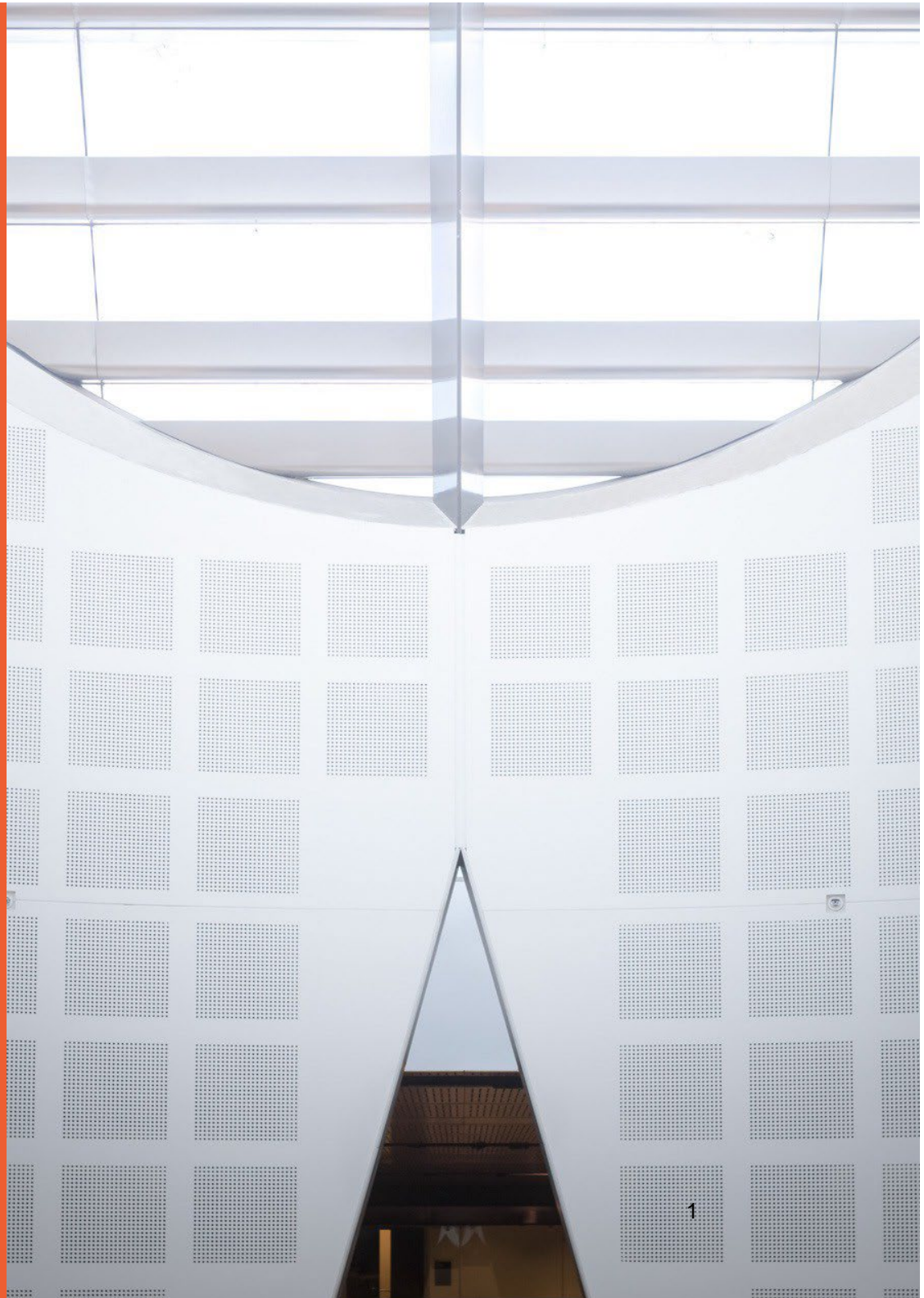
INFO5993/INFO4990
CS RESEARCH METHODS

Week 1:
Administravia and Research Overview

Coordinator: Dr. Vera Chung
School of Computer Science

THE UNIVERSITY OF SYDNEY



Acknowledgement of Country

I acknowledge the traditional owners of the land on which the University of Sydney is built — the Gadigal people.

