


Research topics

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List of Topics

1. Amazon Alexa (Arne)
 2. Google Assistant (Jascha)
 3. Voice to Query and Graph Database (Luise)
 4. Artifacts (Erik)
 5. Labeling artifacts with a crowd (Leo)
 6. Automatically categorizing artifacts (Adrian)
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- Comparison

Amazon Alexa or Google Assistant

- Can we get a text output from the digital assistant? Can we get queries?
- How easy is it to set up / use digital assistant API? How is documentation?
- How precise is the output for different types of hypothetical queries?
- What are possible conversation workflows between an engineer and the assistant?
- Can the assistant help refine the query?

Deliverables:

Report + Comparative matrix (as handout, max. 2 pages)

Short demo

Presentation

Voice to Query and Graph Database

- Can we reuse some API to convert the output from digital assistant to queries on a database? <https://ai.google/research/pubs/pub36732>
- Is a graph database appropriate for the type of search that we are going to make?
- Can we organize this data in a graph database? What are examples of possible graphs and corresponding queries that we could have?

Deliverables:

Report (as handout, max. 2 pages)

Short demo

Presentation

Artifacts

- What are the artifacts that engineers and design thinkers use during a design sessions?
- What type of questions they ask to retrieve/recall these artifacts?
- What type of keywords and labels are part of their vocabulary?
- Create a few (ten) scenarios in which engineers demonstrate need to reuse previous designs.
- Are there repository of artifacts that we could reuse? Does it make sense?

Deliverables:

Scenario descriptions (as handout, max. 2 pages)

Artifact samples

Presentation

Categorizing artifacts with a crowd

- For which artifacts would we need to a crowd? Why?
- What types of categories are necessary?
- What type of information does the crowd need to receive?
- How many workers are necessary to have confidence on a set of categories for each artifact type?
- How to qualify workers for the task?
- Run an experiment on Mechanical Turk

Deliverables:

Report (as handout, max. 2 pages)

Short demo

Presentation

Automatically categorizing artifacts

- Can we learn artifact categories from design sessions?
- How well different machine learning methods perform for the task of finding artifact categories?
- Can we also use machine learning methods to categorize artifacts? Do we have enough information for that?
- If positive, how to combine the crowd and machine learning methods?

Deliverables:

Report (as handout, max. 2 pages)

Short demo

Presentation