Since U Been Non (Academic)

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Quick Introductions

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Your Skills Have ($) Value

You’ve spent years working on your:

- **Technical Communication**
  - Teaching individuals
  - Technical speaking to multiple levels of expertise
  - Public talks
  - Writing, editing and reading academic papers

- **Information Organization**
  - Abstraction
  - Pattern recognition

- **Quantitative Literacy**
  - Data reasoning
  - Linear algebra

- **Self Direction**
  - Time management
  - Project management

- **High level math**
  - My day to day requires: PDEs, differential geometry, functional analysis, combinatorics, machine learning
Industries Have ($) Value for Your Skills

Careers looking for mathematicians

- **Data Jobs**
  - Data Analytics
  - Data Science
  - Machine Learning
  - Data Engineering

- **Software Development**
  - Software Engineering
  - Product Management
  - UX Research

- **Scientific Writing and Content Creation**

- **Finance**
  - Quant Analytics
  - Financial Engineering

- **Education**
  - Public or Private Schools
  - Education Tech

- **Non-Academic Research**
  - Department of Defense
  - FAANG
  - Analytics, Polling, Consulting
  - Simulation & Movie Effects
  - Climate Science

... and many more!
Non-Academic Jobs

Why?

- If you like working as part of a team/organization
- If you need more flexibility in how you work
  - Especially location flexibility
- If you like having the option of multiple career tracks
- If you want better pay
- If you just don’t feel like academia is for you
Non-Academic Jobs

Why Not?

● If you like working alone or in smaller groups
● If you need more flexibility in what you work on
  ○ E.g. the types of research problems that interest you
● If you know for sure that an academic career is for you
● If you want a more stable job
● If you have philosophical or cultural conflicts
How to Start Connections

Top Priority!
- Grad School Cohort
- Ask professors to put you in contact with former students
- Coffee with Friends of Friends
- LinkedIn
  - Cold call
- Jobs Fairs
- Networking Events
  - Hosted by Professional Associations (Check their sites)
How to Start Mentorship

Finding a mentor
- 1-2 major mentors or several “mini-mentors”.
- If you have someone in mind, go for it!
- Engage with people from the career community.
- Seek more advice, less information.

After you find a mentor
- Take ownership of your mentor-mentee relationship.
  - Set up regular 1on1 times.
  - Come up with specific questions, topics and agenda.
- Actively seek feedback from them.
  - E.g. share your code or resume.
How to Start

Finding Community

Looking for communities ...

- Both remote and local in-person
- Search on Meetup
- For online communities
  - Blogs, forums, chats etc.
  - Slack
  - LinkedIn
- Hackathons
- Communities affiliated to your school

Some examples ...

- HackerNews (tech; online)
- Women Who Code (tech; remote + local chapter events)
- Locally Optimistic (data; Slack)
- Data Science for Good (data; remote + local chapter events)
- Teach for America Alumni Network (education; remote + local chapter events)
How to Start
Start Now! Develop your skills!

Communication is Universal

- Write clear README’s and in-code documentation.
- Be a good TA!
  - If you get the opportunity to teach your own class, do it.
- Go to conferences, give lots of talks.
  - Practice, record, watch yourself!
- Keep a journal and/or write a blog.
- Use communication tools to explain and track your projects!
  - Vidyard
  - Loom
- Put a link in your resume and README’s.
Learn Coding Skills

Build things, document, share

- Industry Language:
  - Python, Java, Javascript, C/C++/C#, Ruby, Elixir, Go etc.
  - Maple/Matlab are very rarely used

- Learn software dev skills
  - Github
  - IDEs
  - Code reviews and pull requests
    ■ Code with a friend

- BUILD something
  - Start a project in your field of interest
  - Contribute to an open source project
    ○ Project Euler!

- Document your experience
  - Make a personal website
  - Blog about progress or subproblems of projects
How to Start

Start Now! Develop your skills!