As we share our own knowledge, teaching, learning, and research practices within this University may we also pay respect to the knowledge embedded within the Aboriginal Custodianship of Country.

Agenda

Part 1: Course Outline

Part 2: Introduction to Research

Part 1:
INFO4990/5993 Course Outline

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People

- Coordinator: **Dr. Vera Chung**
- Lectures: given by a variety of staff (coordinator, TA, Assistants, Learning Hub staff, and additional facilitators)
- Assessments: some marked by your supervisor, and some by unit coordinator and tutors.
- Students in this course:
  - PhD, MPhil
  - Honours (18cp)
  - MIT/MITM taking research path
  - This course is meant to support your research: ONLY for research students starting this semester a CS research project in the school
- Supervisors:

  - Who is your research supervisor ? See Ed Post and fill out the form by Wed 6th August 2025 (23:59)

Who are we?

Dr. Vera Chung (Lecturer and coordinator)

- Completed supervision of more than 20 honours students and 10 PhD students
- works in Computer Vision, Image processing, Video Processing

- **Abigail Gentle (TA/tutor/facilitator)**
- 3rd year PhD student in the School of Computer Science

Places

- **Lecture**: Monday, 2-4pm, School of Computer Science Building, Lecture Theatre 123.

- In weeks10-13 we will have parallel sessions in Lecture Theatres 123 and SIT lab 115 (schedule to be posted on Ed in due course)

- No Lab

- **Learning platforms**: Canvas and Ed

- Do not miss class, except for illness, emergencies, unavoidable clashes, etc.

- Get help from the Coordinator and your supervisors if you feel you are falling behind

Unit Description

This unit will provide an overview of the different research methods that are used in Computer Science.

Students will learn to find and evaluate research on their topic and to present their own research plan or results for evaluation by others, write a literature review, learn about research quality metrics and ethics.

This unit of study is required for students in Computer Science who are enrolled in a research project as part of their Honours or MIT/MITM degree in the School of Computer Science.

Weekly Schedule

- Week 01: Introduction to CS Research Methods; Identifying Research Problems (**Vera**)
- Week 02: Information gathering (*Librarian*: **Isabella Raisin**); Build an annotated bibliography (*Learning Hub*)
- Week 03: How to Write a Literature Review and Research Proposal (*Learning Hub*)
- Week 04: Clear writing workshop (*Learning Hub*)
- Week 05: Peer Review Workshop on Literature Review assignment drafts (*Learning Hub*)
- Week 06: How to read a computer science paper (Dr **Vincent Qu**); How to write a literature review in computer science (Dr **Vincent Qu**)
- Week 07: Mastering oral presentations workshop (*Learning Hub*)
- Week 08: How to give peer reviews for oral presentations (**Vera**)
- Week 09: Research Ethics (Prof. **Peter Eades**), Copyright (**Paul**)
- Week 10-13: Student presentations and peer feedback (**Vera, Abigail)**

Expectations

- Students attend scheduled classes
  - doing assessments
  - preparing and reviewing for classes
  - revising and integrating the ideas
  - practice and self-assess

- Students are responsible learners
  - Participate in classes, constructively
    - Respect for one another (criticise ideas, not people)
    - Humility: none of us knows it all; each of us knows valuable things
  - Check course webpage at least once a week
  - Notify academics whenever there are difficulties
- Self-study of 6-10 hours a week (which all goes towards your research !)

Assignments (details on Canvas)

A1 (6%) due week 2 (marked by supervisor) Identifying leading researchers of the top Research communities/venues and exemplary papers.

