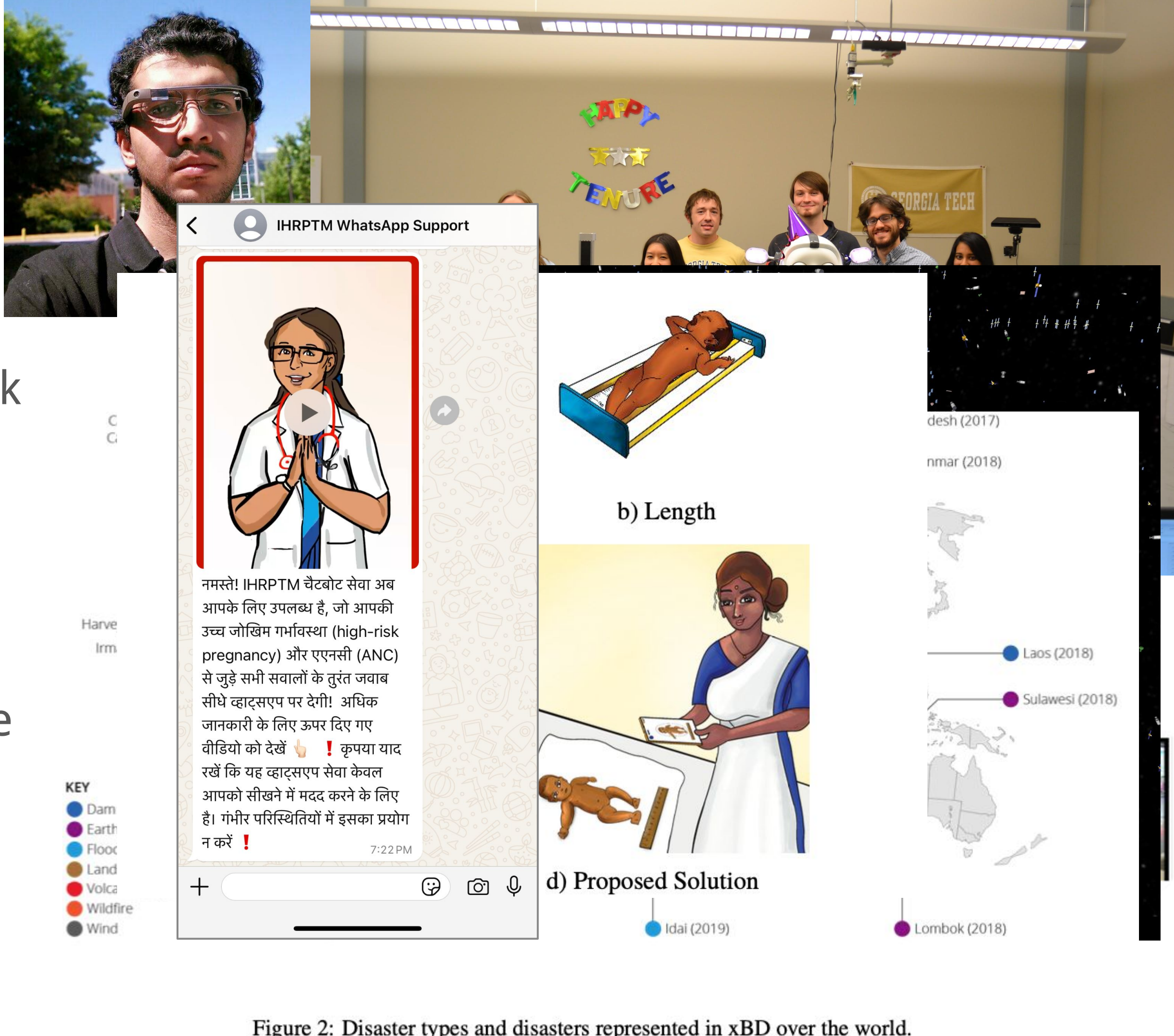
Building Socially Impactful Solutions using AI

Public Health & Agriculture

Jigar Doshi - June 2025

ML Journey

- Georgia Tech - Atlanta
- IBM Research - New York
- CrowdAI - San Francisco
- Wadhwani AI - Mumbai
- Artpark, IISC - Bangalore



Talk Outline

- Day 1
  - LLMs for Mothers and Frontline health workers
  - TB & Covid Screening using Cough samples
  - AI Solutioning
- Day 2
  - Pest Management
  - Farmer Chat / Remote Sensing
  - AI Agents for Public Health
  - How to pick a problem
    - To build an impactful fulfilling ML career

LLM Copilot for Front Line Workers for High-Risk Pregnancy Management

May 2024

Poor Maternal and Child Health in India

A woman dies in childbirth every 20 minutes; for every woman who dies, 20 more suffer lifelong ailments.

