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# Career Talk

## University of Illinois Department of Physics

### 1/24/2024

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# Always keep in mind…

Plans usually don't go as planned

　　But it is still important to have a plan

Everyone's journey is unique

　　What works for me may not work for you

　　What didn't work for me may work for you

# My Background

# Graduate School (2008 - 2015)

Some Facts

University of Illinois at Urbana-Champaign

PhD in physics w/ Aida El-Khadra

 heavy in data analysis
 python and some statistics

Met my current coworker who was my advisor's postdoc

Met my now wife who was also a physics graduate student

 also came with a very cute gray cat

My Plans

Really wanted a faculty position

Thinking about getting married

Thought about industry jobs

 interviewed at some places

 bombed them all

 still have nightmares…

Girlfriend got a postdoc at BNL (NY)

I got a postdoc at UC Berkeley

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4

# Postdoc at Berkeley Lab (2015 - 2018)

Some Facts

This is Berkeley! It's a great position!

I was Andre Walker-Loud's postdoc.

Girlfriend got pregnant

    we did plan this!

    we got married

    I have a daughter! (2016)

Now wife moved to Berkeley for postdoc

    two-body problem VERY hard with kid

Published first author Nature paper

My Plans

Still really wanted a faculty position

Have a family now though…

Thought more about industry jobs

    interviewed at some places

    bombed them all

    still have nightmares…

Life goes on with next postdoc?

# Postdoc at RIKEN & UC Berkeley (2018 - 2021)

## Some Facts

7 year scientist position jointly with RIKEN and UC Berkeley under Tetsuo Hatsuda

    I really did love this job

Physics had a HUGE pivot to QIS

    We all had to learn to repackage our work in light of quantum computing

Won a $500k grant with DOE as PI

    learned so much about project management and selling my work

Published first author in PRX Quantum

## My Plans

Still really wanted a faculty position

    offer at Shanghai Jiaotong University

    offer at Texas Tech

    many (uncountable) interviews

2020 COVID (whhhaaattt?????)

Wife landed staff scientist position at BNL

Got industry job offer at DWave

Called my friend at LinkedIn...

    there is open contract position

# Data Scientist at LinkedIn (2021 - Nov 2022)

Some Facts

Salary more than 2x

    let's be real... this is quite important

Joined internal facing AI group

    chatbot project with traditional ML

    old colleague helped onboard me

    familiarize code-base in a few weeks

    start proposing project directions

My Plans

Get converted to full-time position

    successful after 6 month contract

Thinking of ways to get promoted

# Data Scientist at LinkedIn (Nov 2022 - now)

Some Facts

ChatGPT is public!!

2023 Chatbot suddenly looks like magic!

    productionize RAG chatbot@01/2023

    streamline customer onboarding

    build many data pipelines

    customer specific integrations

        very hard for 3rd party to fulfill

2024 Agentic automation

My Plans

This is such an amazing opportunity!