A2 (9%) due week 4 (marked by supervisor) Writing an annotated bibliography and identifying valid Research Problems

A3 (35%) due week 8 (marked by supervisor)

Literature review

Outline of research proposal

A4-6 (50%) Presentations for research topic

A4. Slides (15%) due week 9

A5. Oral presentation (25%) in weeks 10-13 marked by Vera and Abigail

A6. Peer reviews (10%)

about your research and peer review of others' presentations (**50%**)

- No exam during exam period.
- All Individual Assignments (i.e., no collaboration allowed)

Assignment (4,5,6) acts as your exam

- Oral Presentation: ~14 minutes including Q+A and changeover
- Presentation schedule: will be available ~Week 6
- You must get at least 40% of the marks available for the slides and oral presentation in order to pass the unit

Late submission (non standard!)

Assignments have a **non-standard** late submission and penalty.

No simple extensions for Oral Presentations

Written assignments (***A1, A2, A3***) can be submitted a maximum of 2 days late without penalty. A late penalty will be applied after 2 days late. **No submission will be allowed after 5 days late without an approved SC.**

A4 – Late submission will have **NO slides** for your oral presentation.

A5 - There will be **NO rescheduling** of **oral presentations** without approved SC. For presentations, students must abide to the day and time indicated on the presentation schedule or will receive **0**.

A6 – Paper-based peer review form must be returned to the facilitator after each peer review session.

Special Consideration (University policy)

- If your performance on assessments is affected by illness or misadventure
- Follow proper bureaucratic procedures
  - Have professional practitioner sign special USyd form
  - Submit application for special consideration online, upload scans
  - Note you have only a quite short deadline for applying
  - http://sydney.edu.au/current_students/special_consideration/
  - *Simple Extension*

- Notify coordinator by email *as soon as anything begins to go wrong*
- There is a similar process if you need special arrangements eg for religious observance, sport representative.

Advice

- Attention
  - Pay attention to the learning outcomes in Canvas
  - Self-check that you are achieving each one
  - Think how each assessment task relates to these
- Time management
  - Watch the due dates
  - Start work early, submit early
- Networking and community-formation
  - Make friends and discuss ideas with them
  - Know the other research students working in CS and beyond
  - Keep supervisors and lecturer informed, especially if you fall behind
- Enjoy the learning!

General information

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Staying safe at university

Emergency evacuation

In the unlikely event of an emergency, you may be required to evacuate. All University staff, students and visitors are required to respond to emergency alarms and follow instructions.

- **Check** for any sign of immediate danger

- **Shutdown** equipment/processes that cannot be left unattended

- **Locate** your closest exit

- **Follow** the green exit signs to find your way out of the building **(do not use lifts)**

- **Proceed** to the assembly area, a safe distance from the building, while waiting until the emergency is over.

More information on staying safe in the event of an emergency is available at:
www.sydney.edu.au/about-us/campuses/emergencies-and-personal-safety.html

Emergency evacuation

In some circumstances, we might be asked to remain inside the building for our own safety. We call this a lockdown or shelter-in-place.

You will be notified of an emergency lockdown via **building announcements or other mechanisms** including **verbally by Protective Services.**

It is important that you **follow directions from a warden, Protective Services and/or Emergency Services,** remain calm and **say inside the building.**

More information on staying safe in the event of an emergency is available at: www.sydney.edu.au/about-us/campuses/emergencies-and-personal-safety.html

Your role in ensuring a safe campus

We are committed to providing a safe and healthy learning environment that is free from bullying, unlawful harassment and discrimination.

You can ensure the safety of yourself and your peers by understanding your rights and responsibilities, which are detailed in our Student Charter.

If you experience or witness any form of behaviour that breaches the Student Charter or our codes of conduct, you can report it to our Student Affairs team.

Our support services, including the Wellbeing team and Safer Communities Office, can support you in dealing with any threats to your safety. You can connect with these teams via the Student Portal.

https://www.sydney.edu.au/students/complaints.html

Accessing tools and support

Accessing tools and support for your studies and wellbeing

Navigate university life with ease using our Student Portal, where you can:

Stay organised with your **Study Dashboard**, which is personalised so that you can view what your semester looks like across all of your units and plan your assignments and to-do lists.