2 children under 5 die every minute; 4 of 10 children don't realize their full potential due to chronic undernutrition/stunting.

Factors influencing this include:

Lack of access to preventive care information and services, leading to poor understanding of danger signs and delayed care seeking

Inadequately trained & supported health workers who are unable to detect and manage high-risk conditions in time

PROBLEM

SOLUTION

ARMMAN leverages deep mobile penetration with existing health worker network and infrastructure to:

- Provide **preventive care information** through pregnancy & infancy enabling women to seek care in time
- **Train and support health workers** for timely detection & management of high-risk conditions

Our programs

armman

PREGNANT WOMEN, MOTHERS AND CHILDREN

mMitra — Free voice-call service providing critical preventive care information during pregnancy and infancy

Kilkari (Every family's own mobile health service) — Largest mobile-based maternal messaging programme in the world in collaboration with MOHFW

स्वस्थ कदम — Live telephonic counselling for caregivers of moderately underweight infants to prevent their decline into severe malnutrition

60 MILLION+
WOMEN AND CHILDREN

HEALTH WORKERS AND SYSTEMS

MOBILE ACADEMY — Mobile-based refresher training course for frontline health workers (ASHAs) in partnership with Ministry of Health and Family Welfare

FOR THE MOTHER — INTEGRATED HIGH RISK PREGNANCY TRACKING AND MANAGEMENT — Implementation of high-risk management protocols for sustained reduction in delayed referrals and high-risk referrals to tertiary facilities

500,000+
HEALTH WORKERS

ARMMAN's Integrated High Risk Pregnancy Tracking and Management (IHRPTM) program trains and supports 20,000+ health workers across 3 states to detect and manage high-risk pregnancies.

High Risk Pregnancy Vs Perinatal Morbidity & Morbidity

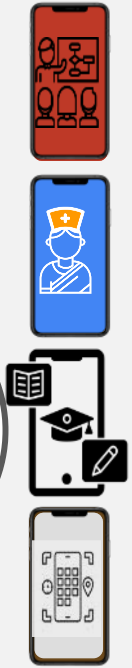
20-30% [1] **pregnancies belong to high-risk category,** which are responsible for **75% of perinatal morbidity and mortality** in India.

However, **only 14% of the pregnancies are currently being recorded as 'High Risk'** [2]

PROBLEM

SOLUTION

IHRPTM, an integrated, comprehensive, multi-step, systemic approach for improved identification, tracking and end-to-end management of high-risk pregnancies.



- *Extensive Hybrid Training on color coded HRP protocols for better role clarity to avoid delayed & irrational referrals,*
- *Tech+ Touch approach using Learning management app helps in access to self-paced, practice based multimedia learning content.*
- *Tracking of HRP through digital solution*
- *Data driven Regular Advocacy to ensure Availability, functionality and utility of logistics,*

Source: 1. Research article
2. Guidance Note for "Extended PMSMA for tracking High Risk Pregnancies (HRPs)"
3. SRS Bulletin

Chatbot project introduction

ARMMAN and ARTPARK are building a <u>learning copilot in the IHRPTM digital learning system</u>, starting with automated ANM support for learning queries

Old support workflow

Classroom training and continued digital learning on high-risk pregnancy

FLWs send learning queries through a Whatsapp helpline

Medical officers use a FAQ bank to reply to FLW queries

FLWs receive the responses several hours later

New support workflow

Conversational Q&A with instant answers for majority of FLW queries

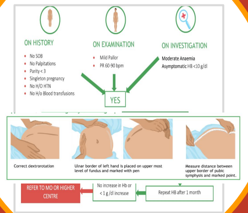
Medical officers respond when LLM cannot answer satisfactorily

Phase 1: Project objectives

- Improve time to response for FLW queries
- Reduce Q&A burden on medical officers
- Enable hand-holding and Q&A at scale

Project Journey: Iterative, human-centered approach

1. Project scoping: Picking the use case



2. Data curation & creation: Knowledge corpus, FAQs, evaluation sets

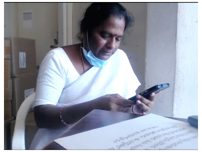
3. Wizard of Oz testing for user insights

4. Development & "lab" evaluation of chatbot

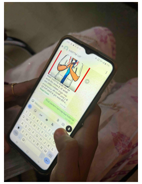
Risks/Protocols	FLW Pre-Training Quiz (n= 6000+)	FLW Post-Training Quiz (n= 6000+)	GPT4 without Training manuals	GPT4 with Training manuals
Quality ANC	66.6%	77.8%	100%	100%
Anaemia	66.3%	74.6%	73%	93%

The model's response is...

