



2023 CSE RPG Orientation

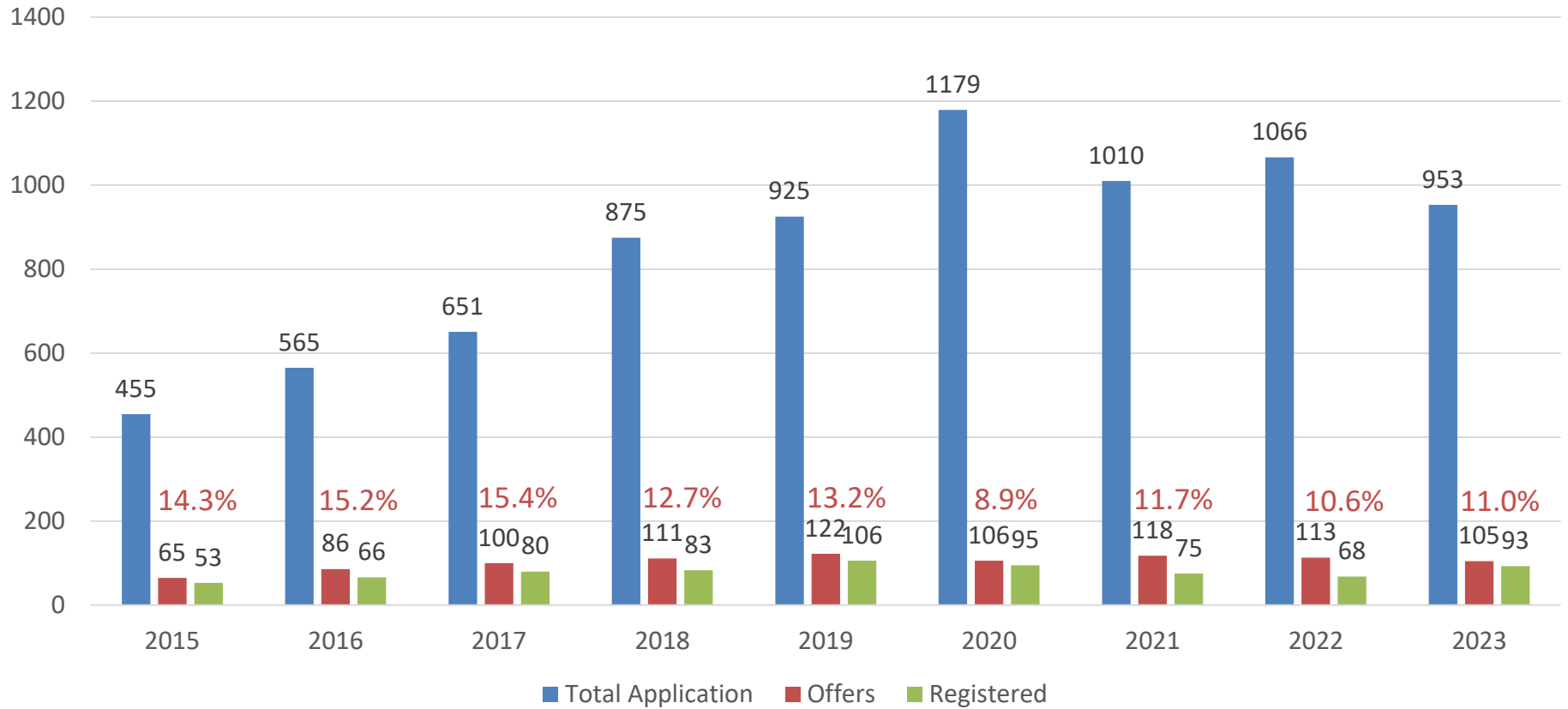
Department of Computer Science and Engineering
Sept 4, 2023

Agenda for Today

- Welcome
- Who We Are
- CSE PhD/MPhil Program Requirements
- TA Duty
- Experience Sharing from Senior PhDs (by TACs)
- CS System's Lab Introduction
- CSE Communication Tutor Introduction
- CSE Department Head's Closing Remark

Congratulations!

