Research Methods in computer science
Spring 2024

Lecture 13

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Agenda

Conference and Journal Organization
Adequate Description of Research
HW6
Conferences are gatherings of scientists...

Why do we need them?
Activities in a Conference

Keynote
Paper presentations
Panels
Poster and demo
Competitions
Open mic sessions
Conference Organization

Different roles

- General Chair
- Finance Chair
- Arrangement Chair
- Technology Chair
- Program Chair
- Publication Chair
- Technical Program Committee
- Many other roles

Schedule for activities
Technical Program Committee

Review papers

Types of discussions and meetings
Journal Organization

Paper evaluation
  Editor in chief
  Associate editors
  Reviewers

Limited physical logistics requirement compared to a conference
We looked at the websites of some conferences and journals to understand how they are organized.

We also formed a conference organizing committee.
The Body of the paper

Depending on the area of work may describe the proposed algorithm, proofs, systems, implementations

[slide from a while ago...]
How much details?

Ideally: Enough for someone to replicate your system or idea

Practical consideration: 1-2 pages.
Illustrations

“One picture is worth a thousand words”

Architecture
Data flow

Try to have 1-2 diagrams describing your system
Code and Data Release

Becoming common in many areas of CS
Important tool for reproducible research

Code and data is not adequate.
Lots of code and data but impossible to understand artifacts
How much details should we use to describe experiments?

Same consideration as describing your system.
An example experiment

• Car1
  – Does not have telemetry
  – Have the driver (Bob) wear smart watch and use GPS on the smart watch to track Bob’s speed

• Car2
  – Use built-in telemetry
Consequences of inadequate clarity

An experiment writeup that can be interpreted as proving humans are faster than a car
Content in the following slides adopted from: https://mitcommlab.mit.edu/eecs/commkit/journal-article-methods-cs/
Criteria for Success

All the relevant details for producing your results

Convinces the reader of the correctness of your approach by providing justification for choosing your methodology

Provides readers the details, algorithms, and techniques necessary to confirm and/or replicate your findings
Purpose

Adequate details for others to replicate and enhance your work

Description of device, algorithm, model

Justification (important!)

Randomly decided 5 layers in your neural network??

Results and conclusions valid

Sometimes need to check the methods
Audience

Level of expertise

Generally assume advanced knowledge

Domain expertise

Generally assume experts in the field

If techniques from a different area, common to provide background
Justification for an approach

Do not just say what your design is.

Why you are using a particular approach?

Why not some other approaches?
Organization

Sub-sections
Bullet points
Paragraphs
Diagrams
Cite methods when possible

“Minimal essential detail”
HW6

Related Work

The ten papers
Additional papers
Organizational elements