	Good enough to send to FLW as is	Free of factual errors	Complete	Concise and easy to follow	Backed by satisfactory citations
All 3 evaluators agreed	71%	85%	82%	55%	49%
At least 2 of 3 evaluators agreed	84%	93%	93%	69%	80%
At least 1 of 3 evaluators agreed	98%	98%	98%	98%	89%
No evaluators agreed	<2%	<2%	<2%	<2%	11%



5. Prototype testing with 12 FLWs

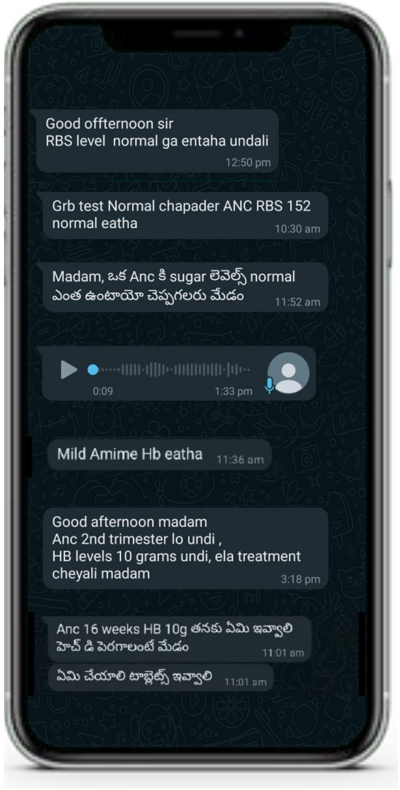


6. Deployment to 100 FLWs for ~3 months

NEXT: Scale up in phases

User insights through Wizard of Oz experiments

We conducted 'Wizard of Oz' experiments to understand how an LLM bot will be used, perceived and interpreted by ANMs



Overall

- For greater adoption, the intro to the bot must be facilitated by a medical officer
- ANMs tend to interact with the platform respectfully ("OK Sir", "OK Madam") as they believe it to involve a credible authority figure
- Expect onboarding challenges: what to ask, how to ask, etc

Queries

- Queries likely to be phrased as search strings, with complex queries split into multiple messages
- **Mix of English and Telugu phrases and fonts used**, spelling mistakes common
- **More detail in voice notes vs text queries.** Large variations in dialect & pronunciation

Responses

- **Preference for Telugu responses, with medical terminology in English**
- Quick response important; delays may trigger other medium of doubt clarification
- **Crisp language preferred. Utilize action-oriented verbs, replicating real communication**

Phase-wise model evaluation strategy

Phase	Evaluations	Objective	Work done
I. Objective evaluation	• ANM pre/post quiz *(75 questions, English)* • FAQ match (*~98 questions x 5 variations, English)*	• Validate "domain knowledge" of model	• Making program content machine-readable / RAG-friendly • FAQ match
II. Human evaluation by experts *(Indic Languages)*	• Evaluation of generated answers by clinical experts *(55 questions x 3 MTOs, English, text)* *(15 questions x 3 MTOs, Telugu, text)* *(65 questions x 3 MTOs, Hindi, text)*	• Measure correctness, completeness and conciseness of answers generated by model • Measure model performance in Telugu & Hindi	• Generation of answers, with citations • Multilingual support (English, Telugu, Hindi) • Tuning answers to be more "user-friendly"
III. Human evaluation by end users *(Indic Languages)*	• Field testing of Whatsapp chatbot by ANMs *(4 scenarios x 2 modes x 12 ANMs, Telugu, speech & text)*	• Understand user acceptability of responses • Predict likely failure points at deployment	• Multimodal support (text and voice) • WhatsApp integration
IV. Pilot + deployment	• Limited deployment with 1000 ANMs	• Understand usability, correctness, usefulness of chatbot	• Integration with WhatsApp helpline • Human in the loop

I. Model performance on FLW quiz

Risks/Protocols	FLW Pre-Training Quiz (n= 6000+)	FLW Post-Training Quiz (n= 6000+)	GPT4 without Training manuals	GPT4 with Training manuals
Quality ANC	66.6%	77.8%	100%	100%
Anaemia	66.3%	74.6%	73%	93%
Antepartum Hemorrhage (APH)	67.2%	79%	80%	100%
Hypertension	65.9%	75.6%	93%	93%
Gestational Diabetes	46.8%	63.3%	73%	100%

I. Model performance on FAQ match

Evaluation	No. of questions	Mean accuracy	Standard deviation of accuracy
FAQ Set (Exact)	80	100%	-
FAQ Set (Paraphrased, 5-fold)	80x5	96%	1.37%
Expert-created question set (Exact)	18	94%	-
Expert-created question set (Paraphrased, 5-fold)	18x5	75%	7.96%

II. Model performance on expert evaluation

The model's response is...