Access University services to help you with your academic and personal wellbeing via the **Services and Support** dashboard. This includes our Wellbeing support teams and our Inclusion and Disability team. This dashboard also has guidance on reporting sexual misconduct, bullying and harassment and seeking support from our Safer Communities Office.

Find new events on the **What's On** page and view all of your classes, registered events and exams in one place using the **Calendar**.

myuni.sydney.edu.au

Accessing assistance at our in-person hubs

Need in person assistance on campus? Visit our campus connect hubs, where we can help you with:

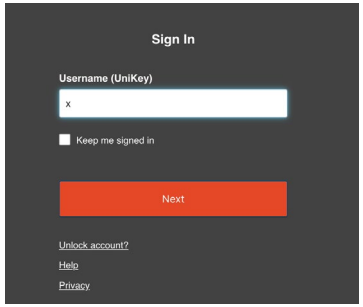
- Completing enrolment
- Understanding your timetable
- Fees and scholarships
- Course planning
- ICT support
- Peer and learning support

Campus Connect Hubs are open **Monday to Friday, 9 am to 5 pm** in Fisher Library O, Susan Wakil Health Building O and the Belinda Hutchinson Building O.

You can also collect your **Student ID card** from our Cards Hub, located in Jane Foss Russell O.

Manage access to our University systems

Multifactor Authentication (MFA) is an additional security step to verify your identity at the University.



Step 1
Sign in with your username (UniKey and password)

okta

Step 2
Verify your identity using your smartphone

For more information
Scan the QR code

Remember:

- Set up a secondary email, phone number and security question in your Okta profile so that you can reset your Unikey.
- Always have your Okta enabled device with you and so not uninstall the Okta verify app.
- If you change your mobile device, install Okta Verify on your new device before removing it from your old one

Academic integrity and the use of AI

Understanding your academic integrity responsibilities

Academic integrity refers to behaving honestly, ethically and responsibly in relation to all elements of your study at the University, including assessments.

It's important that you:

- **Always submit your own work**, sit your own tests, and take your own examinations.
- **Acknowledge any contributions** in your assignment which are not your original thoughts, ideas or words.
- **Complete the Academic Honesty Education Module (AHEM)**, which all new students must complete by census date (31 March 2025).
- **Listen to your coordinator's instructions** on whether digital tools, including grammar checkers and generative AI, are allowed in assessments.

Complete the AHEM

Using generative AI

Generative AI tools, such as Microsoft Copilot Chat, can create digital content, including text, images, and video. Different guidelines for use of generative AI apply to learning and assessment:

Generative AI for general learning

- You can use generative AI to help you learn. For example, it can explain things, apply knowledge, plan your study and make practice questions. Use our student co-designed AI resource so you are aware of its strengths and limitations.

Generative AI for assessment

- *Exams and in-semester tests:* you **cannot** use generative AI in supervised exams or in-semester tests, unless your unit coordinator expressly allows it.
- *Other assessments:* you **can** use generative AI, unless your unit coordinator expressly prohibits it.
- Always acknowledge your AI use. Failing to do so, or using AI when not permitted, is an academic integrity breach.
- Each unit will have different rules. Look for the AI icons ✦ in the assessment table in your unit outlines to see if AI is allowed.

AI resource made by students: https://bit.ly/students-ai

Which generative AI tools are best to use?

The University provides **free** access to Microsoft Copilot Chat to accelerate your learning and help you complete those assessments where use of generative AI is allowed.

Why use Microsoft Copilot Chat?

- It is a University-supported, industry standard, GPT-4 powered tool
- It keeps your data secure and protects your privacy
- Log in with your UniKey using Okta so that you are using Copilot in protected mode, which introduces necessary guardrails to protect you within the system

Why not use other tools like ChatGPT and DeepSeek?

