To select an internship: prerequisite

- **Prequisite:**

    - It must be:

        - a research internship
        - validated by the department.

- **Who validates?**

    - Olivier Bournez

To select an internship: prerequisite

- Prequisite:
  - It must be:
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- Who validates?
  - Olivier Bournez
    - with a description of the internship;
    - and all relevant informations
    - with some reasonable delay (signatures, exchanges, etc...).

Some basic definitions

- Every student belongs to some **track (filière)**.

  - **Track Manager** = function(track).
  - See slide from Sylvie Putot.

- INF591 = ENEX code for "Computer Science Internship".

  - **INF591 Manager**: Olivier Bournez
  - Synonyms: directeur d'option, responsable <u>des</u> stages
  - Role: validation of internships, management of INF591.

- Each internship has:

  1. a supervisor (in the lab/company of the internship)
     - Role: to supervise your work during the internship
  2. A **tutor (référent)** at Ecole Polytechnique.
     - Often = or ∈ track managers,
     - Role: to check that everything goes fine, and to do the interface with Ecole Polytechnique, and usually a member of the oral defense jury of the internship.

Let's insist!!

- It must be a **research internship !!**

- not a programming internship, not a "stage de fin d'étude".

- Ingredients:

  - production of new scientific knowledge,
  - in a public or private research laboratory or center, or in a R&D center,
  - with a work presented in wide scientific perspective (state of the art, bibliography etc...).

- Not a research internship $\Rightarrow$ Not Ok.
- Not a research internship $\Rightarrow$ Year not validated.

  - The following algorithm must be used !!

- Not necessarily Ok:

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[1]Stages, Orientation, Insertion et relation Entreprises

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  - Customized subject after some discussions and validation
    - The following algorithms must be used.
  - Subjects from the Computer Science Department.

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[1]Stages, Orientation, Insertion et relation Entreprises

A tool: the catalog of the department[2]

http://www.enseignement.polytechnique.fr/informatique/StagesM1/

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[2]proposals validated with a probability close to 1

How to choose an internship: the algorithm

- Algorithm:

    1. Think about your preferences.

    2. Look at the list of internships proposed by the department and the list of previous internships in France or abroad.

    3. Talk with your teachers or with correspondents and/or with your track manager.

    4. In particular if the internship is abroad, then it is mandatory to exchange with a correspondent.

    5. Iterate 1., 2., 3., 4. as long as the choice is not final.

How to choose an internship: the algorithm

6. If final choice:

   ▸ Inform your track manager.
   ▸ If positive feedback, inform Olivier Bournez with an email with:

      • subject+ description[3], Place + Supervisor.
      • source: reference in the catalog or the name of a teacher (copy of emails with an "Ok") or other (but with explanations).
      • your track, the track manager in cc (and/or teacher) and/or his answer
      • professional project.

   ▸ If a positive email received by Olivier Bournez, then

      • Fill the form on ENEX.
      • Give a copy to Catherine Bensoussan for signature, BEFORE the deadline + reasonable delay.

   ▸ otherwise, go back to 1., 2., 3., 4. as long as the choice is not final

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[3]= Expected from the supervisor

Constraints

1. There is a specific calendar for internships outside of France.

2. Customized subjects are possible, and even encouraged, but:

   ▶ there must exist a subject.

   ▶ this must be a research internship.

   ▶ it must be validated by the person in charge of INF591 (Olivier Bournez).

Practical constraints

- Start: 21 March 2016 [4]
- Duration: at least 4 months[5] (march, april, may, june) plus possible.
- End: $\leq$ 31 August 2016 at the latest.

- Defense: **can** happen before the end of the internship

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[4] $<=$ xx march 2016, with xx fixex by Ecole Polytechnique
[5] 16 weeks minimum

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   (**will happen with high probability in June or July**)

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Confidentiality

- The department will not validate anymore internships without the guarantee that we will be able to read a report and to assist to a defense in correct conditions.

    - The reports for internships are not put online by default.

- It is possible to set up NDA's (= Non-Disclosure Agreement).

    - But it must be reasonable (for example, it must permit an evaluation).

- In any case, it is important to take care of the question before the beginning of the internship, and from the beginning of the internship.

- Risks / Worst case: no validation of the internship, no validation of the year.

Some meetings

- Now:

  - Discussions.

- Calendar:

  - 22 October 2015 at 11h00:
    - Cérémonie de remise des prix de stage de recherche aux X12.
  - Before 3 december 2015 - reasonable delay:
    - Fill the form in ENEX
    - (choice of 4A for X)
    - **SIGNATURE MANDATORY** $\Rightarrow$ Delay**s**
  - 10 december 2015:
    - Commission d'attribution des stages à l'étranger.
  - 5 february 2016 - reasonable delay:
    - Ultimate deadline for the final choice of an internship.
    - **SIGNATURE MANDATORY** $\Rightarrow$ Delay**s**
  - Beginning of the internship:
    - At the latest: 21 march 2016.

While doing your internship

- Common sense:

  1. If there is a problem (supervisor, etc...), then tell me/us immediately.
  2. If there is a problem (confidentiality, etc...), then tell me/us immediately.
  3. If there is a problem (subject, etc...), then tell me/us immediately.

- Who?
  - your tutor at Ecole Polytechnique
  - AND Olivier Bournez

- False alarms are welcome.
- Positive feedbacks are welcome.

- Reminder: many defense happen before the end of the internship.