Admission Statistics



Who We Are

- Admin Office
- PG Committee
- CS System
- TAC (PG student representatives)

- Need help? Send email to
 - pgadmin@cse.ust.hk
 - cssystem@cse.ust.hk
 - cstac@cse.ust.hk

PG Admin Office Staff

<https://cse.hkust.edu.hk/admin/people/staff/>

- Ms. Connie Lau cswclau@cse.ust.hk
 - Admission, Enrollment, Studentship, TA, PG Office
- Mr. Isaac Ma csisaac@cse.ust.hk
 - Course Requirements, PQE, Defenses, Graduation
- Ms. Sharon Chiu sharonchiu@cse.ust.hk
 - Course registration
- Ms. Lily Chan cslily@cse.ust.hk
 - Seminars (COMP 6911 & 6912)

CSE PG Committee



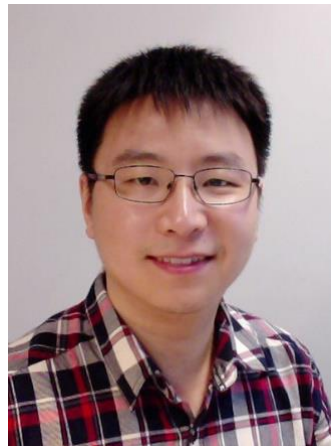
Yangqiu SONG
PG coordinator



Pedro SANDER



Charles ZHANG



Wei WANG



Wilfred NG

Teaching Assistant Coordinators (TACs)



Weiqi Wang



Haoran Li



Zhaowei Wang

CSE RPG Program Requirements

See PG intranet:

https://cse.hkust.edu.hk/pg/hkust_only/ (This PPT will also be shared at here)

1. MPhil/PhD Course Requirements
2. PhD Qualifying Exam
3. PhD Thesis Proposal
4. MPhil/PhD Thesis Defense

Also at RPG Handbook:

<https://fytgs.hkust.edu.hk/academics/Academic-Regulations-and-Requirements/Handbook-for-Research-Postgraduate-Studies/preface>

MPhil Course Requirements

- LANG 5000 if you fail ELPA*, for oral communication on campus
- LANG 5005, for academic study and research
- PDEV 6800, for GTA training
- CSE Seminar for 2 semesters (COMP6911+COMP6912)
 - Attend 7 (out of 12) seminars in the Fall and Spring semesters, and sign the attendance sheet
- PDEV 6770 (1 credits)
- ENGG 6780 (1 credits) } Professional development courses
- 5 PG courses (15 credits)
 - Covering at least 4 areas
 - At most one independent study course allowed
 - GGA must be at least 2.85

PhD Course Requirements

- LANG 5000 if you fail ELPA
- LANG 5005
- PDEV 6800
- CSE Seminar for 2 semesters (COMP6911+COMP6912)
 - Attend 7 (out of 12) seminars in the Fall and Spring semesters, and sign the attendance sheet
- PDEV 6770 (1 credits)
- ENGG 6780 (1 credits)
- **6 PG courses (18 credits)**
 - Covering at least 4 areas
 - At most one independent study course allowed
 - GGA must be at least 2.85

PhD Course Requirements

- ≥ 4 PG-core courses (5000-level) covering 4 different areas
- Grade $\geq B+$ for each of the 4 PG-core courses
- ≥ 2 PG-core courses in the first year
- ≥ 4 PG-core courses in the first two years
- ≥ 1 PG course outside CSE (SENG requirement)

CSE PG Core Courses must have a written final examination. Students must obtain a B+ or above to satisfy the area requirement.

* Note: Cross listed courses can count towards one of the areas only and cannot be double counted towards the required credits.

