PLANNING & EXECUTING AN EFFECTIVE POSTDOC TRAINING

NOTES FROM MY JOURNEY AND THAT OF MY FRIENDS +
ADVICE FROM MENTORS AND OTHER KIND PEOPLE +
A TINY BIT OF MY EXPERIENCE AS A NEW MENTOR

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PLAN FOR TODAY

- PART 0: A few things we can agree on at the outset.
- PART 1: Career-Planning Document
- PART 2: Yearly Planning Meeting
- PART 3: Career Development Week

LET'S NOT BE STRANGERS

Say Hi to one person you do not know and introduce yourself:

- My name is … Arjun Krishnan
- I'm now in the Dept. of … CMSE & BMB
- My research interests are … Computational biology & machine learning
- One interesting factoid about me is that … I *love* playing my air guitar!

7 THINGS* THAT WE CAN AGREE UPON AT THE OUTSET

PART 0

1. Take the lead in your research and training
2. Make a plan, evaluate the plan periodically, revise the plan
3. Become and be an independent, versatile, critical thinker
4. Keep learning new skills
5. Engage with your group, community, and the public
6. Finish stuff
7. Don’t put your life on hold

** Things I did with varying degrees of success!*

1. TAKE THE LEAD IN YOUR RESEARCH AND TRAINING

- This is the single most important advice I have for you!
  - Take ownership of your research project & professional training, and lead the way.
  - It's 2-3 years of the prime of your life; Limited, precious time. Make it count.
- Take the initiative in identifying and discussing ideas/opportunities/challenges w/ your mentor and updating them about your progress.
- Come prepared via thorough effort with options, pros/cons, & your decisions. Then, ask for mentor's thoughts and make appropriate changes.
- Set-up the meetings, set the tone. Set deadlines and meet them.
- *Best case scenario: When you are way ahead of your mentor and they have to struggle to keep-up with you.*

2. MAKE A PLAN, EVALUATE THE PLAN PERIODICALLY, REVISE THE PLAN

- Plan your research program
- Plan your training and professional goals every 6 months – 1 year.
- Plan your next 4–6 weeks. *Essentially, have short, medium, & long-term plans.*
- Plans are going to change. But, you're better off consciously deviating from a set plan than meandering along until you have enough work to populate papers.
- Constantly communicate with your mentor to make sure you are aware of the goals and benchmarks of the project or even your entire tenure in the lab.
- Career-planning document & Yearly planning meeting: invaluable for taking stock of your progress, managing expectations, and charting a path forward.

3. BECOMING AND BE AN INDEPENDENT, VERSATILE, CRITICAL THINKER

- Two things to do regularly (and brain-storm with your mentor & colleagues):
  - Think through your work: Turn off autopilot & take control. Constantly critique & appraise your work.
  - Remember (& reassess) the big picture: Don't get so engrossed in the details that you forget to check what is the goal and impact of your whole project/endeavor.
- Push the envelope:
  - Expand your and the group's scientific & technical boundaries. Have a bold vision.
  - Challenge your advisor and be prepared to defend your ideas. Tell them what they can do to be a better PI.
- Science the heck out of it:
  - Experiment as much and as often as you want. Try as many things as you can.
  - Explore and prototype early to fail fast and learn.

4. KEEP LEARNING NEW SKILLS

- In addition to doing great science, it is also good to be:
  - employable, in-demand, and irreplaceable
- Put to work the *"you can learn anything, if you're ready to put in the effort"* mindset that you learnt from your PhD.
- Look for trends – latest techniques, software, algorithms, and application areas – and see how you can integrate these into your project.
- What's trending?
  - Literature & vibrant online communities/blogs | Latest conference talks, seminars, podcasts | Twitter!
- Critique, write, & communicate: Review papers w/ your advisor | Apply for a fellowship/grant | Write a review article | Blog + Twitter

5. ENGAGE WITH YOUR GROUP, COMMUNITY, AND THE PUBLIC

- Engage with your group & make it your own.
  - Talk to your advisor often | Brainstorm with peers and other faculty members in the department | Train junior members | Be the champion of good values
- Engage with your collaborators and take initiative in communication & collaboration.
- Go to seminars/meetings/conferences, and be active in them:
  - Invite and host speakers | Participate in group lunches/dinners, etc. | Give talks (not just posters).
- Talk to many about your personal development & about your research project – *You need multiple mentors*
- Look for opportunities to engage with folks outside your academic institution: school teachers/students via SkypeAScientist, general public.

6. FINISH STUFF

- "The first 90% of a project is a lot easier than the second 90%." [Tim Sweeney].
- *Wrapping-up the project* will take an unexpectedly long time.
- Be the person who can do the 90% and the 10%. Focus on taking ideas and turning them into a finished paper / software.
- You need concrete things under your belt.

7. DON'T PUT YOUR LIFE ON HOLD

- Cultivate a life outside of the lab.
- Find a hobby/activity that you can regularly fully immerse yourself in that has absolutely nothing to do with your research.
- Take care of your body and mind.
- Take personal-time when you need it.
- Your – or your family's – general happiness and well-being should not hinge on how your research is going!

