INFO5993 Research Methods
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What is this unit?

INFO5993 Research Methods

- An overview of research methods in IT
- How to find and evaluate research on your topic
- How to plan your research
- How to present your research
- Research ethics

- Required for many research students in IT
- Recommended for all research students in IT
INFO5993 Research Methods

Who is teaching this unit?

- Coordinator and some lectures:
  - Prof. Seokhee Hong

- With guest lectures from:
  - Prof. Peter Eades
  - Prof. Joseph Davis
  - Dr. Javid Taheri
  - Dr. Vincent Gramoli
  - Dr. Tasos Viglas

- Plus some lectures from you:
  - 20 minute talk on October (week 10-13)

- Plus discussion during the class
Who is Seokhee Hong?

- PhD from Ewha University in Korea in 1999
- Postdoctoral Research Fellow (Uni Newcastle, USYD)
- Lecturer/Senior Lecturer/Associate Professor/Professor (USYD)
- ARC (Australian Research Council) Research Fellow, Future Fellow, Humboldt Fellow
- Project Leader at NICTA (National ICT Australia)
- Managed very large research projects

- Many different academic research projects
  - Algorithms (Graph and Geometric Algorithms, Optimization Algorithms), Graph Drawing, Visual Analytics, Information Visualisation, Social Network, Bioinformatics
  - Many different industrial research projects
    - Graph Visualization, Bioinformatics, Network analysis and Visualisation
INFO5993 Research Methods

Who are you?

1. What University degree(s) do you hold? From what University?

2. What research area are you involved with?

3. What do you enjoy doing?

4. What do you aim for in this course?

5. Why are you doing research?

6. Any interesting story to tell?
<table>
<thead>
<tr>
<th>week</th>
<th>date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28/07/2014</td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Choose a topic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Choose a supervisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Give a talk</td>
</tr>
<tr>
<td>2</td>
<td>4/08/2014</td>
<td>PhD/Writing a Paper</td>
</tr>
<tr>
<td>3</td>
<td>11/08/2014</td>
<td>Research Methods/ Research Ethics</td>
</tr>
<tr>
<td>4</td>
<td>18/08/2014</td>
<td>Writing a proposal</td>
</tr>
<tr>
<td>5</td>
<td>25/08/2014</td>
<td>Good Research</td>
</tr>
<tr>
<td>6</td>
<td>1/09/2014</td>
<td>Research Methods</td>
</tr>
<tr>
<td>7</td>
<td>8/09/2014</td>
<td>Evaluation</td>
</tr>
<tr>
<td>8</td>
<td>15/09/2014</td>
<td>Commercial Research</td>
</tr>
<tr>
<td>9</td>
<td>22/09/2014</td>
<td>Writing System/Theory Paper</td>
</tr>
<tr>
<td></td>
<td>29/09/2014</td>
<td>semester break</td>
</tr>
<tr>
<td>10</td>
<td>6/10/2014</td>
<td>Student talks</td>
</tr>
<tr>
<td>11</td>
<td>13/10/2014</td>
<td>Student talks</td>
</tr>
<tr>
<td>12</td>
<td>20/10/2014</td>
<td>Student talks</td>
</tr>
<tr>
<td>13</td>
<td>27/10/2014</td>
<td>Student talks</td>
</tr>
</tbody>
</table>

*** Subject to change
## What is the assessment?

<table>
<thead>
<tr>
<th>Item</th>
<th>what</th>
<th>%</th>
<th>when</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weekly homework: Lecture summaries (3 lines each)</td>
<td>10</td>
<td>Every week, due immediately after the lecture</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bibliographical search</td>
<td>10</td>
<td>Week 6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Literature review (5 - 10 pages)*</td>
<td>30</td>
<td>Week 9</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Research talk (20 min)*</td>
<td>25</td>
<td>Week 10-13</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Research proposal (3 – 5 pages)*</td>
<td>25</td>
<td>Week 12</td>
<td></td>
</tr>
</tbody>
</table>

* PhD and MPhil students should write more pages in written reports and have more time in talks.

