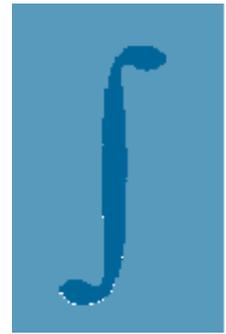


Société de Calcul Mathématique, SA



Robust mathematical modeling

The RMM tri-country Ph.D. project

1. General difficulties concerning Ph.D.'s

At present, a Ph.D., especially in mathematics, is not well-regarded by companies : salaries are often higher, for an engineer, without a Ph.D., than with a Ph.D. This is mostly due to the following reasons :

- The Ph.D. is often regarded as purely academic : the students who want to obtain a Ph.D. often want to engage immediately into an academic career ; so, they apply for jobs to companies only as a second choice ;
- The contents of the Ph.D. are often too theoretical : precisely, they correspond to an academic approach, with very little view towards the needs of the companies ;
- This Ph.D. is often too long : the companies do not want to wait for three years before they obtain results.

These criticisms are usually justified and must be taken into account. Their result is, at present, that finding good candidates for Ph.D.'s is becoming quite hard and will remain so, as long as Ph.D.'s are linked with academic careers.

2. Our project

We think that, in general, the strong distinction which is made between academic research and applied research is not justified. A research starting with applied needs (for instance resource allocation, environmental concerns, energy, transportations, and so on) may very well develop into a good theoretical research, if it is well conducted.

For us, a Ph.D. student will first be a Research Engineer : so they will occupy a well-defined position in a company. They will be engineers first, Ph.D. students after only.

The status of Ph.D. student, for an engineer, should not create any difficulty : usually,

when some research topic is studied in a company, reports are written, at an abstract level. There is no objection in unifying these reports into a Ph.D. Our RMM program already mentions several examples of articles which were written by engineers, and took their sources in specific contracts.

So, for us, a candidate to the RMM-Ph.D. is simply a research engineer in some company, who wants to extend his knowledge and background, in a field which is already recognized as important by the company itself. It should need very little extra time (writing reports, attending conferences) and very little extra cost.

Moreover, we think that these Ph.D. students should travel, which adds to their experiences. Our aim is that each of them spends a significant time (perhaps a year) in each of the participating countries : Ukraine, USA, France.

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