- Don’t risk your privacy or the security of your personal and assessment data by using a free or emerging tool like ChatGPT and DeepSeek

Powerful and secure
https://
copilot.microsoft.com/

Mandatory Canvas modules

Completing your mandatory Canvas modules

We've developed a series of Canvas modules to help you understand what to expect from the University and what is expected from you. They include:

- Respect@Sydney, designed to give you an understanding of consent, boundaries and respectful relationships *(mandatory for commencing students).*
- Academic Honesty Education Module *(mandatory for commencing students).*
- Engaging with Civility, a module where you can unpack the values and expectations outlined in our Student Charter, including information about penalties for breaching our codes of conduct and displaying threatening, discriminatory or racist behaviour.
- Anti-Slavery Awareness Module.

Many of these modules are mandatory for commencing students and your results may be withheld if you do not complete them.

Useful links

- www.sydney.edu.au/students/a-guide-for-new-students.html
- www.sydney.edu.au/students/glossary.html
- www.sydney.edu.au/students/support.html
- www.sydney.edu.au/students/academic-integrity.html
- www.sydney.edu.au/students/exams.html
- https://www.sydney.edu.au/students/scams.html
- https://www.library.sydney.edu.au/libraries/library-facilities.html
- https://www.sydney.edu.au/students/log-in-to-university-systems.html
- https://www.sydney.edu.au/students/student-it.html
- https://www.sydney.edu.au/students/key-dates.html

Part 2:
Introduction to Research

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What is Academic Research ?

It is not easy to give a general definition of “academic research” or to prescribe how to do it.

The word “research” in common language means something like diligent search or gathering information, to answer a question — this is just one small part of what “academic research” is about.

My suggestion: treat your relationship with your supervisor as an apprenticeship. Watch them explain, read their work, ask them questions, explore together with them.

That said…

Academic Research

- In academic research, you must not only answer a question, but you must find something new and interesting
- You join a community of researchers
  - You must advance the collective understanding of this community
- Each community has a cumulative tradition with a set of interesting questions, tools and methods, practices, a style and language for writing up the research
  - Research is a conversation and ongoing social activity!
- You need critical and careful reading of published research
  - to learn what the community already knows
  - to fit your work into the community
  - to be prepared for your own work to be critically evaluated

Assignment 1 and 2

The objectives of this assignment are as follows:

- Familiarize yourself with leading researchers in quality research groups, conferences, and journals that are relevant to your research area;
- Learn how to find good research papers that are relevant to your research area;
- Practise developing good research questions;
- Develop skills in evaluating published research; and
- Write an effective annotated bibliography.

The Research Process

- Key components
  1. Question of interest (research question)
  2. Claim (contribution)
  3. Evidence
  4. Argument (linking evidence to claim)

- Systematic application of one or several research methods

1. Research Question

- Every piece of research should address a question of interest to the community
  - Providing high-quality answers to non-trivial questions
- Each community has traditional questions:
  - What happens? Why does it happen? How should one do something? What something should one do?
- Many questions fit into an on-going agenda. Find out what that
  agenda is in your field !
  - Consult recent Journal or Conference Calls for Papers

2. Claim (Contribution)

- Every piece of research makes a claim (the "contribution") answering a question of significance
- Claims can be very diverse among fields and within fields
  - This is **what** happens (e.g., how often is the data corrupted when using weak concurrency control)
  - This is **why** something happens (e.g., what key factors lead to project success in open-source development)
  - This is a **better way to do** something (e.g., modifying algorithm X in a particular way improves its speed, accuracy, etc; our system interface can explain very complex hidden data to a human)… be explicit about the meaning of "better"

3. Evidence

- You must back up the claim
- Evidence can be very varied, for example:
  - A **prototype** implementation to show that a system can be built to achieve claimed functionality and experimentation using the prototype
  - A **controlled experiment** to test the causal relationship between one or more independent variables and a dependent variable
  - A **simulation model** which is executed to show a system has certain properties
  - **Measurements** of a running system to show it has good performance
  - **Observations or data gathering** of variables of interest in an organization to test conjectures
  - A **mathematical proof** to show that some algorithm has desired properties
  - **Empirical data** of a machine learning algorithm to evaluate its accuracy
- Each community has its own standards of quality and reasonableness.

