Building Bridges

A Case Study in Structuring Human-ML Training Interactions via UX

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The Role of End Users is Changing

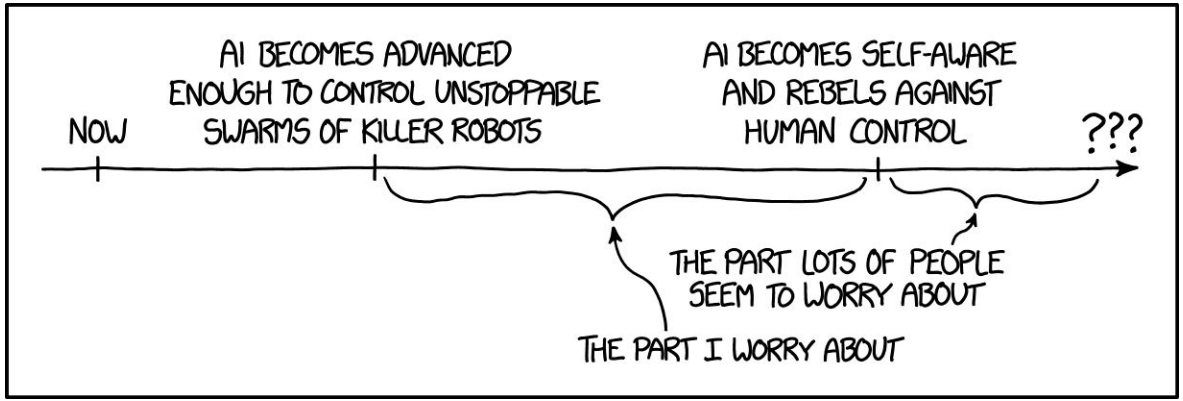
ML/AI products require input of end users to be effective

UX's Human Centered approach is necessary to building systems that will be utilized

Automating Training is not the Goal

Being involved in training

- Creates trust
- Gives users ownership of the systems they are using
- Expert oversight



(Training) Time is Money

How to reduce the training task?

Or, how to make it more efficient?

(And less boring)

Qualitative Coding

QC is a manual classification system

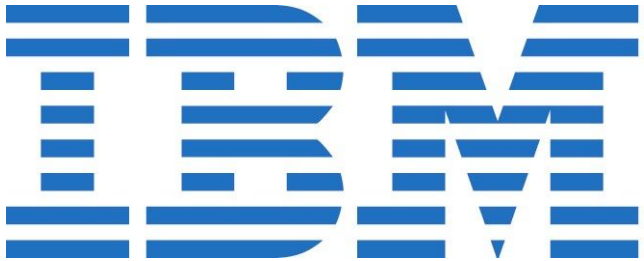
Provides direct manipulation of data, which can be easier for non-expert users

“[QC is] conversation with ourselves about our data” — Clark 2005

Insights from the Field

Interviews with developers

Building custom interfaces for classification systems



Training is Boring

Simplify the feedback task

"How should this be labeled?" vs "Is this label correct?"

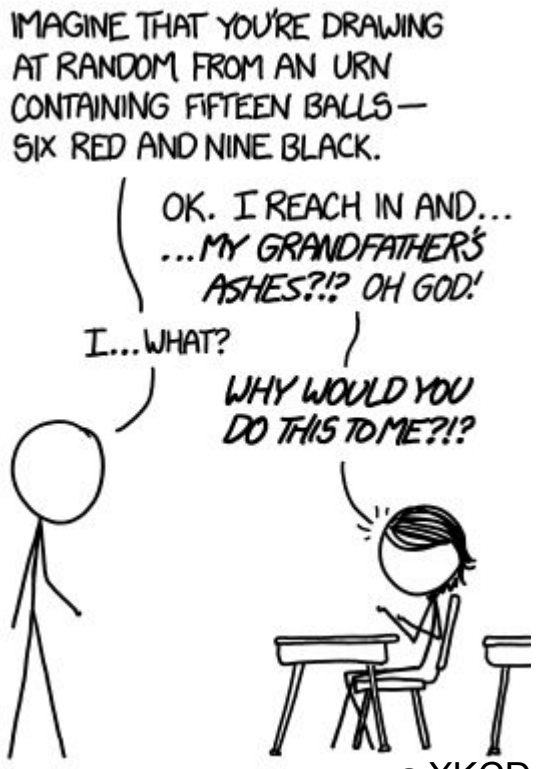
- Requires a system that:
  - Pre-labels documents
  - Can decide which need human labeling

