David Dill's Advice on Choosing an Advisor
(or) How to Survive as a Grad Student
July 31, 1996

*[This document began its life about 1985 as a mail message distributed to the incoming class of computer science graduate students. Since then, a few small changes have been made by Benli Pierce, Jay M. Sipelstein, and Jonathan R. Shewchuk, but most of the original text stands, as wise today as a decade ago.]*

In my six years of observing graduate student careers here, I have come to the conclusion that the most important external factor influencing the ultimate success or failure of a student is their advisor.

Not only will your advisor provide guidance to you through the graduate program, the rest of the faculty rely primarily on him in order to assess your progress and abilities. Almost all students run into at least one setback at some point in their stay here: failed qualifiers, unproductive periods because of personal problems, or uncertainty in research.

The upshot of all of this is that the choice of an advisor should be undertaken with **EXTREME CARE**. An unfortunate choice may result in frustration and wasted time, or worse, an involuntary departure from the PhD program.

To help you in making a choice, I have prepared an incomplete list of considerations in choosing an advisor. Most of these points seem pretty obvious. However, I have seen every one of them ignored at least once, usually with unfortunate consequences. The answers to these questions may be difficult to determine; at the very least, you should talk to the potential advisor and his students and former students (if they exist), including students who have switched to another advisor. Additionally, you should talk to random nth-year grad students who have been around awhile and know at least some of the score. Of course, the answers some of the questions should be interpreted in context – if a professor has only been here a week, it is unlikely that he will have scores of students.

Whether the answer to a particular question is good or bad may be a function of your personality and preferences. However, if you don't know the answers, I'm not sure that the odds are in favor of your making a happy choice.

1. Does the faculty member want students (or more students)?

2. Does he have research interests in common with you?

   *[It is critically important to choose a topic that will sustain your interest for six years; you are unlikely to succeed otherwise. On the other hand, it's too easy to make a bad choice because there's only one or two faculty working in your favorite area. It may be better to go with your second choice of research topic with an advisor you like than your first choice of topic with an advisor whose personality is incompatible. I've seen several students learn this lesson the hard way. -JRS]*

3. Are his students generally successful? Do they complete their degrees, or have many of them left the program before doing so? Have recent students, who may not have finished, produced good research and papers? Do students stick with him, or do a lot of them change advisors?

   These questions are of doubtful relevance for new faculty.

4. Will he generally keep commitments?

   These include: keeping appointments, reading papers and theses in a timely manner, and most importantly, showing up (or finding a proxy) on Black Friday. Ask students about this; advisors who fail to keep commitments are not rare.

5. Is he going to be around for awhile?

   This is difficult to determine. I personally have had two advisors leave suddenly and unexpectedly for industry. *[Don't be afraid to ask directly, "Are you likely to still be here in five years?". -JRS]*

6. How long has he been here?

   As a crude generality, more established faculty know their way around the department and have the benefits of experience in directing students, while newer faculty sometimes have fewer commitments and newer research projects. [*Consider also the "eager young faculty" phenomenon: some ambitious new faculty work themselves and their students as hard as possible. -JMS*]

7. What is his publication record like? What percentage of his papers have coauthors?

   You should ask him about some papers he has written so you can look them over. Coauthored papers indicate that he has worked productively with other people in the past.

8. How much time will he have to spend on you? How many advisees does he have already? Does he spend a lot of time on other commitments such as out-of-town consulting, administrative duties, or what-have-you?

9. Does his style of research agree with yours? For example, do you both have the same ideas about what constitutes a research result? [*Specifically, will you earn your doctorate by proving theorems, building systems, proposing models, running experiments, or some combination thereof? -JRS*]

10. How independent should you be? Will he want you to work on a project of his choosing? If you work on research of your own, will he have the time and breadth of attention to follow what you are doing and guide you in it?

    The amount of independence you want is really a question of preference. However, it is a serious bummer to have an advisor who doesn't know what you're up to – not only can't he direct you, he can't testify that you're doing good work come Black Friday.

11. How much will he pressure you? *[Does he motivate his students with a carrot, a stick, both, or neither?*

    *This question is more important than you think. Writing a thesis is nothing like writing a term paper, and many students run into motivational problems they never anticipated. Some students need to have deadlines set. Some students are happiest when their advisors ignore them. Some advisors are free with praise, some are not. Do a little introspection and make sure you know what kind of supervision you need. -JRS]*

12. What expectations does he have about relative accomplishments in qualifiers and research in your first year or so? Are they realistic?

    You can ask him about the first part of the question. For the second part, ask a few students who have been here more than two years.

13. How will he react if you have problems with quals or research?

14. Does he require students with a particularly strong background in some area?

15. *[BCP, JMS, JRS: Is he well-funded?*

    *CMU-SCS has always tried hard — and mostly successfully — to maintain the illusion that funding plays no part in the process of connecting students with advisors, but the trick is getting more difficult every year. It is NOT the case that only advisors with enough outside funding can accept students. But if you're having difficulty choosing between two equally attractive prospective advisors, one rich and one broke, choosing the rich one (or having both as coadvisors) will free up funds for some other student who wants a broke one. There are also some perquisites of having a rich advisor, like a better workstation or the opportunity to attend more conferences.*

    *That David didn't even mention money shows you how things have changed in the past 7 years.]*

Don't forget that you can change advisors if the one you choose now doesn't work out later. Your initial choice is certainly an important one, since it determines what research area you'll start getting up to speed in as well as what kind of support and guidance you'll get while you're working on quals your first couple of years. But don't be afraid to take a risk later on, either, especially if you're intrigued by some path that you haven't considered before.

Usually, the hardest thing about changing advisors is understanding that you need to change.