Practical Guide to Research Contributions in HCI

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Questions

What is contribution?

- (conceptual) knowledge
- (practical) solution

Key evaluation criteria

- Originality
- Significance
- Validity

Detailed types

- Knowledge

    - Theoretical (Knowledge, most rigorous)
    - Empirical research (Knowledge, rigorous)
    - Expert opinion/heurestics (knowledge, less rigorous)

- Practical solution

    - Artefact
        - System (do something complex)
        - Technique (do one small thing but in many contexts, e.g., pointing technique, menu, etc.)

- Helper

    - Useful reusable methodology
    - Literature survey
    - Tool/Library/Toolkit
    - Dataset

Common Contribution Types

- Empirical research

- New device, new phenomenon, etc.

- Solution (System/technique)
- Tool

What's enough

Empirical research is judged by its finding

- Does the finding matter?
    - How important is the finding?

- Did I learn anything new/interesting?
    - How intelligent/sophisticated is the finding?
        - Binary findings are usually not that interesting (A is better than B)
        - Interactions is more interesting (A under condition a' is better than B, but under condition a'', is not as good as B)
        - Continuous findings are more interesting (The relationship between A and B can be modeled using this mathatical equation)

    - How surprising is the finding?

        - Is it obvious? Or does it look obvious (even it is not obvious)

- Can I trust the finding?
    - How valid is the finding?
        - Sample size, free of comfounding variables, etc.

Artefact is judged by is practical value and what we can learn from it

- How useful is the artefact?
- What's new?
- What benefits does it has as compared with the state-of-the-art?
- Any generalizable knowledge we can learn from it?
    - Best: we can use theory (mathematics) to model it
    - Good: we formally explain it (engineering theories such as using GOMS)
    - Minimum: we can plausibly/intuitively explain it

Tool is judged by (Read Dan Olsen's paper)

- What new things does this enable?
- If not enabling new things, does it lower the barrier of doing things?
- What's the coverage?