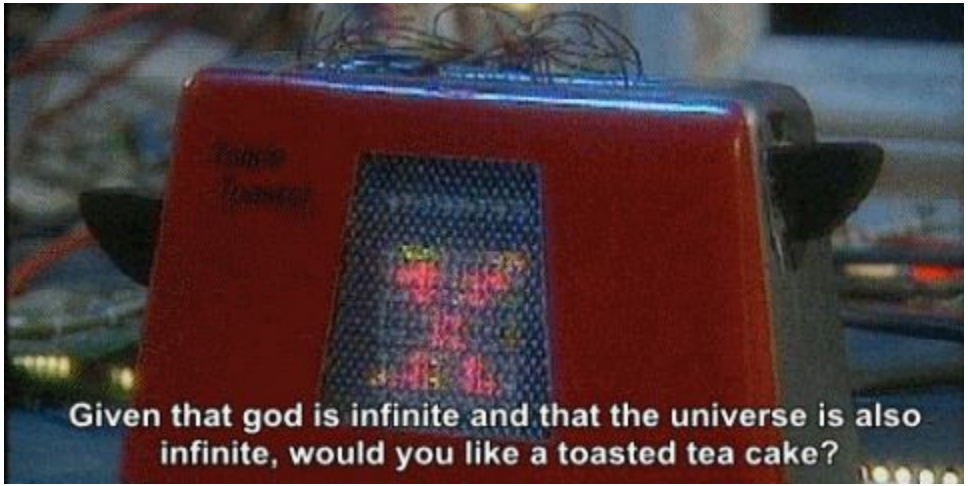
Vary the task

Communicating Confidence is Hard

People don't understand it well

Do users need to understand what these metrics mean?





Replace things like confidence scores with the task you want the user to perform given that information

Structuring ML Training with QC

Recall

Error Correction

User Control

Efficiency

Real World Match

Collaboration

QC makes for great partnerships

Human Partner	ML Partner
labels docs manages the knowledge corrects errors	gives feedback on model manages the data finds possible errors manages task breakdown learns from user's actions

Structuring a Dialogue Beyond Words

Extending the “conversation about/around data” metaphor into a design consideration

Communication around a subject need not be

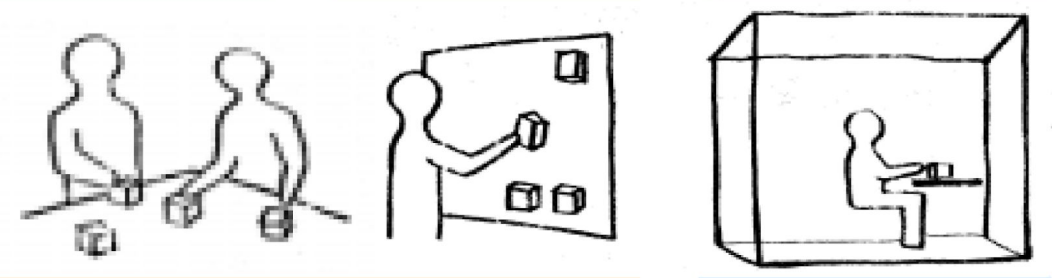
- Linear
- Synchronous
- restricted to language

Tangible Interfaces

"broadening the bandwidth of interaction between people and digital information by:

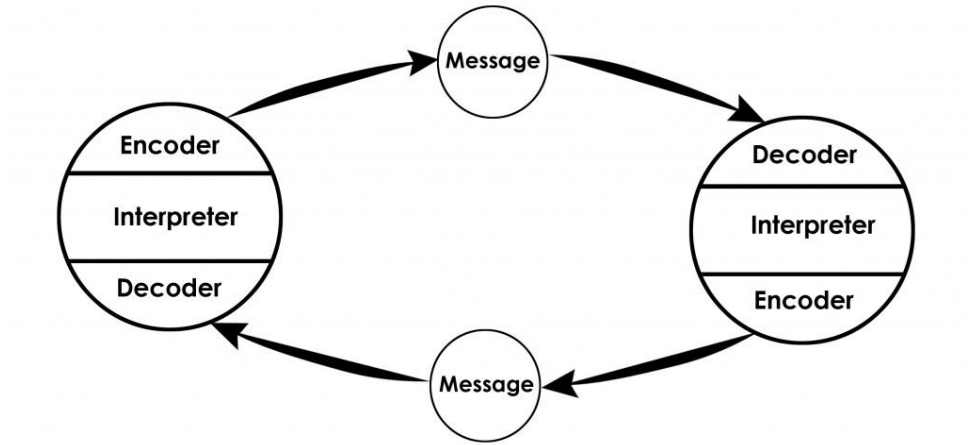
- allowing users to 'grasp & manipulate' foreground bits by coupling bits with physical objects, and
- enabling users to be aware of background bits at the periphery using ambient media in an augmented space."

— *Ishii & Ullmer, 1997*



Bridging the Disconnect

Understanding how humans communicate with machines is key to building effective interactive systems (Suchman 1987)



Osgood & Schramm, 1955