* Honours and MIT students write less and talk less.
INFO5993 Research Methods

Weekly homework: summarise the lecture

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
</tr>
</thead>
</table>

| Your name and student number | |
| Lecture(s) name(s) | |
| What was the topic of this lecture? | |

| What did you learn from this lecture | |
| Rate this lecture | very bad | bad | neutral | good | very good |
| What improvements could this lecturer make? | |

- Attendance at lectures is compulsory
- You need to summarise the lecture in a few lines on the form
- 10 marks total, 1 mark for each homework
- Hand in on paper immediately after the lecture
Other stuff

- Hand in weekly homework on paper
- Hand in other stuff by email
- Contact Seokhee Hong:
  - Room E352, SIT building
  - Office hours 14:00 – 15:00 Mondays
  - Seokhee.hong@sydney.edu.au
How can I be a good researcher?
How to be a good researcher:

1. Choose a good research topic
2. Join a good research group
3. Give lots of good talks
4. Use a good research method
5. Write lots of good papers
6. Maintain good research ethics
1. Choose a good research topic

   How?
Two extreme topics

**Keywords in Armenian**

I have always thought that programming languages which use keywords in Armenian language lead to more productive software engineering. I want to prove it.

**Phylogenia of π-systems: the case k=4**

My supervisor wrote the first π-system, and for the past 17 years has been studying the phylogenia of such systems. Three other people in my Department are studying $k=1$, $k=2$, and $k=3$; I will study $k=4$. 

Team member Terri
Two extreme topics

*Independent Ira:* has an idea, and wants to pursue it, even alone.

*Team member Terri:* adds a bit to a long term team project

- Dangerous topic
  - may lead nowhere
  - may be uncompetitive
- Can be satisfying for some people
- Funding unlikely

- Safe topic
- Can be satisfying for some people
- More chance of funding
<table>
<thead>
<tr>
<th><strong>Independent topic</strong></th>
<th><strong>Part of a team</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>• More exciting for some people</td>
<td>• Better support from colleagues</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>• Funding unlikely</td>
<td>• Can be boring for some people</td>
</tr>
<tr>
<td>• Hard to publish</td>
<td></td>
</tr>
</tbody>
</table>
Most IT research is somewhere in the middle; other sciences tend to be more team oriented

My advice

- Most people do better in a **team**.
- A few personalities are suited to independent topics.
Two extreme topics

Irene the introvert

$2^{231} - 1$ is a prime number?

This problem has been bothering me for decades. I can’t rest until I know the answer.

Eddie the extravert

$2^{231} - 1$ is a prime number?

A guy in a software security company has been phoning me to ask about this “possibly prime” number, $2^{231} - 1$.

I’ll try to solve the problem.
Two extreme topics

*Irene the introvert:* self-motivated, wants to find out for her own sake.

*Eddie the extravert:* Has a customer who wants to know, he will try to find out.

There is no customer

Customer oriented
What is a customer?

- A customer may be
  - An industrial partner
  - A social community
  - A separate community of academic researchers

- A customer *wants to know the answer* to your research problem
  - Because he/she is *curious*, or
  - Because he/she will *make money* from it, or
  - Because it will *help* the his/her research, or
  - ... ... ...
What is a customer?

- A customer is someone outside your academic group
  - Not your professor
  - Not people that you meet at the main annual conference for your research area

- Customers can provide
  - Inspiration, plus
  - Feedback, plus
  - Data, plus
  - Domain expertise, plus
  - (maybe) some funding
<table>
<thead>
<tr>
<th>Introverted research</th>
<th>Customer-oriented research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>• More exciting for some people</td>
<td>• Good chance of good feedback</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>• Funding unlikely</td>
<td>• Good chance of funding</td>
</tr>
<tr>
<td>• May be worthless to everyone except yourself</td>
<td>• Better scientific criticism</td>
</tr>
<tr>
<td>• May be hard to get good feedback</td>
<td>• Better grounded in reality</td>
</tr>
<tr>
<td></td>
<td>• New problems arise</td>
</tr>
<tr>
<td></td>
<td>• none</td>
</tr>
</tbody>
</table>
Who is your customer?
My advice
Always ensure that your research has a customer
Two more extreme topics

The effect of the use of critical path planning in managing software projects

How to manage software projects

Narrow and deep: An investigation of a few variable parameters, with many parameters held fixed.

