@arb8020

hello, here's my notes on a Q&A that Max Dama, partner at top tier High Frequency Trading Firm Headlands Technologies hosted

11:11 PM · Nov 12, 2022 · Twitter Web App

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ARB8020 @arb8020 · 5h
Replying to @arb8020
Max graduated UC Berkeley in 2011, joined startup HFT firm Headlands Technologies, birthed from the exodus from Citadel post-2008.

he wrote the well-known pdf: isomorphisms.sdf.org/maxdama.pdf

and he also has a blog:
blog.headlandstech.com

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on his pdf:

'i wrote it in college and i didn't know what was going on, i think its a lot of old information and uninformed'

'anything ive written in the past that's gotten noticed is largely because of a lack of material'

believes his blog is more up-to-date

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ARB8020 @arb8020 · 5h
on majoring in CS/Math/Statistics/Business:

quadruple majoring was a waste of time
realistically you'll need to know relevant math, stats, and tools for performant code

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ARB8020 @arb8020 · 5h
on HFT event loop/latency:

receive exchange data of network packet → decode → add to your ML system → update →
buy/sell/do nothing
needs to happen before next packet of data comes in (10-20 microseconds)
decent cpp code should be able to keep up

cont.

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ARB8020 @arb8020 · 5h
ultra low latency maybe makes up 20% of a firm's alpha for the ones that do it
at the end of the day most firms are doing different things: not usually as much queue
competition
the order book updates are pretty slow relative to a CPU

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ARB8020 @arb8020 · 5h
on ML:

for HFT, realistically you can calculate a linear combination of some collection of features you
have (maybe 100-1000)

anything else would have to be mostly stat arb, where you have more time to process and
calculate 100s of matrix multiplications or whatever

cont.

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ARB8020 @arb8020 · 5h
your data is not iid or stationary

linear regression is minimizing mean squared error of your predictions, trading is buying
cheap, selling expensive while minimizing costs

so one often overlooked thing is figuring out how to map the statistical problem to the trading
problem

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right now neither of those numbers are significant enough for headlands

if that number changes, he'll look into it

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ARB8020 @arb8020 · 5h
on strategies that get better when you have more money:

not really a thing for the most part

acknowledged that economies of scale exist
like if you do more volume, you get reduced trading fees, or when you buy computers, buying
in bulk gets a discount

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ARB8020 @arb8020 · 5h
on simulation:

lots of effort put into it on various fronts

simulating network latency is important
backtesting, make sure to use a negative orderbook that tracks your own orders, updates
when your strategy wouldve executed a take so you don't trade phantom liquidity

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ARB8020 @arb8020 · 5h
on speed of innovation:

lots of innovation in HFT infancy, people kind of know how things work now
firms are largely different on the niches that they operate in, but most of the stuff is the same

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ARB8020 @arb8020 · 5h
on making trading strategies:

what is your value to the market?
you're helping disseminate efficient pricing based of supply/demand

if gold moves 100bps, should silver move as well?

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is the supply/demand change being observed idiosyncratic or does it reflect fundamental
change?

rich grandma buying tesla and sweeping the book means price more likely to have same theo,
get paid to revert the price
funds buying tesla off news and sweeping the book is different

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ARB8020 @arb8020 · 5h

on job stress:

not really, computer is doing everything
'we're trading a ton of volume in asia right now. i'm over here'
not more stressful than any other job for his role

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ARB8020 @arb8020 · 5h

on longer term/macro trades interplay with HFT

they don't do a ton of it
all the strategies that get run are usually kept separate
most firms usually split things up: citadel's macro team doesn't execute through the HFT arm

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ARB8020 @arb8020 · 5h

on tradeoffs of staying at one firm vs jumping around:

opportunity cost is pretty big, you don't get to learn, miss out on bonus for length of your
noncompete, have to start from the ground up usually at your new firm

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ARB8020 @arb8020 · 5h

on tradeoffs of firm structures:

some firms split by functionality
citadel's alpha research team -> you research alpha
citadel's market impact modeling team -> you model market impact
cap on comp varies widely there
you do the same thing until you transition

other firms split by team
if you're on jump's crypto team, you work on crypto
one day you might be doing alpha research
another day you might be debugging execution system

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ARB8020 @arb8020 · 5h
on vertical movement/management:

largely you get to define how much of that you'd like to do
you can stay as a mostly individual contributor, owning pieces of the codebase
you can move up and start doing more managing and high level stuff

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ARB8020 @arb8020 · 5h
on being at a small firm:

v hard
you have to figure out how to do things from the ground up
you're not making as much money because the firm isn't making as much money
nobody tells you how to find alpha
wouldn't recommend joining the headlands that max joined as new grad

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ARB8020 @arb8020 · 5h
on firm rankings:

hasn't really changed over time for HFT
pretty much just rank by volume at any major exchange

was kinda vague, name dropped radix, headlands, jump, citadel, tower, HRT

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ARB8020 @arb8020 · 5h
on stability of HFT industry + more/less openings:

there's an economic need for it
unlikely to get bigger or smaller generally speaking
profit for HFT is volatility x volume
some firms expand in profit years, but volatility doesn't stay elevated like that

like mentioned earlier, not really any new firms making waves
HFT shook up the paradigm of click trading, doesn't know what's next
timekeeping accuracy increase was big, took away one of jump's big trades

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ARB8020 @arb8020 · 5h
there's more detail/less structure in the notes at this link: these are the notes i took live during
the talk its super unorganized but maybe might have more you want to see?

> work-in-progress.notion.site
> Max Dama Q/A Notes
> intro

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ARB8020 @arb8020 · 5h
all credit goes to Max and the people at the Q&A session, very thankful for what i got to learn
there

hope you guys enjoyed, let me know if something needs clarification, etc in the raw notes if
you choose to subject yourself to that

💬 2   🔁   ♡ 5   ↑

ARB8020 @arb8020 · 5h
share if you think that people who follow you might want to see this!
would hate for someone who wants to see this to never find it

💬 3   🔁   ♡ 6   ↑