My Experience as a PhD Student

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Advisor: Dr. Mubarak Shah
About Me

- **Undergraduate Career: University of Central Florida**
  - Computer Science major, Math minor
  - Started research Sophomore year
  - 2020 CRCV Computer Vision REU student
    - Published paper based on work (currently 38 citations!)

- **Graduate School: Just completed 2nd year of PhD**
  - Advisor: Dr. Shah
  - 1 accepted paper, 2 under review
What is a PhD student?

- A student engaged in an effort to become an expert in their field
- Perform original research in a specific* area of study
  - Contribute new knowledge and insights to your field
- Applicators of legitimate science

* There is still freedom to explore!
Differences from Undergraduate School

- A PhD is a rigorous degree: high expectations, many responsibilities
- Goal is much grander and more abstract
  - Target is no longer an A in a course that lasts a few months
- Much deeper dive into the material
  - A much richer understanding is required to generate novel research
- Closer collaboration with advisor/research group
- Greater emphasis on individual research
  - Much higher level of self-discipline required
What do PhD students even do?

- Read interesting papers!
- Code/run experiments
  - Reproducing/verifying results, debugging, fighting for available GPU’s
- Read boring papers
- Communicate your work (very important skill)
  - Present findings, present progress, discussions with peers/collaborators
  - Write your own papers: acceptances, rejections, reviewing, learning
- Read the same papers again. Repeatedly.
- Travel to conferences and collaboration events
A Bit About My Story

- Started PhD Fall 2022, ‘assigned’ to work with Ishan on privacy
- Lots of reading, coding, and learning about the lab
- Constantly pestering Ishan with questions, asking for ideas
  - Needed to learn that this was MY PhD, not just an extension of his!
- Many one-off discussions with fellow graduate students
- Took time to get good results, write first paper (March 2023)
  - Accepted at ICCV!!
A Bit about My Story (cont.)

- Spent a long time exploring, trying out new ideas, failing to get results
  - Got fixated on bias/privacy problem in Video Action Recognition
  - Got decent results, half wrote a CVPR paper, did not submit (lack of novelty)
- Needed a break, shifted towards thinking about multimodal models
- Got promising novel results ~1.5 weeks before ECCV deadline
  - Needed to run ALL experiments, ablations
  - Wrote entire paper in ~3 days (luckily could copy from CVPR draft)
- ECCV paper rejected a few weeks ago 😞
- Got idea for a different problem, got more good results shortly after
  - Submitted NeurIPS paper on bias mitigation 2 months later
Pros of Being a PhD Student

● Overall: very positive experience!
  ○ But, still difficult. Not always sunshine and roses.
● Constant increase of knowledge and self-improvement
  ○ Coding skills, presentation skills, writing ability, time management
● High degree of immersion into the material, advancing the field
● Positive results and success feel very, very rewarding
  ○ Your efforts are finally paying off!
● Experience in both being mentored and mentoring others
● Many opportunities to travel!
  ○ Paris, New York, Vancouver, Seattle
Things I Have Learned

- Quickly learned the importance of time management
  - Need to balance coursework, research, and personal life.
- You are the sole driver of your own research
  - Cannot rely on a teacher/mentor to spoon feed you everything you need
- Producing novel ideas (that actually work) is NOT easy
- Failure is a constant, persistence is key
- There are no shortcuts: this work requires major time investment
  - Unfortunately, much of that time will be spent on incorrect paths
  - These hours are still valuable, even though they feel wasted!
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General Tips for Success

- Build your day around dedicated work hours
  - Very important: Leave time to exercise & unwind
- Clearly define goals and steps to achieve them
  - Much easier to work when you know what to do
- Read any paper that looks interesting – even unrelated ones
- Don’t waste TOO much time reading
- Coding is invaluable to understanding
  - Reproduce code, improve it, rewrite from scratch
  - Spend time on efficiency (parallel jobs, distributed training)
- Take advantage of your advisor
My Suggestions to Aspiring Grad Students

- Continue working on research, stay involved
- Develop a good relationship with potential advisors/peers
  - Talk to current students!
- Stay curious and think critically
- Keep on working hard!
Thanks for listening!

Questions?