4. Argument

- You should show that **the evidence** you offer **supports the claim** you make
  - It is essential that you deal with natural or obvious objections to the correctness or importance of the work
  - that is, you must think like your readers, and anticipate their reactions

- In systems work, this is often called an **evaluation** of the design

Claim and Argument – Examples (1)

- This system design leads to better performance on some metric
  - make sure your measurements are fair (don't compare with "strawman" design but with state-of-the-art)
- This system design offers better functionality for some uses
  - make sure you show it can be implemented with adequate performance

Claim and Argument – Examples (2)

- This behaviour can be explained by this theory
  - make sure you don't have confounding factors (i.e., unmeasured variable that has influence on the cause/ effect, e.g., level of experience, or method novelty, or subject expectations "placebo effect")

- This is what happens
  - make sure you don't interfere too much with what happens when you gather data, or misinterpret it due to observer expectations

Common Mistakes

- Gathering lots of data without a focused question or method
  - A collection of facts is not a contribution!
  - it must reveal some pattern or understanding, that you make explicit
- Build a system without a focused question or planned evaluation
  - E.g. let's see how to use aspect-oriented programming in a sensor network
- An innovative system by itself is not a contribution!
  - it must be a worthwhile innovation
    - E.g. better performance, better functionality

Negative Results

- Sometimes, you don't get the result you hoped for
  - You gather data that does not reveal any pattern or understanding
    - E.g. no factor seems to correlate well with project success
  - You design a system that turns out to be worse than the state-of-the-art
    - E.g. your machine learning algorithm runs slower than expected
- You can still salvage a thesis
  - Try to find some way to contribute to our understanding, or suggest fruitful directions for further work
    - E.g. what features of the algorithm make it slow
  - Make sure the issue is intrinsic to the problem you are looking at, not just bad coding/ experiment design/etc.

Ground-Breaking Work

- Very rarely, a piece of research will establish a whole new agenda for a field, or even a new field
  - the contribution can be as much in the possibilities for further work, as in the result itself!
- In some sense, this is work that asks a new type of question, or introduces a new method

- We don't recommend this for Hons/MIT/MSc/…PhD
  - save the idea till you have enough time and flexibility to deal with inevitable digressions/difficulties

Actual Research Process

- Research is a non-linear process !
  - It is normal that gathering evidence leads to changes to the claim
    - sometimes one refines the claim (e.g., limit the scope from “X has higher performance” to “X has higher performance if parameter Y is low”)
    - sometimes one must change the claim entirely
  - sometimes while gathering evidence, one finds new questions worth answering!

- New claims or questions need further evidence, revised plans, maybe even different methods

If I have seen further, it is by standing on the shoulders of giants.

Isaac Newton

The Literature

- Literature can help in finding a research problem
  - identify clear “next step” or “gap”

- It can also help you solve a problem
  - show how the field works (so you fit in)
  - provide evidence you can quote without repeating the work
  - provide the motivation to show importance
    - eg our performance is better than that of [Cite]
    - eg [Cite] defined the following concept, about which we prove …
    - eg [Cite1, cite2, cite3] have all worked on systems like this.

- **Critical** (yet generous) reading.

Reading the literature

- Keep an annotated bibliography from the start
  - Complete bibliographical reference (including pages, dates)
  - USE a bibliographic system (EndNote, Mendeley, BibTeX, etc..)
- Detailed notes on each work
  - even if it seems irrelevant to your thesis
  - what is claimed, what evidence, what argument, any doubts?
- Don't rely on second hand summaries! Always go to the original source!
  - Get attributions right in your own writing (don't just accept citations from other work, even with full reference!)
- Use comments and keywords to organise your thoughts.

Why Review the Literature ?

- Demonstrate that you know the field
- Justifies and provides the rationale for your research
  - how does your work *differ* from previous work
  - how does your work *connect to* previous work
- Allows you to establish the conceptual framework and methodological focus
- Gives you the knowledge of your research community's scientific practices
- *Assignment 3* ➔ *thesis chapter*

Organising the Literature

- Isolate issues and highlight the findings and contribution that are central to your research
- Group together papers that deal with a common or related theme or issue
- Use diagrams, tables, concept maps to organise the materials
- Try out different structures for organising; they should be most relevant to the goals of your research
- Chronological order is not particularly useful
  - but citation chains are useful

- *Cf: Learning Centre's workshop*
- *Exemplars provided on Canvas*

Guide to Research Literature

- Types of publications
  - **Conference and Workshop papers**
  - **Journal papers**
  - **Technical reports**
  - .....

