

Making research internships work

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Abstract

We consider the issue of introducing undergraduates to the research mission of a university. Noting that there are several ways of doing this, we consider how wide the derived benefit may be: to interns and the wider student community.

Deploying a particular, but known, model, we have monitored all aspects of the process with care to determine strengths and weaknesses. We determine that short, in-house research internships can be beneficial to all stakeholders and suggest some best practice.

I. INTRODUCTION

One of the major challenges of a university department is communicating to undergraduates its ‘other’ primary role – the conduct of research. It can be distressingly easy for students to graduate with only the barest acquaintance with the activity. Self evidently, a healthy supply of young researchers is critical to our Masters and PhD programmes and thereby the future health of the disciplines: but beyond that we would be better served if the broader community of our graduates truly understood what we were trying to achieve and how. The cascade effect of informing the wider community would communicate that research is for all of us, not just the lucky grant-winners and their postdoctoral assistants. In a world in which the study of Engineering is often seen as unpopular, and in which our collective image is often wanting [1], this is clearly worthwhile.

Within the curriculum, aspects of advanced teaching and project work can assist [2], but there is scope for broadening access to this experience, and giving the opportunity for focused and prolonged engagement with research, and hoping to seed the broader ethos and culture. A variety of models exist that afford this under the broad title ‘internships’.

We describe here a study of the conduct of short-term internships conducted within the parent department. While these are widely employed in universities [3], we have chosen to study their conduct closely from the point of view of all involved to seek out the key issues and lay ground for recommending best practice. The study does not seek to comment on long-term internships held under the management of external companies or agencies: in this sense it is at the less ambitious end of the spectrum, but conversely considers frameworks and protocols that are very widely applicable.

While this work was pursued in a research intensive institution and within the specific discipline of computing, we feel the observations are applicable to all, and in many aspects to the wider engineering and beyond as well.

II. BACKGROUND

Incorporating opportunities for students to appreciate and engage with research within the undergraduate curriculum is difficult for a variety of reasons [4]: primarily these are

- Its intellectual accessibility: it is likely to represent the ‘hardest’ activity.
- Teaching loads: in an environment of large classes, the state of the art, and the general research ethos, are unlikely to be at the top of the staff agenda.

There is wide agreement, however, on its importance: *‘There is broad consensus in the engineering education community that undergraduate research is an important component of the engineering curriculum’* [5]; *‘The best ... way to interest students ... is to use examples from research projects in one’s own department* [1].

There are many ways this may be attempted: it is very common, indeed normal, for the assessed curriculum to include capstone projects that may be research based, and for advanced study to be informed by the parent department's research; but these represent formally assessed and often straight-jacketed activity that will find it difficult to touch true research activity or communicate its ethos, and are unlikely to fully communicate what is actually being done in the university's research laboratories, or how, or why.

If students are truly to 'do research', then they need the opportunity to work in a laboratory on a full-time basis for a non-trivial time: research internships offer a potentially effective mechanism for this, and there is more than one way they may be affected. In many institutions, selected students may be offered the opportunity of 12 month 'placements' at fully fledged research laboratories, an arrangement of benefit to student and employer alike for a host of reasons¹. Such schemes are well known and highly thought of [7].

Alternatively, internships may be shorter scale (during a university vacation) and conducted 'in house' – while obviously of smaller scale, this need not be a lower quality or less valuable experience. It is this latter form of internship that we have considered. Specifically, we consider salaried, short term research internships within the students' parent department which are 'real' in every sense: the student will engage with an active (probably externally sponsored) research activity in the company of active research professionals. We would not seek to 'assess' this work in the academic sense; no grade, or pass/fail, is attached, in contrast to some other models [8]. This is also in contrast to capstone project work, or research activity that is, however worthwhile, designed for academic assessment and is peripheral to the direct mission of the laboratory.

Such internships are established practice in many universities, for example, Rochester Institute of Technology [9], Imperial College [10] and Stanford University [11], and many variants – such as those targeted at high school students [12] – exist. Sometimes they are in association with companies or external agencies such as Sandia National Laboratory in California [13] and JP Morgan [14], although commercial organisations place less stress on pure research aspects.