Artificial Intelligence (AI)

- COMP 5211: Advanced Artificial Intelligence
- COMP 5212: Machine Learning
- COMP 5213: Introduction to Bayesian Networks
- COMP 5331: Knowledge Discovery in Databases (cross listed with Database*)

Data, Knowledge and Information Management (DB)

- COMP 5311: Database Architecture and Implementation
- COMP 5331: Knowledge Discovery in Databases (cross listed with Artificial Intelligence*)

Networking and Computer Systems (NE)

- COMP 5621: Computer Networks
- COMP 5622: Advanced Computer Communications and Networking

Software Engineering and Programming Languages (SEPL)

- COMP 5111: Fundamentals of Software Analysis
- COMP 5112: Parallel Programming
- COMP 5631: Cryptography and Security

Theoretical Computer Science (TH)

- COMP 5711: Introduction to Advanced Algorithmic Techniques
- COMP 5712: Introduction to Combinatorial Optimization
- COMP 5713: Computational Geometry

Vision and Graphics (VG)

- COMP 5411: Advanced Computer Graphics
- COMP 5421: Computer Vision

Outside-CSE Course

<https://cse.hkust.edu.hk/pg/courses/non-comp/>

- Courses co-listed with CSE do not count
- LANG courses do not count
- SHSS (Humanities and Social Science) courses may count
 - Consult with PG admin before taking
- MSc courses in programs offered (or jointly offered) by CSE do not count
 - MSc-IT
 - MSc-BDT

Please note that this is a SENG requirement, and one would need to provide a specific course + course information after taking the course to seek SENG's consideration.

Outside-CSE Course (Cont.)

<https://cse.hkust.edu.hk/pg/courses/non-comp/>

- RE: the School Requirements, please note that the 3 credits may be satisfied by courses from other Schools upon approval. As the School Requirements aim to help students gain a wider exposure to multidisciplinary areas, and attain all-rounded learning by **broadening their knowledge base**, the course to be selected by the student should go in line with this rationale.

Justify 1) how it extends your knowledge, 2) why that cannot be offered by existing CSE courses

- The student may use the course from GZ campus to fulfil the program requirements, as long as it is in compliance with the CSE curriculum, based on the guiding principles just mentioned

Non-COMP PG Course List (under SENG)

PhD students are required to take at least a 3-credit course at 5000-level or above outside their programs offered by the School of Engineering (SENG).

The 3 credits may be satisfied by courses from other Schools upon approval. When you complete the course from other Schools, you have to submit the [departmental request form](#) and [GR-27 form](#) with endorsement from your supervisor(s) to CSE admin Office. The forms will be reviewed by the Department and SENG, and the final approval decision will be made by SENG.

In addition, the courses co-listed with CSE department and LANG courses should not be used to fulfill the School's requirements.

Student may use the PG course from GZ campus to fulfill the program requirements, as long as it is also in compliance with the CSE curriculum. However, kindly note that course co-listed with CSE should not be used by CSE students to fulfill the School Requirements, unless there are strong justifications subject to the approval by related authority.

The 3-credit or above non-COMP courses at 5000-level listed below are generally offered by other departments in SENG. The courses might not be offered in every Fall and Spring terms. You are advised to check the official timetable in ARO's webpage before the term commences. Should you have any questions, please send your enquiry to pgadmin@cse.ust.hk.

