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How to transition from academia to industry and back

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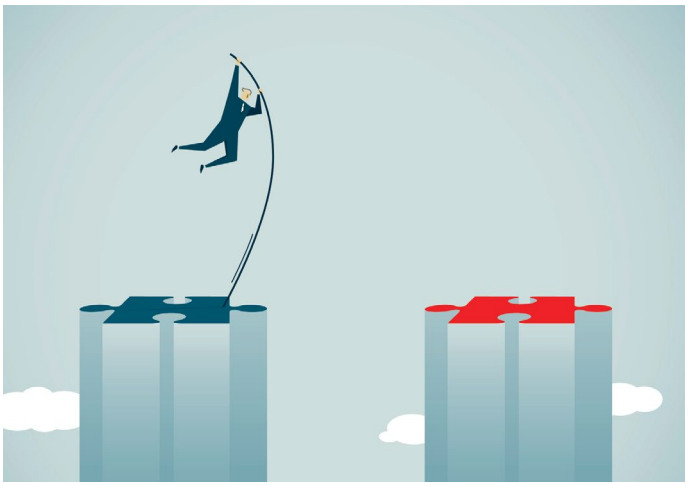
Researchers have a wide variety of choices when it comes to careers. Often, post-PhD, we leave academic research for industry. But it is also possible to transition back, when done carefully. In this how-to, I outline how to transition between industry and academic research and vice versa.



Career transitions are never easy. Navigating what can feel like an overwhelming number of branching paths is a challenge for those of us finishing up our PhDs or postdoctoral studies, or thinking of returning to academia from a position in the private sector or industry. The transition between industry applications and academic research in particular often strikes us as harrowing. The flow of labour typically goes in one direction (from academia to industry), and there are now hundreds of blog posts and podcasts out there about how to come to peace with the transition into an industry career or how to market your skills as an academic. Less common is guidance on returning to academic research from an industry position or on keeping one's foot in the door. How can you make the right decision for yourself? How can we find what we want, are qualified for and actually enjoy? In this Comment, I will recommend some tips (summarized in Table 1) for transitioning between industry and academic job markets, how to come back to academia and how to best set yourself up in cases of uncertainty. I provide additional resources and reading materials in Box 1.

How to transition from academia to industry

It is no secret that the academic job market is tough. From getting into a graduate programme, to securing a postdoctoral position or even getting a coveted faculty position, the process is competitive and often unpleasant. On top of that, there are a thousand reasons that academia might not accommodate your needs — work–life balance, money, location, family, the desire for change or to have an immediate impact on one's community — and that can make non-academic careers attractive. Personally, I initially quit after a gruelling postdoctoral interview process that almost killed my interest in research. I decided to experiment by leaving academia for a period to identify my core values and goals, while earning good money and living somewhere with nice weather.

Here are some tips for setting yourself up for success when considering a transition out of academia:

- Think about what kind of place you want to work at. Do you enjoy working in teams, supporting others and helping them to put the finishing touches on a project? Or do you prefer to take the lead on projects and delegate tasks to others? Do you work well remotely or do you want to come in regularly to meet your teammates and pair on projects together? Are there some aspects of the research process that you dread, or others that you find yourself seeking out? Different types of industry positions will have different 'cultures' and prioritize teamwork or individual work in different ways. You may also prefer to work at a large company with a mature system: HR staff who have been there a long time, and a mature software infrastructure for data analysis. Non-profit organizations, startups and major corporations all provide different experiences of industry work.
- Apply to summer internships. If you are thinking about different possible jobs and are still in the junior phase of your academic career, internships provide a valuable way to learn about what kinds of organizational environments you thrive in. Unlike internships you may have heard about as an undergraduate (which are often gruelling, unpaid, monotonous enterprises), at many organizations summers (or even normal semesters) are an excellent way to earn a professional-level wage with a well-defined project. Industry internship projects often have a high degree of success, lead to research publications and provide critical experience with the structure of the day-to-day outside of academia.
- How important is it for you to continue to publicly share your research? Many corporations will generally prohibit the sharing of results or proprietary data. In some cases, this makes it difficult for research that you do at work to be shared with the scientific community. Employers can be more or less supportive of the public dissemination of research; in my experience, this mostly depends in your manager, and the full chain of people all the way up to the organization's legal department. Others may explicitly have roles that are oriented towards research, provide continuous training, support conference attendance and encourage the production of published papers or patents.