**Book recommendations**

- **Programming:**
  - Cracking the Coding Interview, by Gayle McDowell
  - Clean Code, by Robert Martin
- **Data Science / Machine Learning:**
  - Modern Multivariate Statistical Techniques, by Alan Izenman
  - Python Data Science Handbook, by Jake VanderPlas
  - Hands-On Machine Learning, by Aurélien Géron
  - Deep Learning, by Ian Goodfellow, Yoshua Bengio and Aaron Courville ([free online copy](#))
- Read in the problem area you want to work in.
How to Start

Start Now! Develop your skills!

Other Resources

- Coursera / Udemy / Udacity etc.
- Online degrees (e.g. Georgia Tech’s Computer Science Master’s degree)
- Bootcamps
- MIT open courses
How to Start

Internships

- Check big math organizations for applied math positions
  - NSF
    - Mathematical Sciences Graduate Internship
  - AMS
    - ASA Internships
- National Labs
- Nearly any tech company
- Apprenticeships
- See Next Slide! Looking for Jobs
  - Ask what’s available
Looking for Job Listings

Ask Ask Ask Ask

- Lean on your network
- Job aggregation sites
  - LinkedIn
  - Glassdoor & Monster
- Cold call
  - Esp. small firms or startups
  - Find people with similar backgrounds
- Check career sites of interesting companies
- Get on talent lists of your favorite companies
- Apply frequently and broadly
  - Consider 1-2 year plans
  - Be curious
- Prioritize recent or advertised postings
- Timelines are informal and varied

Lean on your network
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Check career sites of interesting companies
Hiring Process

Creating Awesome Applications

Resume

- Easy to read
- Easy to edit
- Applicant Tracking System
  - JobScan
  - SkillSyncer
- Tailor to the Job
- Make experience relevant
  - Teaching is communication
  - Problem solving
  - Math intuition
- Avoid the overtechnical & irrelevant
  - Not your CV
  - Banish jargon
Cover Letter

- Make it friendly yet specific
  - Try “Dear hiring manager” instead of “To whom it may concern”.
  - Avoid general filler phrases.
  - Sound confident, not arrogant.

- Personalize it!
  - Tell them why you want to work for them.
  - Tell them why you are the best choice for the role.
  - Connect with the company’s mission and/or values.
Hiring Process

Interviews

TECHNICAL
- Mind your jargon
- Prepare for:
  - Live coding
  - Take home problems
  - In person code review
  - Invited talk

NON-TECHNICAL
- Math PhDs may face special scrutiny:
  - Flight risk?
  - Pragmatism
- Answer honestly, humbly, curiously
- Don’t get discouraged!
  - Not a meritocracy
  - Timing, personality, practicalities all at play
Hiring Process

What the hiring manager wants

Hiring is ...

- A huge time investment.
- An act of trust.
- Frequently about forming a team or organization - and not about you!
Hiring Process

What the hiring manager wants

**Conforming qualities ...**
- Curiosity
- Introspection
- Learner
- Sharer
- Collaboration
- Communication
- Organization or team values

**Differentiating qualities ...**
- Specific skill
- Process/team role
- Leadership
You got the job!

Should you take it?

Evaluate the offer

- Run it by a mentor
- Weigh all the factors
  - Salary
  - Time Off
  - Location and Travel
  - Benefits
    - Healthcare
    - Career Growth
  - Lifestyle

Negotiating

- Not optional
- Do your homework
  - Find salary stats
  - Quantify your worth
  - Research the firm
  - Ask somebody in industry
  - Don’t commit on any unconsidered detail
- Negotiate job description & details
- Mind the gap!
- Mention upcoming leave
- Nibble
1. [Tips on Ph.D. job search](#)
2. [How to Stand Out as a Non Traditional Applicant](#)
3. [Hacker News](#)
4. [The Professor is In](#)
5. [How to Convert an Academic CV for Industry Positions](#)
6. [JobScanner](#)