Survival guide

- Collections of advices and policies in my group
- Intended audience
  - Prospective students
  - Current students
- Any aspect of the policies can be flexibly adjusted
  - Based upon our mutual agreements
- Feedback is highly encouraged
Before you start
Undergraduate vs Graduate

- Undergraduate
  - Learn subjects by reading textbooks
  - **Passive** form of learning
- Graduate
  - Research subjects by thinking and experiments
  - **Active** form of learning
Your goal is to learn subjects listed by the school

Instructors already paved your “study highway”

Fixed set of topics to learn

Courses surely end after several weeks

Answers are clear and well-defined

Your success is measured by grades
Your goal is to research a topic of your choice

You decide how you proceed your research

Choose your research theme

No limit on how far you should go

Answers are not clear and often undefined

Your success is measured by academic outputs
Masters vs PhD

✦ Slightly different goals

✦ After finishing Masters (usually two years)
  ✦ Industry job, but not necessarily in graphics
  ✦ Gain a bit of experience in research

✦ After finishing PhD (usually two + three years)
  ✦ Industry job in graphics or academic job
  ✦ Prove that you can independently do research
Masters vs PhD

In general, I prefer to accept students who are willing to continue until PhDs because…

- Two years in MS only are too short for you to be able to complete research by yourself
- You will actually have more career options (a unique aspect of PhD in computer science)
- You will get to know more experts
Think twice and more

- Lots of information available to help you decide whether you should pursue graduate study
- Your life will be **hard** if your main reason is:
  - Only to get a better job (there’s **no** guarantee)
  - Someone told you to do so (lacking **motivation**)
  - To learn subjects more (just **a part of** research)
  - Only to pass with a degree (not a good **fit**)
Think twice and more

❖ **Contact me** before you apply

❖ I generally want to accept a student who has solid skills and passion for computer graphics and wants to dive into research in this field

❖ I won’t motivate you to do research

❖ Read this material carefully to see it’s good fit

❖ If you think it doesn’t fit, consider another lab. **Both** of us can be unhappy due to the mismatch.
Checklist

- Are you very interested in research?
- Are you moderately ambitious?
- Are you persistent in a good way?
- Are you mentally and physically tough?
- Are you optimistic?

- If your answers to the above questions are all yes, one day, you’d become a great researcher!
Admission at Univ. Tokyo

✦ You need to pass the entrance exam if you want to join my group as a student
✦ Written exam and oral exam
✦ You need to come to Tokyo to take it
✦ Admission is very competitive
✦ In general, if you cannot solve more than 50% of the past written exams (which are public), consider that your chance is extremely slim.
Other ways to work with me

- You are a student in another university: I know your advisor or you already, and we decided to work on research together.
- You are working for a company: Your company and I decided to collaborate on a research project. Potentially involves funding.
- Otherwise, I would rather spend all of my time to my current students and collaborators.
During your study
General goal

- Being able to tackle problems scientifically
- Look at things objectively
- Think logically and critically
- Make hypotheses
- Design experiments
- Communicate your thoughts

http://www.med.upenn.edu/shorterlab/Papers/embor201215a.pdf
General policies

✓ **Enjoy** your research

✓ You have **freedom** to work on topics you love

✓ You are **responsible** for your daily work

✓ I’ll give you **advice**, not “use” you to do research

✓ Publication is very **important**

✓ Tasks in your study must be done in **English**

✓ I’ll **help you** to achieve your goal, not mine
Enjoy your research

- Work on things that you **really** love
- “Enjoying” does not always mean “playing”
- Hard work can be **equally** enjoyable
- Happy mind leads to great research
- In the end, it could be your **last** opportunity to freely pursue things that you want to investigate more without worrying about anything else!
You and your work

- **You are responsible** for your daily work
- Manage your progress toward the deadline
- Allocate working hours per day
- Decide where you work, when you work
- Report your progress to me regularly
- Initiate discussion

**Note:** I’ll have my own projects as well
Advisor-Student relationship

- You are an (inexperienced) *junior researcher*, not my servant or my people, which means that
- I don’t force you to work on a specific topic
- I don’t micromanage your daily work
- I expect you to be self-motivating
- I expect you to have your own opinions
- I expect you to be critical on me when necessary
Three rules of questions

- **Ask any question**
  - No question is bad. Asking no question is bad.