Conference Papers

- Call for papers ~1 year before meeting
- **Paper submission** ~4-8 months before meeting
  - Page limit e.g. 8-12 pages
  - Certain details (proofs, design technicalities) often omitted or in the Appendix
- **Program Committee** reviews the papers
  - Criteria: **significance, originality, contribution, soundness, readability**
- **Final version for proceedings** due ~3 months before meeting
  - revised by author in light of reviews but usually not
  - checked again
- Annual (or bi-annual) conferences

Selection Process

- Typically **3-4 reviewers** (some experts on the topic)
- **Acceptance rate** – varies (Some 10-15%, others 50%)
- **Single blind or double blind** reviewing model

Example of questions on a review form (with Scores and Recommendation):

- How novel is the described research? Are the authors aware of related work?
- What is the scientific contribution of this submission? Is it clearly explained, in terms of how the paper advances the field or contributes to related fields?
- Is the work technically sound? Are there enough methodological details? Are claims convincingly substantiated, either through theoretical argument or empirical data?
- How significant is the research? Will the paper be likely to have an impact on the community?
- Do the authors describe the limitations of their approach in a satisfactory manner?

Standard of conferences

Identify the most reliable and important conferences in your area

How? Check with your supervisor!

Proxys:
- CORE ranking (sometimes inaccurate):
http://portal.core.edu.au/conf-ranks/
- Affiliation (ACM, IEEE, etc..)
- Acceptance rate and review process

Workshop Papers

- A workshop is typically a smaller meeting than a conference, usually on an emergent topic
- Sometimes workshop papers are just like conference papers
- Other workshops are more preliminary
  - can publish a position paper (draft of an idea without evidence, or proposal for future work)
  - Can be less rigorously reviewed, the goal is mainly to allow the community to meet

Journal Articles

- Typically **longer** than a conference paper
- Often based on a conference paper with additions, corrections and improvements
- Refereed by
  - at least 2-3 reviewers, **experts in the field**
  - they spend months on the paper checking details, etc.
- Decisions: accepted, accepted with minor revisions, major revisions and resubmission, rejected
  - Revisions: refereed again by the same reviewers
  - Accepted, published after several months (journal issues have limited capacity)
- Time from submission to publication varies… 6 months - 2 years

Standard of Journals

Many journals in each area with different standards

Ask you supervisor which journals are the top-ranked and most important in your area!

Proxys:

- CORE ranking, not always accurate and disctoninued since 2022 for Journals
- Scopus
- Journal quality indicators, such as SCImago Journal Rank (SJR) and Journal Citation Reports (JCR)
- Journal's impact factor (but, see https://sfdora.org/)

PhD or MSc Thesis

- Very extensive account: e.g., 3-5 chapters
  - Show much of the research process
  - Extensive survey of the literature
  - Very complete evaluation of the work
- **The goal is to establish that the author is ready to become independent researcher**
  - i.e. PhD and MSc provide research training
- Typically evaluated by 2-3 examiners, and may contain chapters that are published in conferences/journals

Forward and Backward Citation Search

- Papers referenced by this paper (backward search)
- Papers that have cited this paper (forward search)
- Other papers written by authors of the paper
- Keyword searches using keywords from this paper (but sometimes papers use different terminology for the same concepts)

- Iterative use of above on new good papers found.

