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Service & Science

Scientific Efforts

• IceCube Neutrinos from outside solar system
• GeoDeepDive, Medical Applications.

Fighting Human Trafficking with DARPA and many others

• Hundreds of arrests of some very bad people.
• Managed to keep running for almost a decade.

Work with the medical school

• Rare childhood disease search, radiology data guidelines, NIH/NHS and more

Resulted in few papers—but learned a ton.
I was not on the Science paper. I was not named on the award. I did not get the medal. I was not the leader. I could not be more proud that I helped in something bigger.
Service: I want a meaningful life. Service to others makes life richer.
  • It is a great perk of the job of a professor.

Research: When I started no one had an ML system.
  • I needed to build them to learn the challenges.
Startups

- Cofounded and sold two companies to Apple
  - Lattice Data (with Mike and Feng on Ce’s work)
  - Inductiv (Ihab and Theo)
- Cofounded and large: Snorkel & SambaNova
- Some more coming soon! I love it!

Factory. Company that helps build companies

- 1st capital in on tons of fun startups
- This is more fun that I ever expected.

One framing (Last Resort) People start and join early startups when have skills no traditional job can exercise/reward.
How this changed my research?

Want my **research** to have art-like quality to it.
  • Open ended students in unexpected directions
  • AI/ML has dreams—I love the crazy ideas!

**Do what you like:** I like math, coding, and studying.
  • Not doing it was killing me pre-acquisition, thought a lot about quitting...

**Clearer sense of how I do service, startup, or research. YMMV.**
A key aspect of my research now: People.

The point of the projects is to develop people.
- Albert and Beidi are 13th and 14th professors this year (both to CMU).
- Ines won Gene Golub Dissertation award in computational math, cofounded a company together.
- Nimit graduated from computational math and is headed to Citadel.
- Proud of helping them do what they want.

Students lead to new directions—and end bad ones.
- I can’t keep up with new ideas without them.

Best of academia: students.
Parting Thoughts

**Students and Academics**: you’re paying a lot of money to do this job. Take advantage—avoid being industry lite! Industry is doing great!
  - This job is supposed to be fun and nourishing.

**Service** to others and your community can be part of your work
  - ... and I don’t mean program committees ...

**Research** is moving so quickly, and it’s so exciting!
  - Ridiculous ideas today are tomorrow’s reality.