Table 1 | Key tips for how to navigate a career in academia and industry if you wish to transition between the two

When in academia	When in industry
Read	Read
• Technical blog posts • Methods papers adjacent to your research area • Software and technical writing guides to improve your code and writing ability	• Research in your area of interest; subscribe to journal feeds • Feeds of publications and preprints on Google Scholar, Semantic Scholar and Scholar-Inbox
Assess your values	Assess your values
• Identify corporations, nonprofit organizations, startups and so on whose missions you find inspiring • Participate in internships • Evaluate what dimensions of academic work you enjoy: what are your 'must haves'? • Stop by industry-led booths at conferences or workshops and send mentees to internships	• Are you growing as a professional? • Are you using the skills that you want to be using? • Do you have peers at work who value your knowledge and contributions? • Is your work affecting the world in the way you want it to? • Expand your knowledge of related careers and compare to your long-term skill and career goals
Share	Share
• Public-facing tools such as software • Analysis scripts and data • Perspective on theoretical and applied problems • Post on social media or make blog posts about your transferrable skills, such as LinkedIn, Notion or BlueSky • Present your studies at conferences • Workshop the practical weight of your work with colleagues and friends	• Write journal articles and conference proceedings papers for your academic research • Give presentations of relevant academic research for your team at work or reading groups • Stay in touch with colleagues and collaborators in academic research by email and at conferences

- Check out new technologies. Many of our strengths as scientists come from our ability to deal with messy data and provide clear, concise summaries of what we tested and why. The technologies that we use in our research — such as statistical analysis software or different platforms for data visualization and sharing — are used in industry too. Check to see whether an organization that you are considering applying to has a blog that tells you about what they are trying out. Outlets such as Ars Technica, The Verge or WIRED can recommend some new toys for you to play with.
- Read methods papers. For researchers who are hoping to transition into areas such as user experience or data science, having a strong footing in the methodologies that are used in the private sector is a major boon to employers. Proceedings of conferences on human–computer interaction, as well as methods-centred journals such as *Behaviour Research Methods*, provide an open access means of knowing what the latest advancements are — and knowing more techniques makes you a stronger applicant.

How to keep your foot in the academia door

One common regret that I hear from people is that they never managed to finish up a paper or project from graduate school. Even if a change was a welcome one and was the right idea from the start, a career transition comes with a heavy emotional toll. Once you have processed the grief from leaving behind an earlier phase in your life, you can begin to structure your life your way. If you are uncertain about leaving entirely and assuming you have the time and excess capacity, endeavour to keep up with academic research. For many people, this is difficult because it requires investing one's spare time into academic pursuits and many other things — such as your new 9–5 — will usually take priority. But being able to stay abreast of academic research may take a few different forms:

- Stay in touch with old collaborators. Some academics who you know from your earlier academic life — advisors, members of your cohort or postdoctoral researchers who have mentored you — will remain in academia. If you are still on good terms with them, many will be happy to stay in touch and continue to work on projects with you. While I worked full-time as a data scientist, I worked actively to wrap up several research projects from graduate school, which was supported by collaborators and mentors who were happy to see the work get sent out for review.
- Be strict about your new work–life balance. Leave your new job at work. One of the reasons I was able to make time for academic pursuits was that my new job came with firm boundaries to the start and end of a workday. I never worked late at night, on weekends or on vacation. Some people I know even treat academic research as their 'hobby' and allocate excess brainpower to writing papers and doing scientific outreach. If your personal circumstances allow you to, this may be a reasonable outlet for your energy, which will enable you to follow the literature and write papers that stay up to date with new findings.
- Ask whether your work will let you go to conferences as a professional development activity. In industry, your work may still be relevant and benefit from the latest findings in academic research. For example, I was sent to a couple of conferences to further my training in computational linguistics and I even got to give a talk at a major event in Budapest to present my internal work! When you have received an offer of employment, ask about what kinds of professional development opportunities they have supported.
- Subscribe to mailing lists to find new job opportunities. Researchers who want to maintain academic ties would do well to subscribe to mailing lists from their fields. Although your inbox will be fuller, clever triage strategies or subscriptions to journal digests will help you to see what others are publishing and who is hiring, and find conferences to attend.
- Remember that your industry knowledge makes you attractive to academics! Very few students graduate from programmes with all of the technical skills that make successful postdoctoral researchers, and even fewer become faculty members. Many tools for crowd sourcing or conducting user experiments are easily transferrable to a potential postdoctoral or faculty position. I encourage you to think about what your skills outside academia can bring to the table.