Wide and shallow: Considers many parameters at once.
Narrow and broad

Narrow Nancy

Assume
- an OO design method
- Java
- small teams

Investigate effect of
- use of critical path planning

Broad Betty

Investigate the effects of
- 15 different design methodologies
- 7 different programming languages
- 17 different planning methods
### Narrow and deep topic

**Advantages**
- More chance of pushing the boundary of knowledge
- More exciting

**Disadvantages**
- Your “model” may be too abstract and unrealistic
- It’s hard to choose the variable parameters and the fixed parameters

### Wide and shallow topic

**Advantages**
- Realistic
- Good training for industrial research

**Disadvantages**
- Mostly boring, like a collection of undergraduate theses
- Unlikely to contribute a lot to the state of knowledge
My advice
Choose a narrow and deep topic, and choose your variable and fixed parameters very carefully.
Another two extreme topics

**Robustness theorems for non-pre-emptive scheduling methods**

**Disk cache scheduling for Gnu C++ memory management on a Pentium 4 processor running Solaris**

Fred the fundamentalist

**Fundamental topic: abstraction of specific hardware and software**

Andy the applicationist

**Applied topic: specific hardware, specific software**
### Fundamental topic

<table>
<thead>
<tr>
<th>Advantages</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Your papers will have a longer life</td>
<td></td>
</tr>
<tr>
<td>Your work can have more applications</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>It's hard to push the boundaries very far</td>
<td></td>
</tr>
<tr>
<td>Your “model” may be too abstract and unrealistic</td>
<td></td>
</tr>
</tbody>
</table>

### Applied topic

<table>
<thead>
<tr>
<th>Advantages</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Easier problems</td>
<td></td>
</tr>
<tr>
<td>May help with getting a job in industry</td>
<td></td>
</tr>
<tr>
<td>Can contribute a lot to a relevant area</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Your papers can die young</td>
<td></td>
</tr>
<tr>
<td>Restricted applications</td>
<td></td>
</tr>
</tbody>
</table>
Another two extreme topics

Classical Kirsty

I want to solve an problem that has defeated many others

\[ P = \text{NP} \]

Popstar Paul

Cloud computing for pervasive social network computing

I want a lot of newspaper coverage
<table>
<thead>
<tr>
<th><strong>Classical topic</strong></th>
<th><strong>Hot topic</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Advantages</strong></td>
</tr>
<tr>
<td>• You may win the lottery and solve a hard problem</td>
<td>• Better immediate feedback</td>
</tr>
<tr>
<td>• Your papers will have a longer life</td>
<td>• With good timing, you can get rich</td>
</tr>
<tr>
<td>• Better referees</td>
<td>• Easier to publish</td>
</tr>
<tr>
<td>• Higher scientific quality</td>
<td>• Easier problems</td>
</tr>
<tr>
<td></td>
<td>• Vibrant community</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>• Can be frustrating</td>
<td>• Your papers can die young</td>
</tr>
<tr>
<td>• Immediate rewards can be small</td>
<td>• Scientific quality can be low</td>
</tr>
</tbody>
</table>
Another two extreme styles

Classical hard problems

New hot topics

There are papers all over this range, but there is a tendency to be near the hot end.
General advice

- Investigate a
  - classical,
  - customer-oriented,
  - fundamental,
  - deep, and
  - narrow
  topic, with (perhaps shallow) applications to a few
  - hot applied
  topics.

- Obtain breadth by being a member of a team.
**More general advice**

- What is fundamental?
  - Find out about the fundamental stuff from
    - academic journals
    - books
    - your supervisor
  - What are the classical unsolved problems over the past 20 – 30 years?
  - Choose your topic so that your research will shed some light on a classical unsolved problem

- What is hot?
  - Find out about hot topics from *industrial* customers
Advice for PhD students:

- Attend a conference per year on your fundamental discipline
  - Same one every year
  - Fundamental, deep, narrow focus
  - Your base research community

- Attend some conferences in hot applied topics
  - Different ones each year
  - Apply your fundamental skills to hot topics
2. Join a good group

- How?
How do you know whether a group is good?

a) good academic researchers?

b) good communicators?

c) enough money?

d) good international/local contacts?
Are they good researchers?

