

Initial thoughts

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I've reached the [compulsory retirement age](#) for Cambridge University faculty.
Shortly after retiring I made this page to help me decide what to do next. A
year later I made another web page: [Retirement progress report: what I did in 2016](#).

New Career?

Past members of the Computer Laboratory headed off to new careers after they retired. [Maurice Wilkes](#) joined [DEC](#) in the US and after that returned to a position at [ORL](#) in Cambridge. [Roger Needham](#) set up [MSR Cambridge](#) and became its first director. These people were extremely eminent, had sought-after skills, and scary amounts of energy - all of these I totally lack. I don't think it would be easy for me to get a new job, so it's fortunate that, thanks to index-linked [Final-Salary](#) and [State](#) pensions, I don't need one. I'm basking in a relaxed lifestyle with few commitments and am enjoying winding down.

Continuing research?

Here's a question someone asked when I told them that I'd reached the [compulsory retirement age](#) for Cambridge University faculty.

“Congratulations on reaching retirement. Will you continue research with an emeritus position?”

I have an [automatically-granted emeritus position](#) and I'm still employed one day a week in a temporary job bearing the impressive title [Director of Research](#). This job is only for a couple of years and is partly “to support ongoing community activities (e.g. research workshops) for which there are funds provided” and partly so that I can remain as a co-investigator on the [REMS project](#). At present, these activities don't consume a day a week, so I have time on my hands that needs filling. Continuing research is a natural thing to consider, but what might this consist in? Over the 40 years of my career the nature of the “research” I did has evolved.

I started doing research as a PhD student at Edinburgh in 1970. After my PhD I got a job working as a research associate (RA) for John McCarthy at Stanford and after that I returned to Edinburgh as an RA for Robin Milner. In 1981 I became a lecturer at Cambridge, where I stayed until I retired in 2015. My research activities can be split into three phases.

1. **Actually doing research.** When I first starting research I'd work directly on trying to come up with new ideas to solve problems. Initially these were somewhat mathematical and consisted in inventing concepts and doing pencil and paper proofs. After returning to Edinburgh to be one of Milner's RAs, I moved on to proof mechanisation. This consisted in writing programs in Lisp and ML to support automated reasoning in formal logics.
2. **Working with students and RAs.** As soon as I got my lecturing job at Cambridge, I began to acquire PhD students to supervise and funding

to hire RAs. This resulted in a growing part of my time being spent on discussing approaches to solving problems with others, rather than actually working on them myself.

3. **Facilitating other people's research.** After a few years I had lots of PhD students (I think the most I ever had at once was about ten). I was also running projects supporting several RAs. By the mid 1990s my research activity consisted almost entirely in supervising other people's research, managing projects and writing proposals to procure funding for new ones. Although I continued to try to spend some time working directly on research problems, the results were not nearly as good as those coming from PhD students and RAs.

Being employed part time after retirement in an unestablished capacity precludes me from continuing the research activities I was doing just before I retired. Computer Laboratory rules require PhD students to have a faculty member as their primary supervisor. As I'm no longer on the faculty, I therefore cannot supervise students (though I could be a second supervisor). The situation is analogous for applying for new funding: if I wanted to make a grant application, I'd first need to recruit a faculty member to hold the grant and be the principal investigator and then I could only be a co-investigator. Continuing research will therefore have to consist in something different from what I've been doing for the last few years.

During the two years prior to retiring from my faculty position I was a [deputy head of department](#) for research. One of my tasks was to assist the other deputy head in planning future expansion of the Computer Laboratory. This gave me an opportunity to find out what was going on in the field of computer science beyond my narrow area of expertise. I thus retired with some appreciation of what future research challenges might be. I also realised that what expertise I still had was embarrassingly out of date. To get up to speed with the latest advances, even in my area, would require a lot of technically challenging effort.

Doing research is alluring, but I don't think it's realistic. I have retired friends and colleagues still engaged in awesome original work, but I'm not confident that I could manage this myself. I foresee a hard time competing with researchers who are 40 years younger, but I don't rule out trying if I get inspired. I want to find activities that exploit the wisdom I've acquired from my years of experience that doesn't depend on having a young person's brain and energy.

Produce books?

As an academic I had to teach as well as do research. At first I found giving lectures very stressful, but after a while I got used to it, though I never came to enjoy the lecturing aspect of teaching. I've always been a slow thinker and

perhaps the reason I didn't like lecturing is because I couldn't think fast enough to speak spontaneously, so I resorted to reading slides. I was aware this increased the likelihood of [the lectures being boring](#), even if the material was well organised. I enjoyed giving one-off research presentations and hope at least these were less wooden than my course lectures.