Within the UK, a range of support exists for research internships for undergraduate students in science and engineering through national Research Councils (EPSRC and BBSRC) [15], [16] and organisations such as the Nuffield Foundation [17]. In addition, a number of universities have their own well-developed schemes – examples include Imperial College [10], Reading [18] and Swansea [19], each with their own specific characteristics.

Typically schemes run for between 6 and 12 weeks and in the non-industrial case the student remains within the university environment, though in the case of the well known Universities Research Opportunities Programme (UROP) scheme this may not be at their 'home' institution [10]. Student selection is predominantly based on academic ability and, although all students are paid, remuneration varies considerably from one scheme to another. The EPSRC scheme was piloted in 2006 and, based on initial positive feedback from participating institutions, has run again in 2007.

Within our own institution, research internships have historically remained underexploited although such schemes have run intermittently when funding allowed. Given resource, we became anxious to build this approach, by chance at the same time as the previously mentioned national initiatives. In planning, we observe variability in practice, procedure and remuneration; while there is unanimity on the idea being a good one, there seems to be little work on calibration or wider optimisation of the exercise – for example, the well-structured and established NSF 'research experience for Undergraduates' scheme is *'one of the most effective avenues for attracting talented undergraduates to, and retaining them in careers in, science and engineering, including careers in teaching and education research'* [20] but does not, by design, touch the wider community of students. We were unaware of any study evaluating the true worth of internships to students or universities.

III. METHODOLOGY

We have conducted a case study in the School of Computing at the University of Leeds; both the School and the University pride themselves on research excellence, and would aim to ensure their students were aware of this excellence. Despite care in the construction of curricula² there is always concern that some students graduate

¹Many of these advantages are generic to 'sandwich' placements of all kinds, not just research based [6].

²In the UK, the dominance of the Research Assessment Exercise provides an opportunity to acquaint students with the motivation for and pressures of research; although this can be counter-productive.

without, and many steps inside and outside formal teaching are taken to rectify this [2]. The use of internships is just one.

In the UK, a degree is usually of three years duration and internships of the kind we describe are conducted between the second and third; this means that the students are well grounded in computing but probably without any specialised knowledge or experience. It is likely that they have reasonable preliminary judgements of where their specialised interests lie.

In seeking a robust and useful intern process, we identify three sets of stakeholders:

- The interns themselves, who we hope are seeking an interesting, instructive and remunerative experience.
- The academic supervisors, who are seeking the completion of a relevant and presumably challenging piece of work.
- The (meta-)interests of the wider School in communicating the research ethos not just to the lucky few engaged, but more broadly to their peers, thereby generating a wider understanding of the School's general aims and purpose.

Significant literature already addresses the first of these [5], [7], [21], [22], and there is occasional consideration of the second; for example, a recent survey of best practice for research internships offered in computer science across the US discusses recruitment issues, project design and management with the aim to maximise the benefits for staff [3].

The third 'stakeholder', however, is less frequently considered, but, in impact and benefit, has the potential to outweigh the others and was a primary aim. Work at the University of Texas [22] seeks to do this by building very large research groups absorbing many students; this successful approach changes the way the work is actually done. An alternative approach at Macalaster [21] develops the capstone project into a 'research experience', but again this involves the majority of students engaging with work (perhaps of their own devising) outside the core research of the department. If we pursue a model in which only a chosen subset participate, the challenge is to find ways of communicating an ethos to many via the activities of a few.

Section IV describes the recruitment process and its deliverables: during this we conducted focus group meetings of the interns at the outset of the work, near its completion, and again some time afterwards when they had resumed formal study; we also conducted a focus group meeting of the academic supervisors. The interns were also required to submit a (loosely structured) reflective experience report. Additionally, a member of staff (one of the authors) acted throughout as non-academic mentor to the students, thereby providing three independent views on the conduct of the internships.

By the nature of the sample size alone, we cannot claim generally applicable conclusions to what we report: nevertheless, we consider this study of interest and novelty, and suggest that the conclusions may be of use more widely. Locally they have already informed a re-run of the exercise, and will be reused in future years.

IV. FORMAT

A. Recruitment and appointment

Serendipitously, various resources came together to permit the advertisement of several internships. We commenced by considering the level of reasonable remuneration. In the UK (summer 2006), vacationing students might seek employment at 'any reasonable' income but it was important to us to attach value to the activity – *a priori* there is no guarantee that students will take research 'seriously', and others too have noted that attaching a good price tag is useful [23]. Anecdotally, we learnt that a figure of £300/week would meet this requirement; we remain uncertain whether a lesser sum would have been adequate, while greater sums would ultimately eat into a limited resource. Aggregating funds allowed the appointment of six 10-week internships.