- Do they publish papers?
  - ✔ Good paper_count > years_since_PhD?
  - ➢ Use DBLP
Are they good researchers?

- Do they publish *good* papers?
  - Use **CORE ranking**
    - **Rank A:** good journal/conference
    - **Rank B:** reasonable journal/conference
    - **Rank C:** bad journal/conference
    - **Unranked:** maybe good, maybe bad, new, local
Are they good researchers?

- Does anyone read their papers?
  - Large citation count?
    - See Google Scholar
      - Is H-index > 10?
Are they good researchers?

- Does anyone read their papers?
  - Large citation count?
  - See Microsoft Academic Search
WARNING!

Research metrics (paper_count, conference/journal ranking, citations, …) should not be trusted!

- Often inaccurate
- Often misleading
- Use research metrics as a guide only, not as a final judgement
Are they good communicators?

- Do they understand what you are talking about?
- Can you understand what they are talking about?
Do they have lots of money?

- Grants from the Australian Research Council (ARC)?
  - Search under “Funding Outcomes” on the ARC web page.
Do they have lots of money?

- Involvement in NICTA? CRCs?
Do they have lots of money?

- Grants / industrial support?
- Your salary?
- Enough equipment/software?
- Enough travel?
- Systems/secretarial support?
- Nice office space?
Do they have good contacts?

- Many joint publications with other people?
- Involved in conference organization?
- Editor of an international journal?
- Former students have good jobs?
- Involvement in joint projects with industry?
My advice

- No research group is 100% perfect, but try to join a group that is good.
Break: 10 min
How to be a good researcher:

1. Choose a good research topic
2. Join a good research group
3. Give lots of good talks
4. Use a good research method
5. Write lots of good papers
6. Maintain good research ethics
How to give a good research presentation
Note: Giving a talk is beneficial to the speaker

- It brings feedback from others

- It helps you
  - define your problem
  - understand your own work
  - organize your ideas
  - write papers
  - become famous
There are many kinds of research presentations:

- One-sentence description of your research to an academic
- 3 minute talk to your friends/colleagues
- 3 minute demo to the Dean of Engineering
- 20 minute talk at an academic conference
- 50 minute colloquium for the School of IT
- 10 minute sell to venture capitalists
- Phone conversation with a journalist
- … …
**How to give a talk at a conference**

Giving a talk consists of three elements:

a) Organization  
b) Talking and walking  
c) Visuals

These elements vary depending on the type of presentation.

Some comments about *research conference* presentations
### a) Organization

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Motivation</td>
</tr>
<tr>
<td>5</td>
<td>Overview of the research</td>
</tr>
<tr>
<td>15</td>
<td>Something difficult</td>
</tr>
<tr>
<td>20</td>
<td>Overview</td>
</tr>
<tr>
<td>23</td>
<td>Conclusion</td>
</tr>
</tbody>
</table>

- **Everyone understands**
- **Some understand**
- **Everyone understands**
**Example:**

**Title:** *Fast spatial data mining in low dimensions*

<table>
<thead>
<tr>
<th>Time</th>
<th>Content</th>
<th>Understandance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Data mining helps people</td>
<td>Everyone understands</td>
</tr>
<tr>
<td>5</td>
<td>Your data mining algorithms:</td>
<td>Some understand</td>
</tr>
<tr>
<td></td>
<td>- description at a high level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- no proofs, no details</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Math for the 2D case</td>
<td>Everyone understands</td>
</tr>
<tr>
<td>20</td>
<td>Chart of experimental results</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Repeat main results</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b) Talking and walking

- Look at the audience as much as possible
  - Choose specific people to focus on

- Speak slowly and clearly, and avoid idiomatic English
  - English is a second or third language to most people in Computer Science