BOX 1

Some helpful resources to help with navigating transitions between academia and industry

Resources include:

- Cat Hicks, a researcher in industry
- The Alt-ac network on bluesky
- The Life After PhD podcast

Some research articles and advice books include:

- Bernery, C. et al. *eLife* **11**, e81075 (2022).
- Bielczyk, N. *What is Out There for Me? The Landscape of Post-PhD Career Tracks* (Welcome Solutions, 2019).
- Formo, D. M., & Reed, C. *Job Search in Academe: How to Get the Position you Deserve* (Taylor & Francis Group, 2011).
- Fruscione, J. & Baker, K. J. eds. *Succeeding Outside the Academy: Career Paths Beyond the Humanities, Social Sciences, and STEM* (Univ. Press of Kansas, 2018).
- Kelly, K., Linder, K. E., & Tobin, T. J. *Going Alt-ac: A Guide to Alternative Academic Careers* (Taylor & Francis Group, 2020).
- Kelsky, K. *The Professor Is In: The Essential Guide to Turning your Ph.D. into a Job*, 1st edn (Three Rivers Press, 2015).
- Mack, D. *Beginning a Career in Academia: A Guide for Graduate Students of Colour* (Routledge, 2015).
- Madan, C. *Q. J. Exp. Psychol.*, https://doi.org/10.1177/17470218241236144 (2024).
- Montero-Diaz, F. *Ethnomusicol. Forum* **29**, 292–295 (2020).
- Peters, R. *Getting What You Came For: The Smart Student's Guide to Earning a Master's or a PhD* (Farrar, Straus and Giroux, 2023).
- Weber, C. T. et al. *Identifying Transferable Skills and Competences to Enhance Early Career Researchers Employability and Competitiveness* (EURODOC, 2018).

How to set yourself up in cases of uncertainty

There is really no correct answer as to what the right decision is. There is no requirement to stay 100% in either area: people in industry do research, and researchers can work with companies and nonprofit organizations. Plus, what works for you now may not be how you will feel one, five or fifteen years from now. Use this uncertainty to your advantage.

- Work smarter, not harder. Prioritize your academic and industry work to have both practical value and produce open resources, such as software repositories or journal articles. Put some energy into making products from your graduate work professional and accessible.
- Compare and contrast your options regularly. When I was a postdoctoral researcher, it was helpful to stay in touch with academics and industry peers so that I could stay up to date on cultural topics and norms.
- Try consulting or initiate collaborations with industry researchers. Offering your skills to the 'other side' can create mutually beneficial knowledge transfer for both academic and industry. There are often even federal grants that are designed to bridge these gaps.

One dimension of returning to academia that can be hard to anticipate is the way that your experience might transform your perspective on research work. For me, spending two years as a data scientist changed the techniques that I was interested in applying to my work, and broadened my comfort zone to models that are used in many other areas of data-adjacent work. It also had the effect of pushing much of my work to studies that did not rely on designing and implementing new kinds of experiments. Instead, much of my work immediately upon my return depended on simulations, computational models and public datasets.

Lastly, if you want to re-enter academia or the private sector after a spell away, expect people to ask you whether you are serious – or to question why in the world you would give up perks that they value. I reminded myself regularly about the passion I felt for research, and specifically the deep questions about what makes people tick. Researchers will always feel curious, which has both practical and theoretical value. Try to hold on to what inspired you to pursue research or deeper study in the first place and use that as your guiding light when discussing your career decisions with sceptics.

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Competing interests
The author declares no competing interests.