



Designing Experiments

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Attribution



Except where otherwise noted, ERSP and all associated resources were developed by Christine Alvarado, UC San Diego, Department of Computer Science and Engineering.

These slides were originally jointly developed by Christine Alvarado and Mai ElSherief. They have been adapted by Kelly Shaw for CSCI 16 at Williams College.



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Today's Plan

- Discussion of creating experimental framework

Designing Experiments

- Consider using framework similar to that in related work
 - Leveraging existing tools and applications enables research to progress more quickly than creating tools from scratch
 - Remember discussion of benchmarks in Tichy's "Should Computer Scientists Experiment More?"
 - By using tools and inputs that other researchers have used, you
 - can more easily compare and contrast your results to related work that used the same tools
 - don't have to do as much validation of the correctness or as much characterization of the tools / inputs to convince readers whether they are appropriate for this research or to educate them about their properties
- Combine and modify existing tools and inputs as appropriate for your specific research question
 - Take inspiration from approaches used by other researchers to create their experiments

Activity: Examine Methodology in Related Work

- We previously identified related work that seemed most relevant to “Fine-Grained Recognition in the Wild”
- Citation [49] seemed very relevant to the domain adaptation component of “Fine-Grained Recognition”
- Examine the experimental framework in [49]. Look for similarities and differences between that work and “Fine-Grained Recognition in the Wild”’s experimental setup
 - What tools and settings for those tools do they use?
 - What inputs or datasets do they use?
 - What metrics do they use to evaluate goodness?
 - What specific experiments do they run?

Activity: Examine Methodology in Related Work

- We previously identified related work that seemed most relevant to “Fine-Grained Recognition in the Wild”
- Citation [14] seemed very relevant to the consistency component of “Fine-Grained Recognition”
- Examine the experimental framework in [14]. Look for similarities and differences between that work and “Fine-Grained Recognition in the Wild”’s experimental setup
 - What datasets do they use in their experiments?
 - Are there similarities in how they construct their datasets?

Activity: Examine Usage of a Tool

- We previously identified related work that seemed most relevant to “Fine-Grained Recognition in the Wild”
- Citation [36] was cited with respect to creation of their experimental infrastructure.
- Do a Google Scholar search on paper [36]. What does the citation count for [36] tell you about its usage for research experiments?