- **Ask any time**
  - No need to try “finding” a good time for me

- **Don’t** speculate “true meaning” behind the words
  - What I tell you is what I think; no hidden words
  - Negative answer doesn’t mean that I hate you
Communication

- Very important that you *initiate* communication
- Report your status and progress
- Notify me anything that needs my attention
- Schedule a meeting when you want
- Many troubles are due to miscommunication
- Tell me what you think directly
You don’t need to have a concrete research topic ready when you enter the Master’s program.

I will support you to come up with one.

For PhD students, I except something concrete.

Except that it can take long time (e.g., six months) if you are not really sure what you want to do.
Research topic

Two important criteria:

- You are interested in solving it
- People (including me - as one of those people) are interested in seeing a solution on it

- Work on important and interesting problems
- Read papers, talk to people, and search the Internet to find out what could that be
Most important but stressful aspect

I expect you to publish papers in English

I will help you to publish papers, but I won’t write a whole paper for you (maybe only a part)

Posters/talks and papers in Japanese don’t count

Useful for job hunting (must have for academic)

Very good way to hone logical thinking skills

Solid proof of your skills and knowledge
In an ideal academic world...

Where you publish your paper doesn’t matter

How many you published doesn’t matter

People respect your work regardless of those

Let’s face it: in reality, where you publish and how many papers you have do matter.
Publication - Real World

- Not all publication venues are the same
- Some are highly regarded, many are not
- Publication in very little known venues can actually **damage** your work
- Top-tier: SIGGRAPH (Asia), TOG, Eurographics
- Second-tier: I3D, HPG, EGSR, CGF, etc.
- Aim for top-tier to **max.** the benefit/effort ratio
- Always aim for the best. I’d say, “Why not?”
My expectation on a MS student

- One paper should be submitted (hopefully accepted)
- Encouraged to submit to a best venue
- Second-tier venues are acceptable
- Aim to complete your project in one year
- Ideally, your submission becomes your thesis
My expectation on a PhD student

- At least three full papers should be published
- At least one paper published in a best venue
  - SIGGRAPH (Asia), TOG, Eurographics
- Other two can be at a second-tier venue
- Aim to submit one or two papers per year
- Acceptance can be a bit random, so review scores above the average can be counted “published”
What if...

“What if I couldn’t pass your expectation?”

Asking this question is already wrong

You are not working for me

Nobody (including myself) forces you to do so

Failure is a natural part of any research

Job hunting will be a different question since I don’t give you a job offer. Yes, the reality sucks.
Go (way) beyond my expectation

- Satisfying my expectation **should not** be your goal
- Your research is yours
- It’s not me who decides your success
- Other people judge how well you did
- Check how your peers (internationally) do
- In my opinion, my expectation is bare minimum since I want you to be internationally competitive.
Case study: My PhD Study

✈ You can totally do (or better than) this:
  ✈ Five years of a PhD study (= MS + PhD)
  ✈ Six papers and a few talks, all in top venues
  ✈ Two fellowships awarded (NVIDIA and AMD)
  ✈ Two internships (Weta Digital and NVIDIA)
  ✈ **No need** for overnight work, always working during weekends, or death march. I didn’t do any.
Webpage

- You **MUST** have your professional webpage
- Extremely important for publicizing your work
- Recruiters might look at your webpage
- Consider it as an online CV and be professional
- See my webpage to check what to list
- Do not put an internal research report
- Someone can steal your ideas and publish papers
Authorship

- Your paper will most likely be coauthored
- **Unless** you literally did everything by yourself
- In general, your papers will be coauthored with me
- Again, above “Unless...” is always applicable
- Gift authorship is **strictly prohibited** in my lab
- Talk to me before we work when in doubt
Authorship matters and can raise conflicts

How people perceive you in general
- First author - “the person who did this work”
- Last author - “probably the advisor”
- The rest - “maybe they did something?”

Your thesis should include only first-authored work
- Including non-first-authored work can be tricky
Authorship

- Multiple students in the same paper can be tricky
- Order **matters** (i.e., who should be the first?)
- **Dilution** effect of contributions (who did what?)
- Who puts the resulting work into her/his **thesis**?
- In general, I avoid “multiple students per paper”
- Discussion among students is highly **encouraged**
- Exceptions do happen with everyone’s consensus
Authorship

- My preferred style
  - You - first author
  - Others (if any), probably not your peer
  - Me - last author

- Benefits are twofold
  - You have **full** ownership of your project
  - **No conflict** on authorship with your peer
English or Japanese

❖ For non-native English speaker

❖ Face it: it is disadvantage in academia, but remember: many researchers are non-native

❖ Use editing service if necessary (I’ll cover the cost)

❖ For non-native Japanese speaker

❖ I’ll make sure that you don’t “need” to learn Japanese for study, but you are welcome to do so
Why papers should be published in English?