Plans all changed…

Excite collaborators about LLMs

Find partners willing to develop product

Deliver impact

    promoted to Sr. 08/2023

    promoted to Staff 09/2024
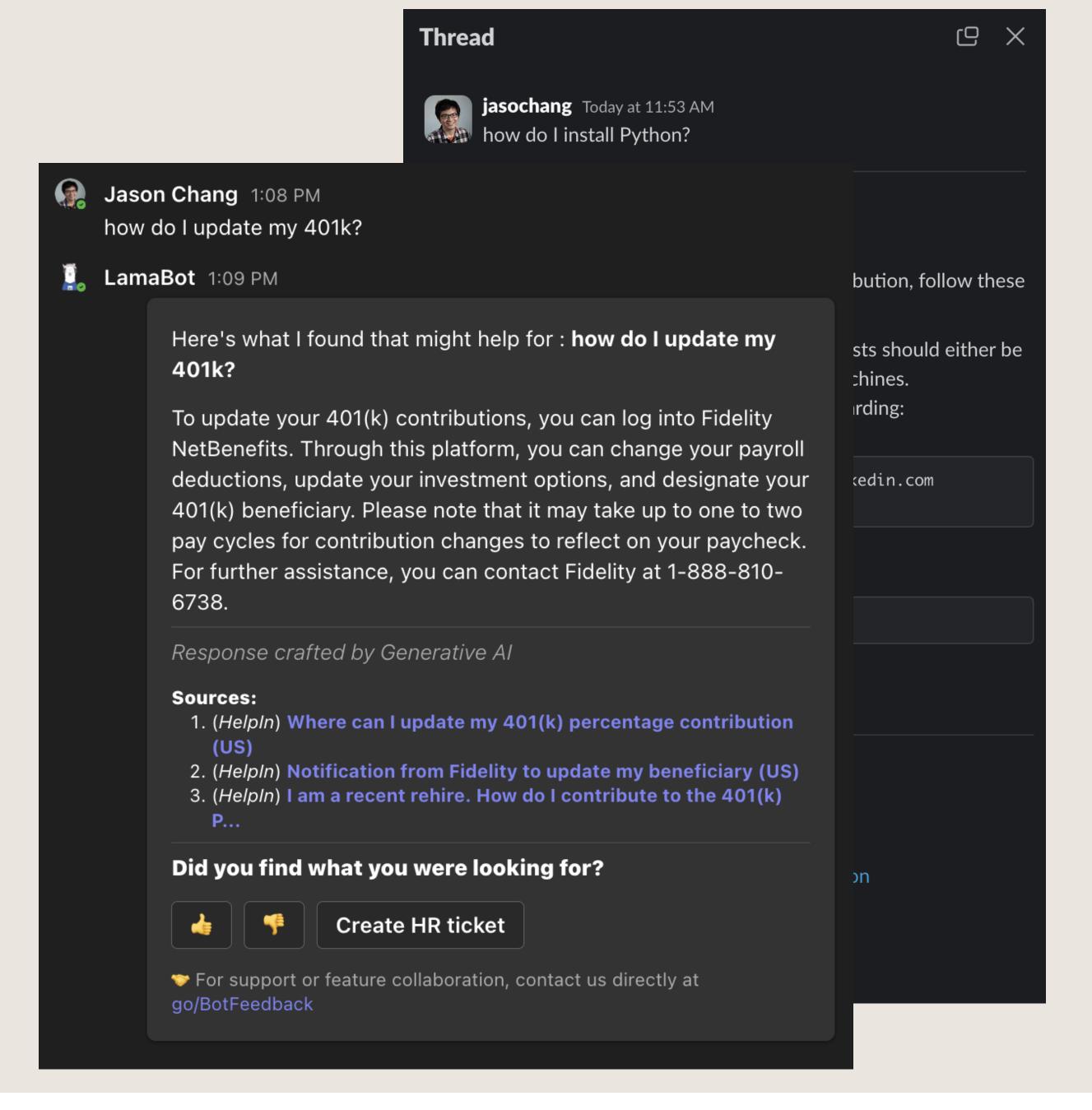
People want to keep collaborating!!

# AI @ Enterprise

# RAG-based chatbot

Integrate with internal tools

Internal knowledge retrieval

Integration with ticketing systems

Access to LDAP user list

Etc...

Just an OpenAI API wrapper?

Yes... but there is still a lot to wrap.

LLMs greatly simplified the ML pipeline

But a product is a lot more than ML

**Thread**

**jasochang** Today at 11:53 AM
how do I install Python?

**Jason Chang** 1:08 PM
how do I update my 401k?

**LamaBot** 1:09 PM

Here's what I found that might help for : **how do I update my 401k?**

To update your 401(k) contributions, you can log into Fidelity NetBenefits. Through this platform, you can change your payroll deductions, update your investment options, and designate your 401(k) beneficiary. Please note that it may take up to one to two pay cycles for contribution changes to reflect on your paycheck. For further assistance, you can contact Fidelity at 1-888-810-6738.