Academic staff within the School were invited to propose projects. We expected internships to be challenging yet achievable and, crucially, that they be conducted physically within existing research laboratories and requiring interaction with active research staff. These constraints required the organisers to select a suitable subset of proposals since proposers (perhaps rushed) did not immediately or fully perceive these constraints.

Vacancies were publicised via standard mechanisms (paper and electronic), and verbally by relevant staff during relevant lectures. Students were invited to view the range of projects offered online and to seek further details from

the relevant project supervisor. The application mechanism then involved the matching of a student to a project and this process was undertaken exclusively by the project supervisor. The basis for selection included a combination of aptitude as evidenced by the modules previously undertaken and subsequent grades awarded, but carefully moderated by an assessment of motivation and enthusiasm for the project via interviews. We do not consider that high grades alone are enough. This procedure generated three successful matchings, which were at a later stage augmented by another three as late funds became available: representative titles of projects were ‘*Cluster-based rendering*’ and ‘*Foundational Ontology for geographic Information*’³.

Importantly, all six students were appointed on a standard university contract for up to 10 weeks and were remunerated at the same level (of £300 per week): thus from the outset they had a self-image as ‘staff’. The process was completed well in advance of the period of employment in order that students were able to make arrangements for accommodation, etc. Such domestic issues are of critical importance to students and needed to be an important part of the procedure. The precise employment periods were between June and September, following negotiation between student and supervisor – paid holidays were taken either during the project or after it was completed, hence some students were still working during well into September.

B. Conduct of the work

Aside from the monitoring described in Section 3, there was minimal interference in the conduct of the work. Unsurprisingly, the projects were very significantly different to each other, although all succeeded in being true research, at [approximately] the correct level for the students, and of true academic benefit to the supervisors. The levels of direct supervision were variable, sometimes being centred on one individual, sometimes a team; sometimes regular (even daily) and sometimes ‘as needed’: one intern experienced the disappearance of her supervisor on maternity leave, unintentionally simulating one of the real hurdles of professional life for a junior researcher. All were accommodated in existing and successful research laboratories, staffed by research fellows, assistants and PhD students – every effort was made to present the interns as indistinguishable co-workers.

We also had in place an administrator tasked with monitoring and maintaining the process. We had not at the outset anticipated this being a critical role.

C. Deliverables

In the nature of scientific research, it was not in all cases reasonable to stipulate deliverables: the projects in train are of many years duration and the fragment acquitted by an intern may well not have identifiable ‘product’ other than as a component of a larger whole. In some cases explicit targets were hit (all to schedule). We conducted ‘exit interviews’ with most to checkpoint experience while it was fresh in the memories.

Nevertheless, we considered it important for them to see tangible output of their labours, which we sought to keep within the established research framework. Elsewhere [25] this has been done by formal presentations but we chose not to adopt this slightly contrived approach⁴. Instead, all were asked to present a poster describing their work in the style of a conference poster: these were displayed alongside Masters research posters during the visit of an Industrial Advisory Board. These were of uniformly high quality and have since served as standard displays around the School, providing free advertising for the internship idea. They were also all asked to give a short talk on their work at one of the regular meetings of the relevant research group.

V. OBSERVATIONS

The observations we make have been gathered in a number of sessions and conversations of variable formality, and are presented here in digested form from the point of view of the three stakeholder groups we have identified.

A. Interns

Comments here betray a largely positive reaction but with some reservations and issues that we might have prevented. These are considered further in section VI.

³Fuller summaries and representative outputs are web-readable [24]

⁴Although several interns had made presentations to research groups as part of their everyday work.

1) *The nature of research*: There were many observations, all positive, on the day-to-day conduct of research that evidenced surprise: *'I didn't know that working hours would be so flexible', 'I wasn't aware of the pressure to publish', 'Even very senior people spend time reading and learning', 'In such a free atmosphere it is easy to get distracted', 'I was surprised to find academics were lively interesting individuals', 'My understanding of research has changed'*.