- Very few people in the world can read Japanese
- Latest research results are published in English
- You’ll need to do so in your future job anyway
- Maximize accessibility of your work
- Your thesis should also be in English
- I do not help you to write a paper in Japanese
English or Japanese

- Things that need to be done in **English**
  - Writing progress reports and papers
  - Reading papers and books (don’t read translation)
  - Preparing presentation slides
- Presentation itself can be done in Japanese
- Daily communication can be done in Japanese
- International students have a choice
English or Japanese

- Often times, bad writing is not just a problem of your language, but also a problem of logic.
- Check every single sentence you wrote to see if it is logically making sense.
- Smooth flow of logic is very important.
- In my opinion, you don’t care too much about how your sentences sound natural in English. Focus on logic, especially if you are non-native.
Management (or lack of)

- I won’t micromanage your work
- You manage your time (no fixed working hours)
- You report your progress (take initiative)
- You ask questions if needed (I am not a psychic)
- You keep deadlines (your deadlines are yours)
- Be self-motivated and independent
- Ask for my support if you need help to be one
Weekly meetings (or lack of)

- Weekly group meeting is a waste of time
- Research progress can be highly nonlinear
- Hearing what other people are doing is interesting, but doing so weekly is too much
- Wasted effort on preparing reports for others
- Use online communication tools instead
- Report your progress regularly to me
- Setup an in-person meeting when you want
Your schedule

- Your schedule is driven by paper **deadlines**
- **Select** the publication venue
- Think about **milestones** toward the deadline
- Aim to have a submittable paper **one month** before the deadline (difficult, but I often do so)
- **Adjust** milestones as you go
- I’ll help to make and adjust your schedule
“Lack of planning on your part does not constitute an emergency on my part!”

- “Failing to plan is planning to fail”

- Many people procrastinate and do a lot of last minutes work, but that **doesn’t** mean it’s fine!

- General rules to keep you self-managed

  - Have your submittable paper ready by a week before the submission deadline

  - Assume that I will be **less and less** likely to be available toward the deadline (which is true)
I don’t care how many hours you work

You manage your working hours

I generally recommend that you

Don’t work overnight (I’ve never done it)

Don’t come to the lab during weekends

Be in the lab during “normal” hours (like 10-6)

Always think about your research
Lab events

- No planned social events as a lab
- I don’t discourage you to do one if you want
- You can invite me if you want 😊
- I might occasionally ask if people are interested in having lunch/dinner together
- I might also plan a seminar with free food
Lab events

- Seminars on your project/meta-research
- Talks by visitors
- Some random seminars
- Reading latest papers
- Practice talks, demonstration etc.
- In general, we don’t have (semi-)mandatory events
Internships/Research visits

❖ Could be arranged if you are doing well
❖ I know some people to talk to (both industry and academia)
❖ Decision is made by your host, not me
❖ You are also encouraged to find it by yourself
❖ International ones are recommended
❖ I’ve done two and they are both fantastic
I encourage you to apply for any of them that you are eligible (never think “I am not good enough”)

Provides you three great benefits

Opportunity to step back (what is a big picture of your research and why it’s interesting?)

Financial security (money!)

Network with external people (potential jobs)
Managing your data

- Use a version control system (I use SVN)
- For your future job (coding with many people)
- For collaboration with external researchers
- To share data with me and colleagues
- Backup
- Put everything there (papers, data, code)
- Don’t open source your data before publication
Scientific misconduct

- You as a researcher will **DIE** if you do any of them
- Plagiarism - steal someone’s (incl. your own) work
- Falsification - modify results (e.g., photoshopping)
- Fabrication - make up results that you don’t have
- Zero tolerance (no degree is considered fine)
- If I found out that you did any one of them in your work, I will urge you to leave my group
Harassment

- Communicate before things get serious
- Anyone can be a harasser or/and a victim
- Unintentional ones can happen
- If you think I am harassing you
  - Talk to someone you trust or the univ.
- If you think someone in the lab is harassing you
  - Talk to me, someone you trust, or the univ.
Harassment

- Sometimes lines are unclear...
- When someone is criticizing your work
  - Can be a valid criticism based on facts
  - Can be a personal attack without any evidence
- When in doubt, talk to someone you trust
- Remember: your advisor is not always right
- Consider changing the advisor if it doesn’t work
Mental illness

