BU CS Convocation Speech

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Welcome

- Class of 2025, congratulations!
- Your hard work and perseverance have paid off and you've arrived!
- I'm quite honored to share this moment with you.

Technology is Exciting

- You've learned a lot to get here.
- You now know that the *seemingly simple technologies* around us, are the *products of an amazing world full of science fiction*.
- To etch our chips, we create a steam of tin droplets that we vaporize with lasers, one by one, to emit bursts of ultraviolet light that then bounce off mirrors that are polished down to deviations the size of a hydrogen atom.
- We use these chips with custom networks spread across datacenters that take more power than towns, to train AI models that we use to sit back and vibe code out some slop.
- These use operating systems that are 10s of millions of lines of code, absolute feats of engineering.
- And the most amazing part is that *users don't even know they are there*.
- We, as computer scientists, are the *connoisseurs of abstraction*. . . we take the *complicated and almost impossible*, and make it *pervasive and invisible*.

Learning Starting Point

- You've made it to this point by learning to *deploy the power of abstraction* to conquer the *scepter of complexity.*

- You've worked toward your 10 thousand hours of practice in the craft of programming... to *master the keyboard as your instrument,* with your creations only *bounded by your creativity.*

- And of course, you've probably learned that the most refined, beautiful code is generated between the hours of midnight and 4am... at least until you have to debug it the next day.

- Computer science is not easy, and you've accomplished a lot.

Skills vs. Foundations

- You've learned the languages, frameworks, and systems that power the technical world.

- However, your education was not centered around these skills.

- No, your education enabled you to *learn how to learn* with a *computational mindset*.

- Above all, you've formed the mental pathways so that you can grow and prosper in computer science as it, and you, evolve.

- A CS education is also about building a core understanding of fundamentals, with which you can understand any future technology.

- This combined with your *determination*, will *propel* you through your career.

Knowing Enough to be Dangerous

- But I'll let you in on a secret: most fresh graduates know *only enough to be dangerous*.

- You're in that spot where there's a *world of ideas* awaiting you, and you don't yet fully *understand what you don't know*.

- So the next sprint of your development will be to better understand when you can *confidently say "I don't know"*.

- You should go forward, secure in your foundation, but *humble and eager to continue learning*.

Not Knowing what's Impossible

- That said, there is a superpower that comes with *not understanding what you don't know*.

- You don't yet know what the *rest of us think is impossible*.

- With technological advances, that which *has been impossible,* often becomes *potentially. . . barely* possible.

- Those that *question existing assumptions,* and *dare to try something new,* are often those that move the world forward.

- That's you!

Gift of Failure

- It can be terrifying to dive into new domains, into uncertainty.

- But the worst that can happen is failure.

- Now, I *understand that this sounds horrible* – we seek to *avoid failure,* it isn't exactly on our vision boards.

- But after failure, you *pick yourself up,* and try *something new with the wisdom gleaned* from that failure.

- We accept failure in programming, and call it debugging.

- Similarly, you should allow yourself the *grace to take personal failures* as part of debugging your life.

- Sometimes the only way to accomplish anything big is through *a path littered with many failures*.

Effective Progress in Chaos

- At the risk of being a bit of a downer, I want to acknowledge that there's a lot of *chaos and uncertainty* in the computational world right now.

- I graduated from undergraduate amidst the popping of the "dot com" bubble – when investors would throw money at you if your company had a ".com", and I got a PhD during the great recession – when banks were handing out mansions like candy.

- Entering into the world at these times, my timing is not the best. . . room for improvement.

- I know what it is like to *go out into a world* with a lot of chaos and uncertainty.

Investing in Yourself

- Regardless of the state of the world, there has always been a *single way* to maximize your chances of success.

- You must leverage the fact that your *ability to learn new CS technologies* increases, with the more *knowledge you have*.

- Like compounded interest – what Einstein called "the most powerful force in the universe" – when you *expand your CS horizons*, it enables you to *understand deeper, more specialized topics*, an *effect that compounds over time*.

Linear Learning

- It is really hard to viscerally understand this.

- If you look back on what you've learned, it is amazing how tasks that *were challenging at the time*, have *become trivial*.

- Remember how hard programming was first semester? Now? Like breathing.

- It is easy to look at your learning trajectory, and think of it as linear.

- Every semester, you learned the next body of knowledge.

Exponential Learning

- But if you look out over your career, you'll realize that you've placed yourself not onto a linear curve, but and exponential one where, *like compounded interest,* your *knowledge increases the rate of acquisition of more knowledge.*

- The *more you learn, the faster you can learn.*

- For this reason, we often *overestimate what we can do in a year,* but massively *underestimate what we can accomplish in ten.*

- Coming back to it: how do we deal with uncertainty?

- The more you *invest in yourself* now and tomorrow – the more you learn, the more skills you pick up, and the greater your refinement of the craft of programming – the more the *impossible becomes tractable.*

1/10th Through the Marathon of your Career

- This compounded learning is the *force that will carry you* through your career.

- You're one tenth of the way through your career.

- You're two miles into the 26.2 of your Boston marathon.

- But the *first step* was the hardest: learning to learn, your education here, has put you on a *hard-fought path* to doing amazing things.

Conclusion

- There's a lot of *impossible lined up in front of you* to *conquer*.

- So class of 2025: go forth, be bold, *fail and pick yourself up*, stay curious, and keep learning!

- To you, congratulations!

Family

- Before I sit down, I also want to acknowledge the *cast of characters* supporting each of us, that make our *accomplishments possible*.

- Thank you, families, for putting these computer scientists *on their path and helping them walk it*.