

Crafting my career: from physics to healthcare research

Debjani Paul

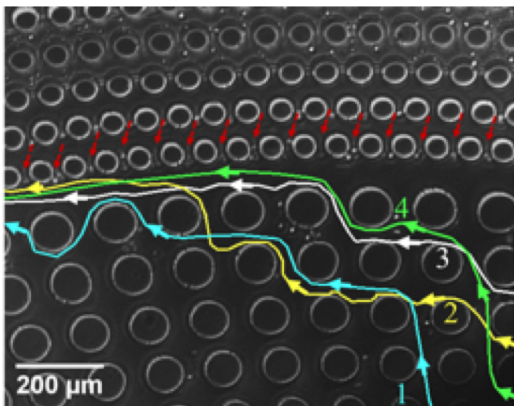
Associate Professor
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What does my lab work on?

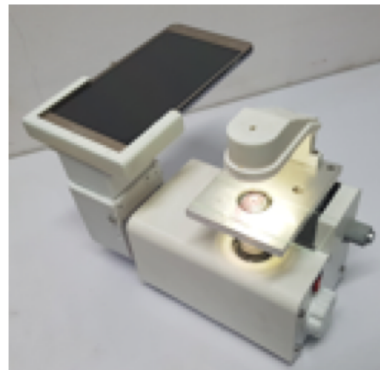
Using microfluidics for

- point-of-care diagnostics (e.g. TB, malaria, sickle cell disease)
- biological physics

Diagnostics

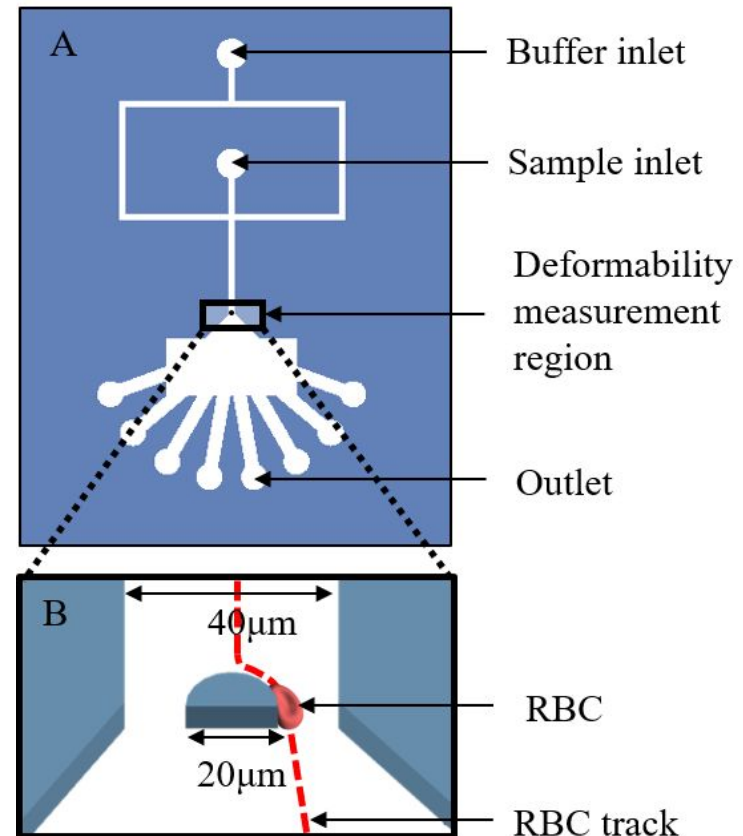


Cell sorter



Mobile phone microscope

Biological physics



Measure elastic constants
of single cells

A winding path through different disciplines

B. Sc. (3 years; **physics**)



Integrated PhD (8 years; **physics, bioinstrumentation**)



Postdoc (6 years; **microfluidics, electronic devices & sensors, biological physics**)



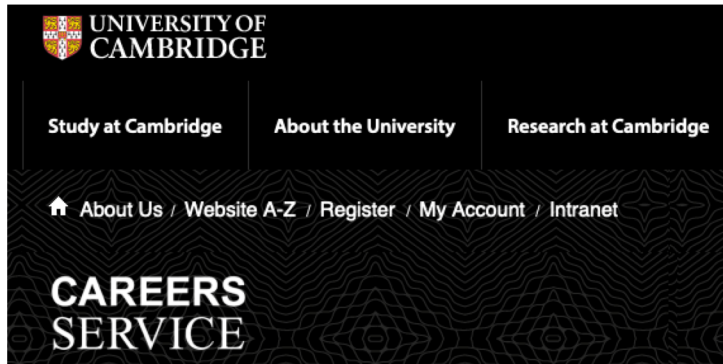
Industry (1 year; **diagnostics and drug delivery**)



Academic (since 2012; **biomedical engineering**)



How did I decide upon academia?



<http://www.careers.cam.ac.uk>

- During postdoctoral stint
- Different career workshops (media, non-profit sectors, industry, academia)
- Spoke to many people

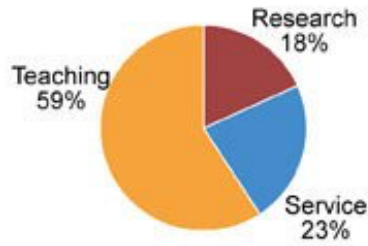
Specific to academia

- Day-long workshop on jobs in academic sector for postdocs.
- One-on-one chats with other academics, and university's career counsellors
- Support from advisors and mentors

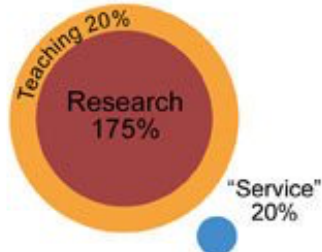
What is my typical day like?