PLANNING YOUR CAREER

PART 1

- You are a postdoc because you love science & want to do impactful research.

- However, it is essential for you and your mentor to remember that postdoc training is exactly that:
  - A rigorous training period for well-rounded professional development that prepares you to launch a successful career in academia, industry, or elsewhere.

- Well-rounded professional development:
  - multi-faceted process >> single-mindedly doing research & publishing papers.

PLANNING YOUR CAREER

PART 1

- Postdoc Career-Planning Document
  - Specific questions on all the aspects you need to be planning and executing.
  - It is critical to have concrete answers to all these Qs on your own and based on discussion with your mentor.
  - Complete this once you start, review it with your mentor, and then repeat this exercise at least once a year.
  - The specific answers are most likely going to change over the course of your postdoc and that is OK! The point is to make a plan & rework it as you go along.
  - This doc is also ideal for senior graduate students thinking about doing a postdoc.

https://github.com/BenLangmead/langmead-lab/blob/master/postdoc_questionnaire.md

PLANNING YOUR CAREER

PART 1

- Postdoc Career-Planning Document
  - Pick up a printout, introspect, make notes, and write down questions / points to discuss.

- Folks who have completed at least 1 year of your postdoc:
  - Based on this document: Note one (or two) thing(s) you wish you had known or done differently before or early in your postdoc.
  - We chat about them.

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Schedule an annual meeting with your mentor to discuss where you were and to plan where you are going next.

- Goals
  - Celebrate accomplishments.
  - Set short-term and long-term research and career goals.
  - Help make rapid progress by prioritizing projects and identifying barriers.
  - Clarify and solidify relationships by giving honest constructive criticism.
  - Clarify expectations in both directions and address any disagreements.

- Birds-eye-view of your accomplishments and goals gives your mentor a chance to tailor their advice to be most helpful in your particular circumstances.

https://www.ncbi.nlm.nih.gov/pubmed/26046646

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting
  - Organized around a planning document containing two worksheets: “Goals and Planning” and “Calendar”.
    - *Filling these worksheets is not the point;* they are the means to organize a fruitful conversation (gather thoughts beforehand, remember what to say, & have a record of what was discussed).
  - Lasts for 1h.

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting: The Process
  - Before the meeting:
    - Both you and your mentor will fill in “Goals and Planning” (Page 1).
    - Work from printed copies.
  - During the meeting
    - Go through this worksheet together.
      - You take the lead, proceed section-by-section taking turns, and both annotate as you go.
    - Based on this, jointly fill in the Calendar (Page 2).
      - The goal is to come up with a rough and flexible road map for the year that both of us agree on, along with reasonable time estimates.

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting: The Process
  - At the end of the meeting:
    - You & your mentor will have two amended copies of “Goals and Planning” and one filled-out version of the Calendar.
    - All completed worksheets are given to you at the end to copy or scan and return right away. Everything is then totally transparent (no edits done in private).
    - Both you and your mentor keep the full set of completed worksheets.

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting:
  - Accomplishments: Be broad and generous in what you consider an accomplishment.
    - Not just things that would go on a CV:
      - Progress toward goals (e.g., drafting/submitting a paper, getting a tough analysis/ experiment to work.)
      - Important exams (e.g., qualifying exams, GREs)
      - Applications (e.g., for fellowships, conferences, graduate school, or jobs)
      - Development of transferrable skills (e.g., learning a new technique, organizing a workshop, reviewing a paper or grant), and
      - Milestones (e.g., choosing a postdoc lab, having a thesis committee meeting, organizing an internship).
    - Acknowledge things outside the lab that impact work (e.g., family commitments, moving from a foreign country and getting settled, choosing a thesis lab).

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting:
  - Research Goals:
    - Major milestones for getting projects accomplished – on a 1–3 month timescale – rather than nitty gritty weekly or daily goals.
    - Precise timing isn't so important. Prioritize research goals and make an initial estimate for how long they will take so that obstacles can be clearly identified.
    - For this to work, your estimates have to be realistic, both in terms of how long things take and how many things you can accomplish during the year.
      - Too many goals or the estimates are unrealistic → a recipe for disappointment.
    - Consider the goals from the year before and whether they've been accomplished.
      - Restate goals ,or change project direction, or just jettison?

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting:
  - Professional/Personal Goals:
    - Your long-term career goal, and
    - Which professional skills you'd like to develop and targets you would like to hit this year to attain that goal.
  - Examples: Completing specific projects, submitting papers, attending a conference, networking with people outside academia, improving communication skills, applications for specific fellowships/grants, or plans for committee meetings/qualifying-exams/graduation.
  - Even if your career goal is still unclear, think about how to build on current strengths and improve on weaknesses.

PLANNING EACH YEAR OF YOUR POSTDOC

PART 2

- Yearly planning meeting:
  - Feedback: A place for constructive feedback
    - How goals are being met, both at the level of the individual and at the level of the lab.
    - Things you think are going well + specific issues that could be improved.
  - How is the lab and your interactions with your mentor are working for you. For e.g.:
    - Are you meeting too little or too much with them?
    - Are you worried about the trajectory of your project or someone else's in the lab or in the field?
    - Do you have the balance of projects and free time that you're looking for?
    - Are there general issues in the lab that you would like to let them know, even if they don't pertain to you in particular?