- Use your hands for expression
  - avoid holding a microphone

- Don’t waste time
  - Check your data-projector/laptop connection
c) **Visuals**

- Use a medium that is suitable
  - Use a computer for graphics
  - Use a blackboard for mathematics
- Use a medium that is well supported by the local system
- Ensure that your visuals are perfect
  - No speeling errors
  - No spacing errors
  - Attractive layout (e.g., avoid linebreaks as much as possible)
- Don’t use visuals as notes to yourself
- Use pictures wherever possible
- Avoid “ducks”
Look at the audience; avoid ducks
Look at the audience; use your hands
Look at the audience; avoid holding a microphone; ensure that your slides are perfect
Look at the audience
Use pictures wherever possible

In this paper, based on statistical and visual similarity analysis for the correlation among multi-spectral planes, a novel approach to multi-spectral image compression is proposed. The algorithm differs from classical lossy approaches of multi-spectral image coding in the fact that it provides the further decorrelation scheme of the spectral planes by inter-plane transformations and coding, which is based on information distribution. Moreover, the human visual system is introduced into the transformation. In the process of doing so, it will play a very active role in fully exploring the psycho visual redundancy. The new technique for multi-spectral image compression, which is designed to be compatible with the JPEG standard, is demonstrated on extracting correlation among planes based on human visual system. A high measure of compactness in the data representation and compression can be seen with the power of the scheme taken into
Use the slides for the audience, not as reminders for you

Formal specification of Security Protocols

- The need for security
- The need for formal specification
- Porter and Quirk’s language
- Inadequacies
General advice

- Explain your research verbally as often as possible
  - Formal talks at conferences
  - Seminars
  - Informal chatting with friends
  - Informally in your research group

- When you give a formal talk:
  - Ask people to look out for
    - errors and ducks in the visuals
    - idiomatic and ambiguous English
    - not looking at the audience and write it all down, and tell you
  - Video the talk, look at the video
How to be a good researcher:

1. Choose a good research topic
2. Join a good research group
3. Give lots of good talks
4. Use a good research method: week 3
5. Write lots of good papers
6. Maintain good research ethics: week 3
How to be a good researcher:

1. Choose a good research topic
2. Join a good research group
3. Give lots of good talks
4. Use a good research method
5. Write good papers
6. Maintain good research ethics
What do you write?
You might write

1. Research theses
2. Papers in conference proceedings:
   - in NLCs (Nice Local Conferences)
   - IK-CCs (International Killer-Competitive Conferences)
3. Journal papers
4. Chapters in books
5. Books
6. Proposals for future research
Conference papers
Conference papers

- Good for fast feedback
  - From the referees (especially IK-CCs)
  - From your presentation (especially NLCs)

- Participation at conferences is good for your career
How the conference paper process works (IK-CCs)

1. You write the paper and submit it to the conference.

2. The program committee decide whether to accept your paper.

3. If your paper is accepted:
   - You revise the paper according to the referee’s comments
   - You give a talk at the conference.
   - Your paper appears in the proceedings.

If it is not accepted:
   - You revise the paper and submit somewhere else

How do you write the paper?
Which conference?
How do they decide?
How the conference paper process works (IK-CCs)

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- You revise the paper and submit somewhere else
Note: there are many books and articles about how to write scientific papers.

Examples:
3. ..... ..... .
Some advice on writing *conference* papers:

- Keep it simple: only one main idea, perhaps two ideas
  - Most PC members are busy, some are lazy
  - They have at perhaps 30 minutes to read your paper
  - Abstract should be short and extremely well written

- Make sure that the presentation is perfect
  - Grammar perfect
  - Figures beautiful
  - Exactly the right length (usually 10 or 12 pages)
  - Font size as specified in the Call-For-Papers (usually 11 or 12)
  - Nice layout
Structure
(Assuming that the page limit is 10 pages):

<table>
<thead>
<tr>
<th>More detail later</th>
<th>0</th>
<th>Motivation, background, literature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Main results</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Conclusion</td>
</tr>
<tr>
<td></td>
<td>8.5</td>
<td>References</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Everyone understands
Experts understand
Everyone understands
How the conference paper process works (IK-CCs)

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   - You revise the paper according to the referee’s comments
   - You give a talk at the conference.
   - Your paper appears in the proceedings.