Filter Course

[Expand all](#)

CENG 5100 - Advanced Reaction Engineering [3-0-0:3]



CENG 5210 - Advanced Separation Processes [3-0-0:3]



CENG 5220 - Numerical Methods for Chemical Engineers [3-0-0:3]



CENG 5230 - Advanced Control and Data Science [3-0-0:3]



CENG 5300 - Advanced Chemical Engineering Thermodynamics [3-0-0:3]



<https://cse.hkust.edu.hk/pg/courses/non-comp/>

Credit Transfer and Area Waiver

- At most 6 credits can be transferred from outside HKUST CSE
 - Transferred course must be at PG-level
 - If that PG course was taken during your UG study, that course must NOT have been used to satisfy the UG degree requirement
 - Applications must be made to students' department during their **first term after admission**
- No limit on area waiver
 - But the course taken must match one of the PG-core courses here

Pre-requisite UG courses for PhD

- 3 Prerequisite UG courses for CSE PhD
 - Operating System (COMP3511)
 - Algorithms (COMP3711)
 - Theory of Computation (COMP3721)
- Grade \geq B in each of 3 courses
- Can apply for waiving
 - Hand in form to Isaac
 - Need to attach syllabus unless the course title matches above
 - COMP3511 handled by Prof. Bo Li & Prof. Kai Chen
 - COMP3711 by Prof. Siu-Wing Cheng
 - COMP3721 by Prof. Nevin Zhang

<https://cse.hkust.edu.hk/pg/forms/>

What if Courses are all full?

- PG courses typical have limited seats
 - Quota for CSE 5000-level courses: 60
 - Quota for ECE 5000-level PG courses: 30
 - Quota for CIVIL 5000-level PG courses: 32
- So you need to be early birds!
- What to do if you are late:
 - Stay on the waiting list, someone may drop
 - Take courses from outside-CSE department

PhD Qualifying Exam

<https://cse.hkust.edu.hk/pg/programs/requirements/pqe.html>

- After passing 3 prerequisite UG courses
- Must be taken within the first 22 months of study
- At most 2 attempts
- Request of extension requires special approval with a strong justification
- One written survey and a public oral exam based on the survey
- You officially become a “PhD candidate” after passing the qualifying exam

Thesis Proposal and Defense

Worry about them later...

Thesis Research Guidelines by FYTGS

- [Guide on Thesis Supervision](#)
- [Guidelines on Thesis Preparation](#)
- [Guidelines on MPhil Thesis Examination Committees](#)
- [Guidelines on PhD Thesis Examination Committees](#)
- [Guidelines for Scheduling, Preparing for and Executing MPhil Thesis Examinations](#)
- [Guidelines for Scheduling, Preparing for and Executing PhD Thesis Examinations](#)
- [Guidelines on Conducting MPhil and PhD Thesis Examinations](#)

https://cse.hkust.edu.hk/pg/hkust_only/

PG Studentship (PGS)

- Unless you are self-financed, you are paid 12-month PGS no matter whether you are an RA or TA
- PGS: your advisor + (maybe) university
- You are now PG students, fully devoted to research:
 - Apply for leave to your advisor if you are an RA
 - Apply for leave to both your advisor and the instructor of the course if you are a TA

Teaching Assistant (TA) Duty

- Minimum graduation requirement: 1 semester for MPhil, 2 semesters for PhD
 - Applies to HKPF and Huawei Fellow students
- Full/partial PGS from university will be TA for 2/1 semesters in an academic year
- If no PGS from university, your advisor decides whether you do TA or RA
- In order to be TA, you must take PDEV6800 (unless if you are HKUST MPhil→PhD student)

Teaching Assistant (TA) Duty (Cont.)

- Due to the increasing COMP course demands, we need more TAs than before
- It is possible that eligible students and even fellowship/scholarship recipients will need to TA more than twice
- Please DO communicate with your advisor in advance about your plan of taking (study/internship...) leave and inform the department (Connie) before the TA assignment exercises

Other References

- **Academic Regulations Governing Postgraduate Studies 2023-24**
- <https://registry.hkust.edu.hk/resource-library/academic-regulations-governing-pg-studies>
-
- **Postgraduate Program & Course Catalog 2023-24**
- <http://prog-crs.ust.hk/pg>
-
- **Handbook for Research Postgraduate Studies 2023-24**
- <https://fytgs.hkust.edu.hk/academics/Academic-Regulations-and-Requirements/Handbook-for-Research-Postgraduate-Studies/preface>
-
- Alternatively, you may access them from the HKUST Fok Ying Tung Graduate School (FYTGS) website at <https://fytgs.hkust.edu.hk/>.
-
- If you have any questions pertaining to the Academic Regulations, Catalog and Handbooks, please contact [FYTGS](#). Thank you.