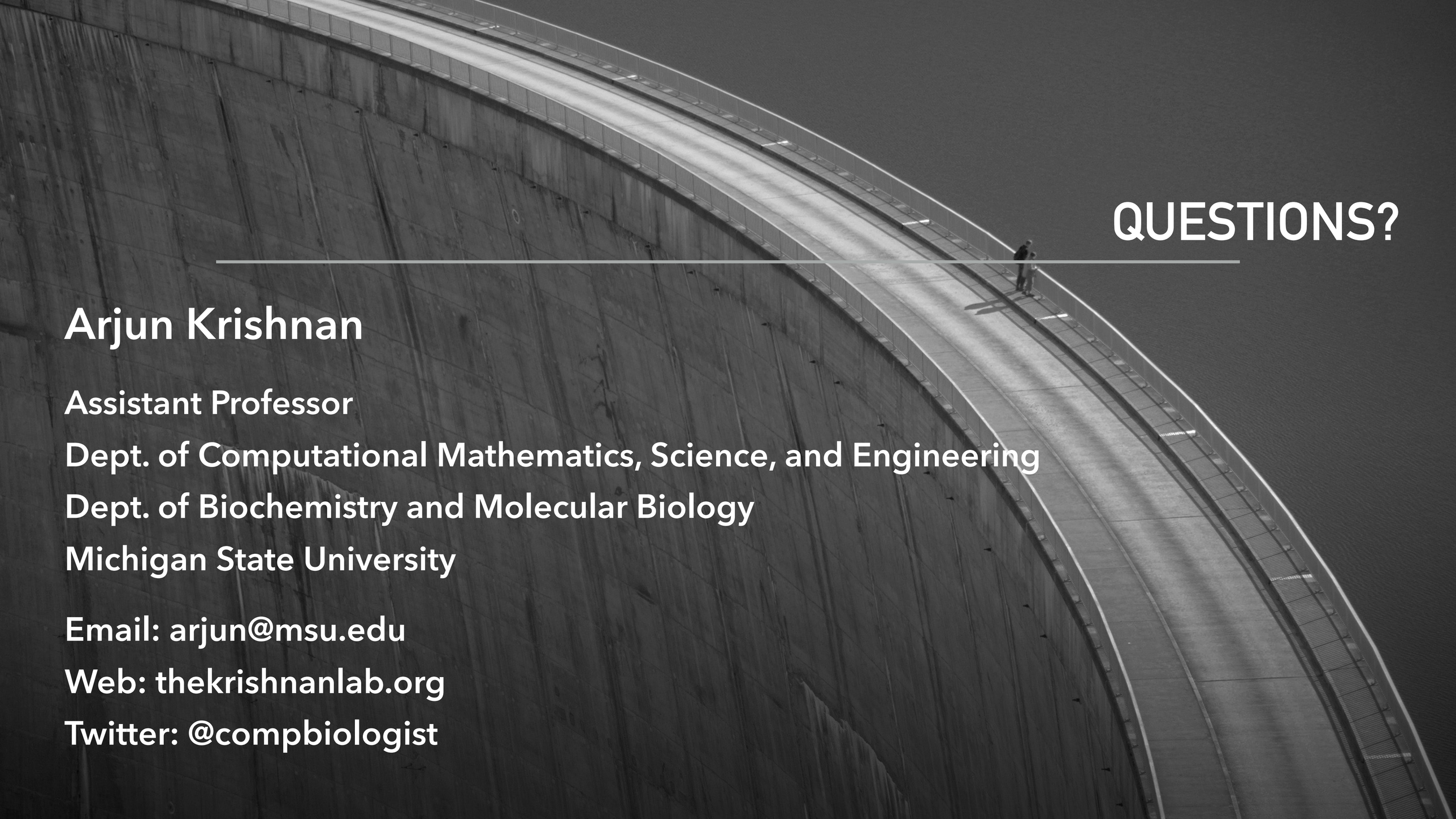
CAREER DEVELOPMENT WEEK

PART 3

DEFINE AND MEASURE IMMEDIATE, TANGIBLE GROWTH OPPORTUNITIES

- Update CV and submit it for feedback
- Join Twitter and post a tweet
- Join a professional society
- Sign-up for mentoring and outreach
- Prepare an elevator pitch
- Make a simple website (or LinkedIn profile) promoting yourself and your science
- Create a blog or submit a blog post about your project or lab experience to be posted on the lab's blog
- Perform and submit a self-evaluation: strengths, weaknesses, and career goals (w/ timeline)?
- Volunteer to give a talk (campus event, seminar, or elsewhere for outreach)
- Initiate contact with a scientist/ professional outside the lab/institution (whom you don't know before) – get career advice, scientific advice, or a letter
- Read and review an article and post your comments on PubPeer or bioRxiv

www.avasthilab.org/2016/07/19/career-development-week/



QUESTIONS?

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