If it is not accepted:
   - You revise the paper and submit somewhere else
Choose a good conference

- The best conference possible
  - see CORE ranking
  - See MSofT Academic Search

- A good program committee

- Realistic deadline

- Avoid “scams”
Aim your paper at that conference

- Motivation aimed toward the specific conference community
- Research methods that are familiar to the specific conference community
- Don’t insult people on the program committee
How the conference paper process works (IK-CCs)

1. You write the paper and submit it to the conference.

2. The program committee decide whether to accept your paper.

3. If your paper is accepted:
   - You revise the paper according to the referee’s comments
   - You give a talk at the conference.
   - Your paper appears in the proceedings.

   If it is not accepted:
   - You revise the paper and submit somewhere else
A typical PC (program committee) process:

1. Papers are submitted.
2. PC members declare conflicts of interest with submitted papers.
3. Submitted papers are assigned to PC members:
   - Each paper goes to 3 – 4 PC members;
   - Sometimes the PC chair decides who reviewers what, sometimes there is a bidding system.
4. PC members review and score papers assigned to them:
   - Takes a few weeks.
5. Papers are sorted on scores (sometimes weighted).
6. High score papers are accepted, low score papers rejected.
7. Medium score papers are discussed amongst the PC
   - a few days.
8. Final decisions are made on which medium score papers are accepted and which are rejected.
9. Decisions are announced.
Note: for IK-CCs:

• Each PC member has to review and score 5 – 20 papers.

• Timing is very tight:
  ➢ Submission deadline is strict
  ➢ PC deadline for scoring/reviewing is strict
  ➢ Accept/reject announcement date is strict

• 15% – 50% of papers are accepted (rank A conference).

• Very few papers get a very high score or very low score, and accept/reject decisions for medium-score papers can be fairly arbitrary

<table>
<thead>
<tr>
<th>5 - 15%</th>
<th>65 - 85%</th>
<th>10 - 20%</th>
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<tbody>
<tr>
<td>Obviously rejected</td>
<td>random and ad-hoc decisions</td>
<td>Obviously accepted</td>
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Note

- Many many many good conference papers get rejected for reasons that have nothing to do with the quality of your research

- Don’t worry if it is rejected
A general paper writing process

Draft a journal paper

Adjust for a conference

Accepted?

Yes

Write the journal paper properly

No
Journal papers
The journal paper process

1. Revision
2. Submission
3. Refereeing
4. Published
1. **Revise** (convert from draft paper(s) or conference paper to a journal paper)

Advice

- Give yourself a deadline
  - special issues are good

- Describe everything fully, in layers of detail
  - You can delete stuff later
  - Prove every theorem
  - Give full literature background
  - Give full details of experiment (including constraints on conclusions)
2. Submission

You submit it to the managing editor of a journal

a) Choose a person X who is an editor and who knows the field well

b) Choose the best journal for which your chosen person is on the editorial board

c) If possible, suggest that X handles your paper
3. Refereeing

1. The editor sends it to about 3 referees, with a three month deadline.

2. The referees ignore it until the deadline.

3. The editor sends a reminder, and suggests a new deadline.

4. The referee reads it (takes many hours, perhaps a few days).

5. The referee writes:
   - A report
   - A recommendation (accept | revise | reject)

6. The editor
   - makes a decision (accept | revise | reject)
   - sends you the reports
Back to step 1: Revise

• If “accept”, then you make minor revisions and proceed to publication

• If “revise” or “reject”, then you revise and re-submit it:
  ▪ Don’t get annoyed.
  ▪ But don’t take “no” for an answer.
  ▪ You can choose a different journal but you should assume that you will get the same referees.
  ▪ Address every point made by the referees; keep a record of how you addressed it.
Next Week

Week 2: Dr. Javid Taheri

Week 3: Prof. Peter Eades