- Unfortunately, research can be mentally harsh and you can suffer from mental illness due to
  - Rejections of papers you worked for years
  - Couldn’t get a job you like
  - Interpersonal troubles
- “Graduate study is not all of your life”
- Ask for professional help before it gets serious
Use of SNS

- Be careful what you say on any SNS (e.g., Twitter)
- You never know who is reading it
- Don’t mention your research in progress
- Don’t criticize anyone; leads to miscommunication
- Don’t reveal anything that is confidential
- Like anything else, use it wisely or it can hurt you
Toward graduation
Recommendation letters

- I will write an honest evaluation of your work
- **Ask early!** If it’s too late, like a few days before the deadline, I might decline your request.
- Clarify where you apply, what you want me to cover in the letter, and when/where to send one
- Tip: if you are asked to write a letter by yourself, don’t trust that professor - s/he is not **serious**
I don’t offer you a job

It’s a matter between you and your employer

I can however recommend you only if

Employer directly contacted me

You have done excellent work

The job fits you well
Job hunting

- Successful job hunting requires
  - Preparation (great record of publication etc.)
  - Action (apply anywhere you see you work)
  - Luck (employer may not have opening this year)
- You can do your best on the first two, but be prepared and think flexibly when you are unlucky
- Let’s face it: best ones might not land best jobs
Career options

- Masters
- Industry (generally not involving research)
  - Video game companies, movie production, or completely different things
- PhD
- Startup
- International options if you do well
Career options

- PhD
  - Academia
    - Very competitive
  - Industry (may or may not involve research)
    - International jobs are more available
- Postdoc
- Startup
Industry

- Potentially a good option salary-wise
- Some bad exceptions exist (be aware)
- Usually less flexible
- Your boss decides what you need to do
- Hard deadlines (missing ones = losing money)
- Collaborative work (your work is not yours)
- Might be unrelated to graphics
Industry research lab

- Might be a good mix of industry and academia
  - Disney, Microsoft, Nvidia, Intel etc...
- Sometimes flexible, sometimes not
- Salary can be quite good
- Historically, they do not last very long...
- Change of the policies, complete closures
- Patenting hell (your work is not yours)
National research lab

- Similar to industry lab
- Just not profit-oriented
- No (or less) teaching
- Long term job security compared to industry lab
- Research topic and publication might not be flexible
- Strategic goals might be there
- Might be forced to work on things you don’t care
Startup

- Usually, buyout by a big company is the goal
- Google, Facebook, Intel etc.
- High risk, high return (money and recognition)
- Do it if you have a vision and necessary resources:
  - Tough mind and body
  - Help from other people
  - Have network
Academia

- Most flexible with less monetary benefit
- Can work on what you want (up to funding)
- Your work is yours and you are your boss
- Many different kinds of tasks in one job
- Teaching, mentoring, advising, researching, fund raising, managing, etc. Chaotic I say.
- Extremely competitive job market
Academia

- Tenure (permanent position)
  - Usually comes after several years
  - May or may not happen in the same university
  - Criteria vary a lot, but “publish or perish”
  - Not so much job security until you get tenure
  - Be prepared and open for other career options
  - Non-permanent post is increasingly typical
Postdoc

- Temporary job between student and faculty
- Usually a few years of fixed term contract
- No guarantee of a “better” next job
- Not well paid (depending on the lab)
- Increasingly typical for a PhD student who wants to ultimately land on a faculty job
- Be prepared and open for other career options
PhD in another lab

- Moving to a different group widens your view
- You might want to work on a different topic
- Be aware of the cost involved
  - Money (if you move to a distant location)
  - Time (you often start from scratch)
- Study abroad is highly encouraged, but it’s far better if you do so right after your undergraduate study - I did so.
After graduation
For those in industry

- In general, you cannot ask me to be a consultant
- To avoid any conflict of financial interest
- Hiring decisions should not be influenced by me
- Even if you contacted me to introduce someone
- Any information about opening positions is however welcome and circulated in the lab
For those in academia

- For your own sake, publish papers **without** me
- Important to show your independence
- Prove to other people that you did your work
- Might not be applicable to if you are a postdoc
- I’ll be happy to write recommendation letters when you need ones - just ask me in advance
Last, but not least

- I’ll be happy to continue to be your peer (only if you want as you might hate me afterward)
- Visit me when you have a chance
- Enlighten current students with your experience
- I will be happy to give you advice as your peer
- Main message is your success = my happiness ☺