2) *Motivation*: Conversely, there was abundant evidence that the interns had learnt some of the very difficult aspects of research, particularly in respect of the need for motivation: *'...the feeling of isolation that can occur ...', 'You need a real interest', 'Motivation has been my biggest downfall, 'The challenge lay not with the task, but motivation to do it, '...the disappointment of non-productivity., 'Everything happens so slowly., – hard lessons hard learnt. On the other hand, most also reported the elation that goes with success: 'There's a great feeling of satisfaction [when it works]', 'I would not have expected to find this so compelling', 'Within two weeks, other staff were asking my advice' and a gratifying understanding of how things are done: 'I learnt there are many funding opportunities for women', '...maintaining a log of progress'*.

3) *'Skill sets'*: There were many instances of noting a deficiency in skills at the outset and much enhanced skill at conclusion: *'OO programming knowledge was insufficient', '...more than I learnt in modules.', 'You have a lot to learn.', '...programming has developed tremendously.'*

4) *Conduct of the exercise*: It became clear that a very precise outline of requirements was necessary: *'I had misunderstood the briefing', 'I didn't know what to expect.'*, and that the availability of a non-academic mentor became very important; *'...helpful to have a member of staff to talk to when I got stressed.'*

B. Supervisors

There were regular links held with the supervisors on a professional day-by-day basis so there was no opportunity for issues to arise without note. In addition, at the conclusion of the exercise we gathered them for a collective debrief.

1) *Problems*: Matching the student perception of skills' limitations, staff observed: *'the diversity of skills required', 'he had reached the limit of his ability', 'programming skills caused problems'*, betraying perhaps an expectation of a year 2 undergraduate that is unfair. There was also reference to the predictable problem of summer in universities – of necessity staff take their long holiday then and those involved felt it wrong to leave a (very) junior member of their team unsupervised for a long interval, requiring personal adjustments of holiday plans: *'Perhaps they should be assigned to a group and not an individual'*. It was widely agreed that more applicants would have been a good thing [for the supervisors], engendering more competition and wider choice; of course, this would imply a greater number of disappointed students.

2) *Successes*: Reservations staff felt were at least compensated by a feeling of overall satisfaction and success in two respects.

- The work that was done was regarded as of adequate (and often good) quality, and so there was academic output to see that would not otherwise have existed: *'it needed to be finished to complete a prestigious paper' 'good progress on the problem she was given, 'what he did for us has changed how the Vision group works'*.
- Secondly, supervisors all chimed with the aim of fully absorbing the interns into research and were pleased to observe this happen: *'able to learn and felt motivated, 'a significant improvement in communication skills, 'active participation in the research reading group, '...he helped the research students with their problems'*,

The summary view is that the supervisors were positive (indicating they would want to follow the exercise again) but recognise some problems and issues of which they had been unaware before. Evidence is that when two French ad hoc interns presented themselves soon after this exercise was complete, there was immediate enthusiastic demand for their services from six staff.

C. Wider School interests

The wider interests we pursued were less tangible, and therefore less easy to evaluate. Nevertheless, we had abundant evidence that all interns integrated into their laboratory communities fully and were accepted as 'equals' in a very short time. Evidence for this is in 3 interns joining regular climbing outings with one of the groups, while another was predominantly responsible for welcoming into the School a newly appointed tenured lecturer,

and ‘showing him the ropes’! We have here evidence that the salaried researchers have met, welcomed, and worked with undergraduates when in normal circumstances they might not even have met them during the tenure of their contract.

To what extent we have affected the culture of the wider student body is difficult to measure, but some evidence presents itself: the posters the interns authored are on public display and casual observation tells us that they are seen and appreciated by many undergraduates as examples of what they themselves can do; there is thus a potential aspiration raising even among non-participants. More concretely, we have now run the exercise again (see Section VI) and detected an early, high level of interest – word had spread. Some of the work done has been exploited in some of the advanced teaching, allowing staff to introduce it as ‘*work done by one of you over the summer*’: such throwaway remarks are important conveyors of a research culture and its accessibility, and will be the sort of thing we have actively encouraged in the following year, and will do in the future as experience accumulates.

We had expected the experience to have an explicit effect on the interns’ final year project work, both in its content and conduct. In fact, half of them chose work that linked directly to their internship, while the remainder chose work that was at least cognate – all selected topics that were at the leading edge (‘research’) in nature; their performance was at the worst adequate and in some instances outstanding, but we cannot argue that the necessarily internship led to this. We are, coincidentally, giving more research stress of our capstone project work and the intern exercise has made this a much simpler thing to do.