*Response crafted by Generative AI*

**Sources:**
1. (*HelpIn*) **Where can I update my 401(k) percentage contribution (US)**
2. (*HelpIn*) **Notification from Fidelity to update my beneficiary (US)**
3. (*HelpIn*) **I am a recent rehire. How do I contribute to the 401(k) P...**

**Did you find what you were looking for?**

👍   👎   **Create HR ticket**

🤝 For support or feature collaboration, contact us directly at go/BotFeedback

# Agentic automation

What is the agentic paradigm?

Basically, run an LLM in a while loop

Give LLMs access to function calls

1. LLM will generate a plan and call tool
   - This is still only next token prediction
   - Tool call is JSON argument filling
2. Process iterates until ending condition

Natural language problems with complex decisions becomes simple to code

How do we make sure output is good?

Ticket comes in

Triage ticket

Resolve ticket

Some open questions

Can we triage and resolve unseen tickets?

How do we monitor and validate results?

How do we handle errors?

Scaling of infrastructure and agents?

How do we design for a changing world?

# Some insights into interview and (useful?) advice

# Job Applications

If you are well prepared (a bit more on this later)
    then not getting a job is uncorrelated with your abilities
    it suck, but you need to just keep trying

It is easier to get a job when the economy is good.

What are some factors that you can control?

Do you have a portfolio? (GitHub history for SWE jobs)

You do need to prepare and pass the technical interview (similar to taking a test).

Apply when there is headcount.
    Ask a friend / relative / neighbor / anyone if their company is hiring
    Large companies typically refresh headcount on January and July

Ask someone at the company for a referral is possible.
    Vast majority of cold applications are unseen.
    A referral guarantees someone has looked at it.

# Job Interviews

Caveat:
- All my interviews (as interviewee) were done prior to covid and chatgpt.
- A massive hiring freeze / layoff wave post covid that only recently (~6 months) is recovering, so I also did not get to interview much after covid and chatgpt.

Tech interview format is relatively standard across the industry

1. Recruiter reaches out
2. Technical phone screen
3. Follow-up technical interview + behavioral questions
4. Offer

This is in my experience true for
tech (FB, Google, DWave…) and quants (Jane Street, D.E. Shaw…)

# Technical Interviews

Example: String have matching braces?

()()  = True        (()() = False

Why is this part of the interview?

- The correct output is not really the point (but often a minimum requirement)
    - Today, chatgpt can probably puke out code for these leetcode problem (do them!)
- In 1 hour, I need to figure out if I can work with you
    - Given a problem, can you clarify the requirements for me?
    - Can you then design a solution for me?
    - Given your design, can we talk about it and possibly improve it given our discussion?
    - Can you implement it? (right solution) And also make it resilient?

# Opportunities

-- LinkedIn Opportunities --

https://careers.linkedin.com/pathways-programs/internships

AVAILABLE NOW! (Good if you aren't graduating yet)

Entry-level positions (if available) are here (if you are graduating)
https://careers.linkedin.com/pathways-programs/entry-level
Feel free to reach out individually.
I'm more than willing to understand your background and suggest possible jobs that are good fits.
I can also look at the internal job listing and give referrals for specific jobs.

-- National Labs --

LBNL DS / SWE positions good start to get to Bay Area + experience + ok pay (~$130)

-- Startup Opportunities --

https://www.ycombinator.com/jobs

I have NEVER tried this, and I have never worked at a start up.
But people are constantly looking, the listings are fresh.

# Some closing thoughts

Plans usually don't go as planned

I still find it hard to believe I'm not in school

Everyone's journey is unique

COVID, LLM revolution...

Try to stay open-minded and versatile

*The only constant in life is change*

- A nugget of wisdom from my current manager

# Thank you