HOW PROFESSORS SPEND THEIR TIME

How they actually spend their time:



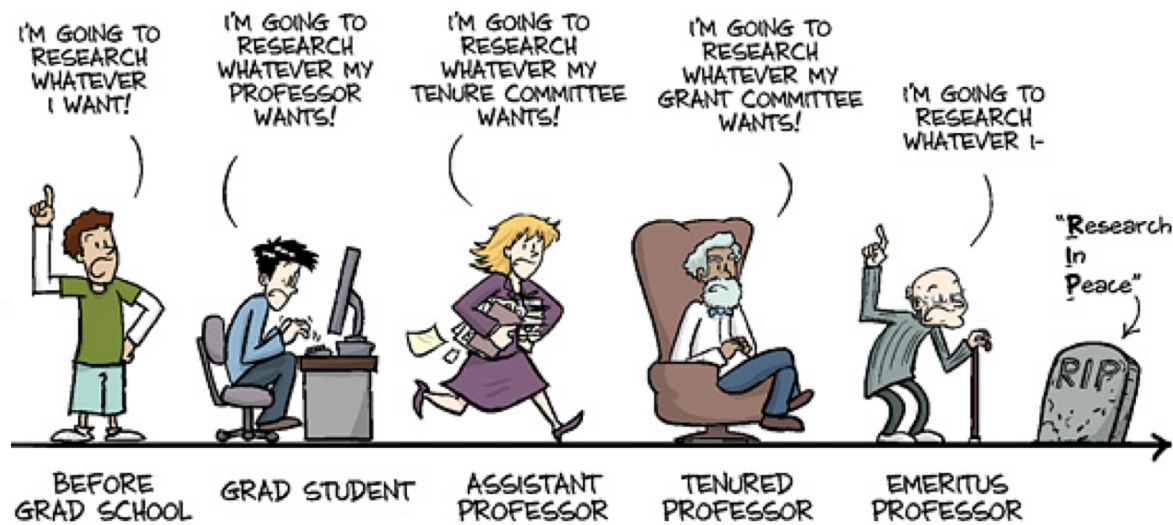
How departments expect them to spend their time:



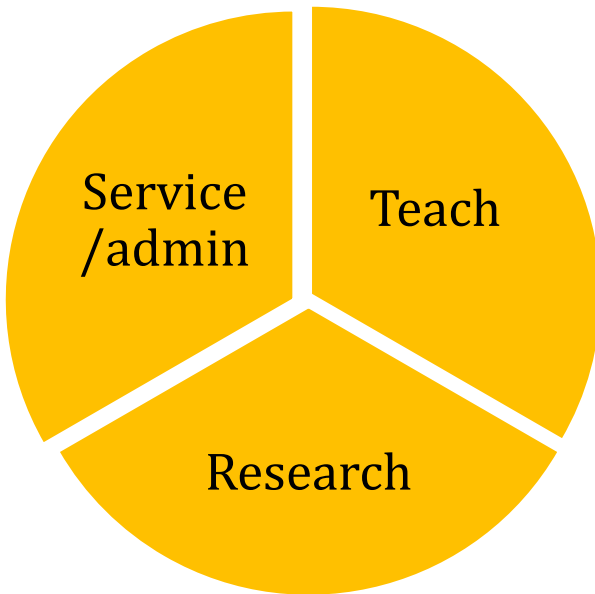
How Professors would like to spend their time:

Don't tell me what to do

THE EVOLUTION OF INTELLECTUAL FREEDOM



What is my day *really* like?



No typical day.
Highly flexible.

- Teach classes & lab; prepare for lectures; exams
- Outreach
- Mentor my students in their projects
- Write grant proposals, progress reports to funding bodies
- Write manuscripts with my students
- Learn, think
- Review others' manuscripts, grant proposals
- Sit on other students' committees
- Manage teaching and research facilities
- Serve on departmental and institutional committees
- Deal with purchase and other paperwork
- Manage lab budget and plan finances
- Interview and hire people for the lab
- Masters and PhD admissions

What do I like/dislike about my job?

- Love to teach
- New ideas
- Flexibility
- Trying to understand new data with students
- Sharing our work in talks + manuscripts
- Hands-on work in the lab

- Paperwork, long processes
- Worry about lab finances
- Too many meetings
- A never-ending to-do list

What skills and qualifications do I need?

- PhD + publications (Assistant Professor positions need three years of postdoc/post-PhD experience in IITs).
Tailor your application to the institute's advert.
- Giving good talks prepares you for classroom teaching.
- Learn to write research proposals.
- Offer to teach a tutorial.

Present academic job market in India

- 24,000 PhDs in all disciplines from about 900 institutions in 2017
- About 800 chemistry PhDs in a year
- IIX/NIT/CSIR/DAE institutes employ ~ 200 chemistry PhDs in a year. Similar numbers in other sciences.
- Many institutes have an upper age limit (35 with a little flexibility) for assistant professor positions

THE  HINDU

COMMENT

How far does a PhD go?



T. Pradeep

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Lessons learnt from my journey

- Keep an open mind about different career options. There is no single correct career path.
- Not joining academia after a PhD is not a failure.
- A PhD training gives you many transferrable skills. Highlight them.
- Training in a particular discipline does not matter today. Be open to learning from other disciplines.
- What do you like to do? What are you good at? Talk to lots of people about their jobs to find out where you fit.