More selfishly, the School was interested in encouraging PhD applications from suitable students. In the event, three of the six have pursued higher study (although not necessarily at the host institution). While it is always possible that they may have done this anyway (interns are perhaps a self-selecting community), it would appear that the exercise certainly didn’t deter them! As one of the supervisors noted ‘*that’s a good hit rate*’.

In fact, however, our more philanthropic aim might be better met by these individuals moving into mainstream computing employment since they have a first-hand account of the value of research in universities and [we hope] might act as evangelists for us among communities that know much less. The absolute ideal would be for such graduates to enter the school-teaching arena where the educational cascade would be optimal: it is well known that there are problems in getting computing graduates to pursue school teaching and this remains an optimistic hope. Whatever, this long term aim is obviously very difficult to measure, and would not in any event be evident for 2, 3 or more years.

VI. DISCUSSION

Hindsight suggests that our experiment was a success but that there was room for improvement. In chronological order of the exercise our views are;

A. Design of the exercise

A guiding principle we chose which worked was to view interns as full members of the research staff, and a starting point has to be remuneration. Students will always seek well-paid jobs during a long vacation and our feedback from them was that motivation is insufficient to make a low-paid internship attractive – the rate of pay must match that available in the real world. This is of course a moving target (and the authors will be happy to engage in offline discussion on details), but our experience [16], [17] is that this key point is often overlooked.

Thereafter, the projects offered ought to be well specified from the point of view of an undergraduate: thus, they should be of a scale, and couched in a language, that can be comprehended – this is not something that necessarily comes easily to research supervisors and is at variance with their practice in recruiting PhDs or RAs. Projects need to be accessible in description and, wherever possible, ‘visible’ in what they will do. At the same time, some staff must be made aware of the limits of potential of even the cleverest and best motivated intern, and this seems especially true of programming and software engineering expectations.

B. Recruitment

As with all recruitment exercises the aim must be to encourage as many as possible; the danger with internships is a perception of academic cherry picking – those with the grades get the jobs. While there is likely correlation between exam performance and research potential, this is not perfect and the advertising and selection mechanisms should make this clear.

While the academic ability of the student is important as an indicator of potential to make independent progress, they also need to draw on other skills such as motivation, initiative, problem solving, adaptability and flexibility, communication and team working. These are skills which may not be exhibited by those students with the strongest academic record. The interviews enabled the project supervisors to identify those students with the potential skills to work in a research laboratory as well as a strong interest in the proposed project.

C. *'Care and attention'*

Once recruited, interns should negotiate the same induction process as new research students or staff, up to and including social facilities and activities. This is key to their own perception of how they fit into the system. Thus, a desk physically among active researchers is important, as is the daily routine, whatever that might be: perhaps the group take coffee, lunch or beer together.

Simultaneously, we learn that the undergraduate may find this difficult, particularly when problems (of whatever nature) arise. Of great value was a non-academic co-ordinator for all internships who came, informally, to operate as 'godmother', being an efficient problem solver with the university procedures and agencies that longer-term researchers would not need. Since interns were, in the university's eyes, full employees, the godmother's role in liaison with HR staff over, e.g., tax affairs proved invaluable.

We had recommended all interns to keep logbooks (including timesheets), but this was patchy in practice. As is customary, those who did recognised the benefit after the exercise, but the daily discipline does not come naturally.

D. *Deliverables*

Success is its own reward and well conducted internships deliver work that all are pleased with and proud of: nevertheless, some tangible deliverables are useful when otherwise the work might effectively disappear as just one component of larger projects. To this end, asking for a poster – in the full style of a conference poster – at the end of the work proved very useful. Creating an event where these are viewed collectively and critically has a completing and satisfying effect on all concerned. This is much preferable to, say, requiring a report which would not have the interest or stimulation of a more public display. The longer term benefits of posters *pour encourager les autres* cannot be underestimated.

We also found it useful to require them to give a short talk on their work, but within the confines of their own group: this is routine practice for active researchers and so was seen as reasonable, but is also seen as intimidating and difficult by the inexperienced. In clarifying understanding, and in general presentation experience, this is very useful.