Using Search Engines (e.g. Google)

- Googling keywords can be useful - but can also generate a lot of useless material. You MUST critically evaluate what you find this way!
  - is it published in a peer reviewed forum.
  - is the publication venue high quality.
  - are the authors generally respected.
- Wikipedia entries may have useful pointers to key works.
- Use Google Scholar:
  - to check citations (of specific paper or author generally)
  - advanced search to limit by publication source
  - limit by year of publication

Warnings

- Quality of conferences and journals varies
  - Read papers with a critical eye!
- Some communities are very clique-dominated
  - Unpopular opinions are not welcome
  - Clique leaders can publish anything, even half-baked ideas without evidence

Fake Conferences and Random Papers

- Randomly generated (and non-sensical) papers accepted to conferences and journals ?! (http://pdos.csail.mit.edu/scigen/)
- Funny (https://www.theonion.com/fifth-grade-science-paper-doesnt-stand-up-to-peer-revie-1819567814)

Quality Metrics

- How important is an article? How influential is an author?
- Based on citation analysis - number of times a paper or author is cited
  - How to calculate citations: Google Scholar + other
  - software Check the Library's services
- Assumption: important authors and articles are cited more often than the others
  - Increasingly used by governments, funding bodies, promotion committees to evaluate the quality of author's work
- Drawbacks
  - Citing errors – authors with the same names are not separated
  - Cliques (friends, colleagues) cite each other in turn to build their citation index
  - Negative citations are included (citations to incorrect results)

Google Scholar

- https://scholar.google.com

- Find Articles
- Find Authors
- Find top publication venues (in terms of impact) in a given field

- Discipline agnostic (very useful for multi-disciplinary domains)
- Includes open access venues, university publishers etc.
- H-index and number of citations

Other tools

- Scimago
  https://www.scimagojr.com/
  Journals, some conferences, countries ranking

- Scopus
  https://www.scopus.com

- Research Gate
  https://www.researchgate.net

- DBLP: Computer Science Bibliography
  https://dblp.org/

Journal's Impact Factor

- Attempt to measure the importance of a journal
  - E.g. 2 year IF of journal in 2021 = number of citations in 2021 to articles published in journal in 2019 and 2020, divided by the number of articles published in journal in 2019 and 2020.

(similarly 5 year IF etc.)

More information and tools on the Library website

CORE's ratings

- Computing Research and Education Association of Australasia (CORE)
  - Australia and New Zealand
- Ranking of conferences in CS
  http://portal.core.edu.au/conf-ranks/
- Outdated ranking for journals
  http://portal.core.edu.au/jnl-ranks/

Author's Citation Indexes for Measuring Impact

- total number of citations h-index
- proposed by J.E. Hirsh in 2005:

Largest number h such that h publications have at least h citations each.

- What is the h-index?

Paper 1: 20 citations
Paper 2: 15 citations
Paper 3: 8 citations
Paper 4: 4 citations
Paper 5: 3 citations

An h-index of 4 means that there 4 papers cited at least 4 times each (and not 5 papers cited at least 5 times each).

- Where can you see citations: Google Scholar, Research Gate, Scopus etc.
- There are variants of h-index… i10 index, g index, …

Publish or Perish

- For more resources on citation and impact analysis: http://www.harzing.com/resources.htm#/pop.htm
- Perform a citation analysis of your supervisor's publications!
- Beware: What are the limitations of citation analysis in general?
- "The Rise and Rise of Citation Analysis" by L. Meho (2007)
  "It is a sobering fact that some 90% of papers that have been published in academic journals are never cited. Indeed, as many as 50% of papers are never read by anyone other than their authors, referees and journal editors. We know this thanks to citation analysis, a branch of information science in which researchers study the way articles in a scholarly field are accessed and referenced by others."

Assignment 1 – due week 2
Assignment 2 – due week 4

The objectives of this assignment are as follows:

- Familiarize yourself with leading researchers in quality research **communities/venues**, **conferences/journals** that are relevant to your research area;
- Learn how to **find** good research papers that are relevant to your research area;
- Practise **developing good research questions**;
- Develop skills in **evaluating published research**; and
- Write an effective annotated **bibliography**.

- Week 02 Lecture:
- Information gathering (Librarian)
- Build an annotated bibliography (Learning Hub)

TO DO:

- Fill out the form on ED so that I have your supervisor's details

Questions?

THE UNIVERSITY OF SYDNEY