Although I didn't like lecturing courses, I mostly enjoyed preparing course material such as slides and notes, and I produced a couple of books based on my undergraduate course notes. Writing a book is something I've been considering as a retirement activity – but what kind of book? Possibilities coming to mind are:

1. A compilation of my recent lecture notes.
 - These notes contain extended and updated extracts of one of my already published books (currently out of print). Producing a second edition or new version doesn't really excite me. Also, the material is somewhat dated and covered better in other books that are still in print.
2. An overview of recent research in an area I know about.
 - This could be seeded by [a report](#) written for the funders of projects I was involved in managing. This assumes that the funders and the people who did the research would be happy. Such a book would have a limited audience and would probably already be out of date as soon as it was finished.
3. Tutorials on topics that I'm familiar with or would enjoy learning.
 - This is quite appealing! Such a book could contain invited articles by other authors as well as material written by me. Perhaps I could recruit a collaborator as a co-editor.
4. Some kind of historical review of developments in, say, the last 30 years.
 - I enjoyed writing a historical [review of a paper by Robin Milner](#) for the Royal Society. Something in this style covering a much wider area and work by others is a definite possibility.
5. Scientific reminiscences.
 - In the first draft of *[Christopher Strachey: recollections of his influence](#)* I described my personal experience of meeting Strachey, but this was removed by an editor. Although I have no juicy revelations about Strachey, or anyone else, maybe some of my memories of those I've met or worked with are worth recording – there's probably not enough for a book though.

Write articles?

A bad aspect of my pressure-free current state is the difficulty of starting non-urgent activities. Thinking about a book project is easier than actually getting down to work on it! A commonly suggested cure for procrastination is splitting tasks into smaller less-daunting bits. Writing short articles is less intimidating than embarking on a whole book, so this may be a more realistic activity — and maybe articles can eventually evolve into chapters of a book! A particularly low effort kind of article is a web page, perhaps published as a blog post.

I can imagine composing a variety of articles ranging from ephemera dashed off in a morning to pieces of writing resembling academic papers. Perhaps I might set up a blog and put the articles there. Here are some possible categories of articles.

1. Reflections on life:
 - such as this
2. Historical notes:
 - autobiographical
 - gossip
 - accumulated wisdom
3. Technical stuff:
 - opinions
 - tutorials
 - research ideas
4. Advice from experience
 - teaching
 - research
 - supervising

I've been making a list of more concrete ideas [here](#).

Do some programming?

When I was working for McCarthy at Stanford, an elderly [Art Samuel](#) was spending his retirement implementing and maintaining the [E text editor](#) and he later went on to [contribute to TeX](#). Today my retired colleague [Martin Richards](#) is in the Computer Lab most days programming BCPL for [Raspberry Pi](#) and

writing his “[Young Person’s Guide to BCPL programming on the Raspberry Pi](#)”. These retirement activities are inspiring. I’m not a great programmer, but perhaps I could find some project that would be fun for me and also useful for others. Maybe developing infrastructure for the [HOL4](#) system, which I’m familiar with, or some tutorial [CakeML](#) programs.

Organise workshops?

This is one of the things I’m supposed to do according to the job description associated with my current position. I enjoyed co-organising small invited workshops such as the following:

- [Workshop on Interactive Theorem Proving](#)
- [Third Workshop on Theorem Proving in Certification](#)
- The FMATS series: [FMATS1](#), [FMATS2](#), [FMATS3](#), [FMATS4](#)

These were partly funded by generous support from a government agency. There is still some money left and I am wondering what the next workshop I could help organise might be. Maybe FMATS5 (though FMATS is now run by [Philippa Gardner](#))? Maybe something on [CakeML](#), which I’m a big fan of?

What I’m doing now

It’s relatively easy to write articles, so that’s what I’m doing. My aim is to start with a few short pieces, some on historical and personal stuff and others more technical: this web page has some ideas and this one is my progress so far.

Although trying to write a few articles is my current goal, I’m also spending time just exploring areas I stumble across or some event triggers an interest in. For example, a few months ago I had lunch with an old friend who is a biologist. I realised I knew nothing about modern biology, so I audited a couple of online courses (Udacity’s [Tales from the Genome](#) and Harvard’s [Fundamentals of Neuroscience](#)) to try to get an impression of some of the things that have happened since did O-level biology in the 1960s.

To try to achieve [10,000 steps a day](#), I’ve taken to going on walks whilst listening to podcasts. At the moment I’m enjoying [Nature](#), [The Partially Examined Life](#), [Elucidations](#) and [Philosophy Bites](#).

Having the time to do such unplanned freewheeling things without feeling guilt or having pressure-of-work deadlines is a liberating aspect of being retired. I feel like being on sabbatical, but without the growing realisation that time is running out and freedom from academic chores will soon be over.

Using Pandoc

I've been experimenting with [Pandoc](#) for producing web pages and matching [PDF documents](#). I've written [some documentation](#) for myself that explains how Pandoc [source text](#) is converted to [HTML](#) and [PDF](#).