One of the interns we discuss here had the opportunity to attend a research summer school in a different country, and funds and time permitted her to do that in her own right. While this is a privilege PhD students would have to win on merit, as a 'deliverable' it was of immense value in convincing the student of her own worth and intelligence.

E. *Thereafter . . .*

When it is over, we found it possible to continue in various ways to exploit the internships. Most obviously, the few students directly involved can be encouraged to pursue PhDs, and it has been straightforward to bring them into capstone projects directly related to their research experience.

Less tangibly, but arguably more usefully, we have found ways of using the experience to impact on the wider student community: this is most obvious in the public display of posters, but also in the use of new curricular material drawn from interns' work (which requires staff to point out its relevance). There is no doubt that having bootstrapped the exercise it is easier to keep going in future years: the interns are their own best advertisement and only too ready to assist in recruiting from the next cohort. Unsurprisingly, the interns formed a group that exhibited very good peer-support activity: when they returned to their studies this group persisted, and represented another mechanism of informing others of the beneficial experience that had taken place.

Such intangibles are hard to measure in any explicit sense, but we are confident we have raised and improved the image of research which was previously seen by many as hidden and/or irrelevant.

F. Evaluation and recommendations

The practises we developed have now been run for a second year with a similar size cohort: we learn that our judgements are well made and are very happy with the outcomes. We have detected both enhanced interest from research staff, and from students – we have to this extent succeeded in spreading the message. The enhanced staff interest was attended again by incomplete understanding of what was reasonable and possible for the students and we must communicate this better; further, a demand exceeding supply (the number of projects offered was greater than the number fundable) leads to the all-to-common ‘refusal’ letter that researchers hate to receive.

We have plans for wider attendance at the poster exhibition, notably the parents of students, as a means of further spreading the message.

As is the nature of students, every cohort has its own personality and this year’s crop have taken to the work like ducks to water – it is possible this is true because of the preparatory work and publicity of the preceding year but we do not claim this (yet). Specifically, they were proactive in suggesting that they convene in a research seminar to checkpoint each-other’s work. This was a gathering that exuded enthusiasm and was most rewarding.

In summary, we have taken a well-known format and studied it closely from many angles. In doing this, we derive some aspects of good practice: they may be simple common sense but we will follow them when we repeat the exercise in future years, and offer them to others proposing such internships:

- Pay them well.
- Devise meaningful but accessible projects; academic staff may need coaching in this.
- Don’t expect too much.
- Avoid the exercise being seen as ‘cherry picking’.
- Treat them as full research staff ...
- ...but recognise when that isn’t possible and guard against it.
- Ensure they stand up and talk about their work.
- Ensure a concrete, preferably public, deliverable is involved.
- Conduct an exit interview.
- Exploit the outputs and experiences of the interns in promoting the idea.⁵

To some extent, everything we say here could apply to internships in any discipline, but we see some respects in which computing in particular, together with some other aspects of engineering, is arguably different. Overlooking selfish aspects such as the paucity of PhD students, it is known [26] that there is widespread confusion between computer science and more general IT, even among some undergraduates, and knowledge of research issues, and their motivation and conduct, must help in dispelling this. Further, we contend that the work of the research laboratories is closer to the CS undergraduate curriculum than many: the cascade of new topics from the lab. to the Masters and then undergraduate (and then high-school) curriculum can occur very quickly, implying that the undergraduate may be closer to some advanced work in CS than may be expected in other areas.

VII. CONCLUSION

We have described the conduct of research internships conducted by students in a research-intensive School in the summer before their final year. While not a revolutionary idea, we have presented a study of process and opinion of relevant stakeholders, having interest in the broader impact of research and its conduct than simply on the lucky interns and their direct supervisors.

We have observed success in the aims pursued, and attribute these at least in part to the procedures adopted. We have used these procedures and our observations to outline aspects of good practice in devising and managing such internships.

We consider we have succeeded in two aims:

- To provide a productive and rewarding experience for students and staff undertaking placements. This is not new, but we consider our procedures to provide confidence that things will go well.
- To broaden and deepen the research ethos within the department. This is by its nature unmeasurable, but observation suggests success. Future years will provide better evidence.

⁵There is an incomplete overlap between this list and that derived at Stanford [11].

We believe that some aspects of computer science make such internships special in the subject, but simultaneously believe that many aspects of our suggested good practice may be of use in other disciplines as well.

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