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 textbooks and lectures
  - **Passive** learning

- Graduate
  - Investigate subjects by thinking and experiments
  - **Active** learning
Your goal is to learn subjects listed by the school

Instructors already paved your “study highway”

Fixed set of topics to learn

Courses end after several weeks

Answers are clear and usually well-defined

Your success is measured by grades
Graduate

- Your goal is to investigate a topic of your choice
- You **decide how you proceed** your research
- Choose your research theme (with some help)
- No limit on how far you can go
- Answers are unclear and often undefined
- Your success is measured by **academic outputs**
Masters vs PhD

- Likely to have slightly different goals
- After finishing Masters (two years in Japan)
  - Industry job, but not necessarily in graphics
  - Gain a bit of experience in research
- After finishing PhD (two + three years in Japan)
  - 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:

1. Two years in MS only are too short for you to be able to complete research by yourself
2. I would like to work on actual research with you, not just helping you to obtain a degree
3. You will actually have more career options with a PhD (especially in computer science)
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**)
  - Learn subjects more (merely **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 already has some knowledge of computer graphics (If you haven’t done yet, what are you waiting for? Why not study computer graphics now?)

- Show me how you’ve learned computer graphics

- If you think it doesn’t fit, consider another group

- **Both** of us can be unhappy due to the mismatch
Personality 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 might become a great researcher.
Admission at UTokyo

- You need to pass the entrance exam if you want to join my group as a student
- Written and oral
- 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 publicly available), your chance will be extremely slim.
Other ways to work with me

- **If you are a student in another university:**
  If your advisor knows me, just tell him/her that you’d like to work with me. Otherwise, I generally do not supervise students in other universities.

- **If you are working for a company:**
  Ask the company if collaboration with me is possible, then we discuss. May involve funding from the company, depending on the terms.
Preparing for graduate study

- Establish **solid and basic** knowledge/skills for what you want to investigate during your study.
- Read technical papers and figure out what you need to learn to fully understand them.
- No need to have concrete research topics yet (unless you are quite familiar with the latest work).
- If you have a chance to work on a research project, work hard and experience what to do in research.
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
- Communication and publication are **important**
- Tasks in your study must be done in **English**
- I’ll help you to achieve **your goal**, not my goal
Enjoy your research

- Work on things that you **really love**
- “Enjoying” does not always mean “playing”
- Hard work can be **equally** enjoyable
- The key is that you work **hard** because you **love** it
- **Not** because you need to do it, or somebody like your supervisor told you to do so
- Great researchers I know all have this personality
You and your work

- **You are responsible** for your daily work
- Make a progress toward the deadline
- Allocate working hours per day
- Decide where and when you work
- Regularly report a progress to me
- Initiate discussion with me

**Note:** I am supervising many students, not just you
Advisor-Student relationship

- The relationship is not symmetric
- I am the only advisor for you
- You are not my only student
- In a certain sense, you need to grab my attention
- Initiate discussion and communicate with me!
- Remind me periodically what you are trying to solve, what we discussed, problems, plan, etc.
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

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

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

3. **Don’t** speculate
   - 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
- Do not wait until I ask you “how’s things going?”
- If you are asked, then you’d better not next time
- Many troubles are caused by miscommunication
Communication

- Good communication skill *doesn’t* mean you become a party boy/girl or good at jokes
- Common (funny) misunderstanding in Japan
- Don’t need to change your personality
- Instead, good communication skill means
  - Being able to convey your own ideas/thoughts
  - Being able to listen to and work with other people
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 expect something concrete.

Can take long time (e.g., six months) to choose a topic if you are not sure what you want to do.
You are free to work a topic you like, but since I want your work to be meaningful, your research topic has to satisfy the 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

If you really have no idea at all, I’ll give you ideas

Are you sure that you really have no idea?
Publication

- Most **important** but **stressful** aspect
- I expect you to **publish** papers in English
  - I will help you to write papers, but **don’t** make me write a whole paper for you
  - 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, because one paper might be extremely good

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
- 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
- Your submission becomes the basis of 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, so I personally understand even if you couldn’t make it

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
  - 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 job hunting
- Recruiters might look at your webpage
- Consider it as an online CV and be professional
- See my webpage to find out 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 when in doubt
Authorship matters and can raise conflicts

- How people perceive you in general
  - First author - “this person did all the dirty 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 learn it for your daily convenience
English or Japanese

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 the 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)
  - Presentation slides
  - Discussion including your non-native peers
- Daily communication can be done in Japanese, but be prepared to use English a lot in my group
Often times, bad writing is not just a problem of your language, but also a problem of your 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, for academic papers, it is not so important how your sentences sound natural in English. Focus on logic, 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 group meeting (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
- I simply don’t find it efficient
Weekly group meeting (or lack of)

- “No group meeting” means neither “no work” nor “no communication”
- I recommend you to have a weekly meeting with me
- Use online communication tools effectively
- 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 or two weeks before the deadline
- Adjust milestones as you go
- I’ll help you to make and adjust your schedule
“Lack of planning on your part does not constitute an emergency on my part!”

- Don’t expect me to miraculously save you right before the deadline - instead, discuss with me regularly to adjust the plan.
- Many people procrastinate and do a lot of last minutes work, but that doesn’t mean it’s good.
- If you assume that I will be less and less likely to be available toward the deadline (which is indeed true), you probably don’t procrastinate.
Working hours

- I don’t care how many hours you work
- 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
Social events

- Not really planned as a group
- 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 plan a welcome/farewell party
Social 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 (which is rather typical in Japan, but I don’t like the idea of “mandatory” events at all)
Internships/Research visits

- Could be arranged if you are doing well
- I know some people to talk to
- 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 (Weta Digital and NVIDIA) and they were 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 git)
- 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 issues

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

- Some potential sign of mental issues

- You haven’t communicated with me (be it online or offline) more than a month

- You are facing difficult problems but never discussed with anyone including colleagues

- You are not sure what to do now/next, but you haven’t asked help from anyone

- In general, ask for help - I am available for you
Use of SNS (Twitter, Facebook etc.)

- Be careful what you say on any SNS
- 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 day before the deadline, I might need to decline your request.
- Clarify where you apply, what you want me to cover in the letter, and when/where to send one
- When you ask a letter from someone, if you are asked to write a whole letter by yourself and this person says that s/he signs it, then don’t trust her/him - s/he is not serious
Job hunting

- **Note that I cannot control your job hunting**
  - 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
Successful job hunting requires

- **Preparation** (good record of publication etc.)
- **Action** (apply to anywhere you see you work)
- **Luck** (may not have opening that fits you)

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 might decide 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, sudden budget cut, etc.
- Patenting hell (what you’ve done 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 already 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, and managing - yes, it’s chaotic
❖ **Extremely** competitive job market
Academia

- Tenure (permanent position)
  - Tenure evaluation 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 research job toward a faculty position
- 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 aboard is highly encouraged if you want, but it’s far better if you do so right after your undergraduate study, just like I did.
After graduation
For those in industry

- In general, you shouldn’t ask me to be a consultant
- To avoid any conflict of financial interest
- Any hiring decisions shouldn’t be **directly** influenced by me
- Even if you contacted me to introduce someone (“directly” is the key)
- 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
- Not applicable to on-going projects from your graduate study - we collaborate until it’s done
- 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
- Visit us when you have a chance
- Enlighten current students with your experience
- I will be happy to give you advice as your peer
- Your success = my happiness 😊