Experience from 10+ senior PhDs
>= Class of 2022

Research life

How to find papers at the early stage?

- Find the keywords
 - From your supervisors or peers
 - From survey papers
 - From official blogs or social media accounts
 - Try advanced search
- Filter top-venue papers
- Read leading researchers' work

How to comprehend a paper as a beginner?

- Start from abstract, introduction, and contributions
- Read papers everyday
- Consult senior members or supervisor
- Use other media like videos

How to come up with ideas?

- Read more and discuss more.
- Try old problem + new technique OR new problem + old technique First.
 - Attempt new problem + new technique carefully
 - Talk to people (or read paper in other domains) with actual needs
 - Think about the surveyed techniques
- Personal interest to the contributions to be made.
- Why the problem is important and how to make your method solid?

How to adjust the mindset after rejection?

- Fact: Research is all about trial-and-error
- Reflection: What's the weakness of this paper
- Mindset: Relieve stress wisely

Beyond research

How to be a TA?

- Email instructors in advance if you are particularly interested in some courses' TA.
- Choose courses wisely
 - Intro course: standardized routines, simple contents
 - Elective course: flexible routines, harder contents
- Set aside a fixed time for office hours, etc.
- Communicate with the instructor
 - What you need to do
 - What you have done
- Communicate with the students
- Be passionate (the hardest part :D)

TAC

- TA Coordinator, as its name indicates
- Also assist the department in various affairs
- Help facilitate the communications between the students and faculty/staff.

How to balance TA duty, coursework and research?

- For most people, research is the most important activity during the PG career.
- Do not over-estimate your availability and productivity.
- Split coursework wisely according to your lab's pace.

How to prepare for PQE?

- Confirm the date & the committee, submit the survey two weeks before that date
- Fine-read 20+; browse 80+
- Consider your interest and resources
- Trust your advisor
- Show confidence of your work

Future development

Academia or industry?

- Academia
 - Stable research positions
 - Flexible life schedules
 - Pursuing tenure
- Industry
 - More practical, less ideal
 - Regular schedules
 - Less short-term pressure
- More likely if you leave academia, it would be quite hard to go back
- Anywhere would embrace hardworking students

Jobs in academia

- Common positions in academia
 - Post-doc
 - Research position (some need to supervise students; the pay is generally less than 50% of the industry)
 - Tenure track (need teaching, best for long term development)
- For Post-doc
 - Usually depends on opportunities and recommendations
 - Pay attention to the information sources, e.g., mail lists
 - Fully understand the JD and arrange graduation time accordingly
 - Post-doc position in corporations could also be a good choice
- For tenure track, high-quality post-doc & publications are appreciated

Personal Planning in PhD study

- Plan different things at different stages
 - Coursework & TA requirements
 - Research that fulfils the minimum requirements
 - The allocation of extra time
 - Job seeking
- Regard the PhD live as self-employment and self-development
- Develop your skillset wisely
 - Coding
 - Research
 - Global outreach
 - Paperwork writing
 - Students mentoring
 - Anything else?

Unofficial Group Chats

- We TACs are also there.
- Feel free to connect with your schoolmates, help each other, and share your life & thoughts there.
- Official affairs will still be announced by email. **Check both your @connect.ust.hk and @cse.ust.hk emails often!**



群聊: 2023 CSE RPG Family



该二维码7天内(9月7日前)有效, 重新进入将更新



2023 CSE RPG Family

WhatsApp group



Introduction by CS system

Introduction by Communication Tutor

Thanks!

Work hard, and enjoy your new life with us in HKUST!

Closing Remark by Department Head