Jobs in Industry for Astronomysicists

Stephen Hardy
How do I get a job in industry?

• Networking

• CVs

• Interviews

• Longer term preparation
Hiring from two perspectives

- Hiring decisions are the most important decisions in a knowledge based company.

- A poor hiring choice can be terrible for the company and terrible for the employee.

- Many employers take a “better safe than sorry” approach – I didn’t fill a role for 18 months because the right person did not appear.

- Employees should have the same approach (up to...
What does an employer want?

• If you are moving into a different field there are different perspectives on what is important:

1. How long will it take for you to become productive?

2. What is your long term potential?

3. How well do you “fit” the organisation?
   • E.g. individual/team, open/closed, deadlines, reduced freedom, personality type, communication style, innovative or not?

4. Will you let go? How much will you look backwards?

• What evidence can they collect to determine the answers to these questions?
Networking

• A short cut to a job is to have someone the employer trusts say positive things about you.
• In my opinion, this is the most best source of information.
• How do you build a network? Get out and about – try things in your target area.

E.g. a hire from physics:
  Did Kaggle contests
  Got freelance work in analytics
  Coursera ML courses
I was confident he knew what he was getting into and he could point to specific things he had achieved.
CVs

• CVs have two tasks – get an interview, and guide the interview.

• What can an employer learn from a CV?
  – What are you looking for?
  – What skills do you have [evidenced by achievement]? How can they be transferred to the new field?
  – What level of achievement did you reach?
  – Are there topics that can be explored to learn more?
  – What you know will be interpreted by the reader into “what sort of person is this”… rightly or wrongly.
Practical points

• First: Give a concise summary of your main skills and what sort of role you are after. Polish this.

• What practical skills do you have that make you useful in the short term? Highlight them in describing your experience. Don’t guild the lily! [You may get the interview but if you are found out you will not get the job]

• Give concrete examples of what you did (make sure _you_ did it). e.g. wrote 120,000 lines of IDL to process astronomical images using blah, blah, blah techniques.

• Highlight the fundamental strengths that you have - problem solving, computing, analysis, maths, supervision (e.g. management and leadership), presentation skills, communication

• Make sure your LinkedIn profile is consistent with your CV - AND – recent job ads I have had placed have only appeared in LinkedIn.
Interviews

• Gathering information in order to answer the same questions.

• Expect interviewers to drill down to determine what your contribution was in any given activity (including soft skills).

• Often looking for the boundaries of your expertise
  – It is ok not to know the answer to something, unless that contradicts claims you made in your CV.

• Problem solving in ICT interviews is common (but a little controversial)
My interview process  (top secret!)

• Ask them to go through what they think the highest impact piece of research they have done is.
  – to get them comfortable
  – to drill down to work out exactly what their contribution was and why they thought it had impact (i.e. what do they value) and
  – to learn something myself.
• Questions on the CV
  – background / history - the main aim is to work out where they want to be heading to determine if it is consistent with the role on offer.
  – look for gilding the lily. Automatic disqualification! If you say you know something about Bayesian statistics, then I hope you know Bayes rule!
  – Find the boundaries!
My interview process (top secret!)

- Whiteboard problem solving. Some people are good at this, some people are not (but may still be good hires).
  - exploring maths: divide by 3 problem, …
  - To code: design a Boggle solver,…
  - to problem solving – looking to see the approach, not the solution.

- Soft skills:
  - Describe a difficult person you have worked with and how you managed the relationship with them.
  - What was the most stressful time in your career and what coping strategies did you use?

- Questions from the candidate

- Reference checks!
Long term preparation

• If you suspect that you might have another technical career ahead of you, try to make sure you are collecting the skills you need while doing your current job.

• Sometimes this means doing things the slow way, just to collect a new skill.

• Collecting evidence of those skills is also important!
Data Science

•Intersection between: Statistics, Computer Science & domain knowledge
•Requires Jack-of-all-trades types

•R and/or Python
•Java and Scala (Haskell for the hardcore)
•SQL, Hadoop, Hive, etc… + about 20 other possible systems
•Machine learning – scikit learn, mahout, graphlab…