

Designing & Prototyping Smart Applications

ViaX James Landay CS Summer School

Autumn 2018

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James Landay CS Summer Camp: Designing & Prototyping Smart Applications

Designing AI Applications

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Summer 2018

*Based on [The UX of AI](#) by Josh Lovejoy and [Human-Centered Machine Learning](#) by Jess Hollbrook and Josh Lovejoy

Outline

- Principles of human-centered AI
- Examples (TBD)

Principles

- Address human needs
- Ensure trust by exposing underlying system goals
- Fake it until you make it
- AI apps are socio-technical systems
- Designing for augmentation, not automation

Address Human Needs *Or, Who Needs a Smart Toaster?*

- Machine learning will not guarantee it is *the right problem* to solve!
- Even more important to use design thinking process to find a real human need



Ensure Trust by Exposing Underlying System Goals

- If it is unclear how user's interaction fits into system (e.g., how it learns), they will create their own story
- Ensure trust by exposing underlying system goals
- Machine learning is brittle
 - often train many underlying classifiers for every issue you care about. User may not understand this.
 - e.g., in a system to find good photos, need to also train a classifier to get rid of bad ones (e.g., hand in front)

Ensure Trust by Exposing Underlying System Goals

- Understand which failures you can handle

		Prediction	
		Positive	Negative
Reference	Positive	True Positive	False Negative
	Negative	False Positive	True Negative

- Confusion matrix let's you reason about types of error
- Different apps will optimize for different cells of this matrix
 - can you deal with true things being left out?
 - is making a false classification worse for you?

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Fake it Until You Make it

- Getting AI models right takes time, data, & adjustment
- Better to prototype your UX with *real user content*
- Wizard of Oz things that don't yet work

AI Apps are Socio-Technical Systems

- AI systems trained on data collected from people
- Labels used to describe the data is from people
- Did the system do the right thing? People decide
- Human judgement in all of these decisions. Need to include human expertise in any major AI project.

Design for Augmentation, Not Automation

- Machine learning will always make errors
- Key is to help make people more powerful in what they do, rather than try to fully replace them