	Good enough to send to FLW as is	Free of factual errors	Complete	Concise and easy to follow	Backed by satisfactory citations
All 3 evaluators agreed	71%	85%	82%	55%	49%
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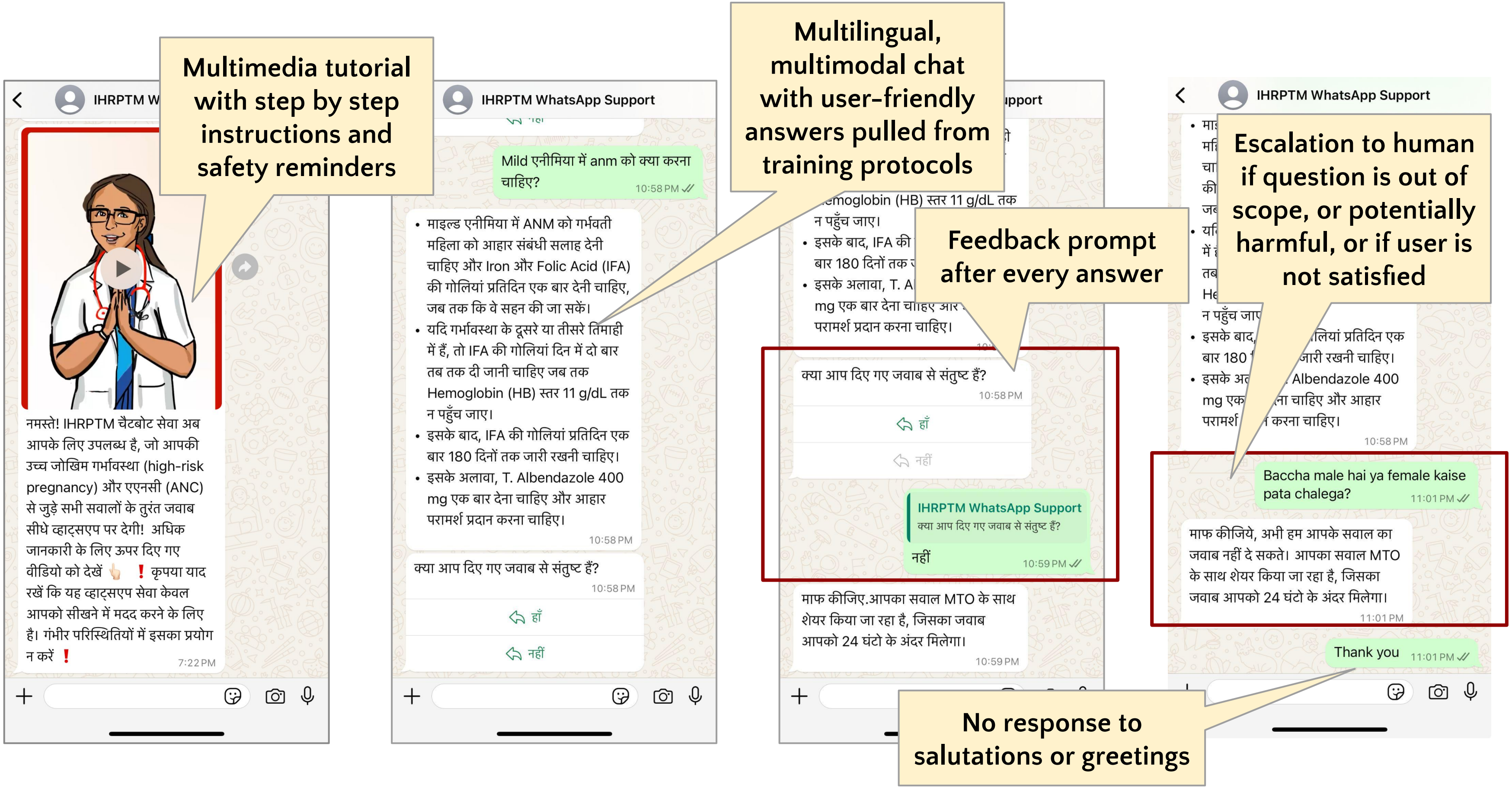
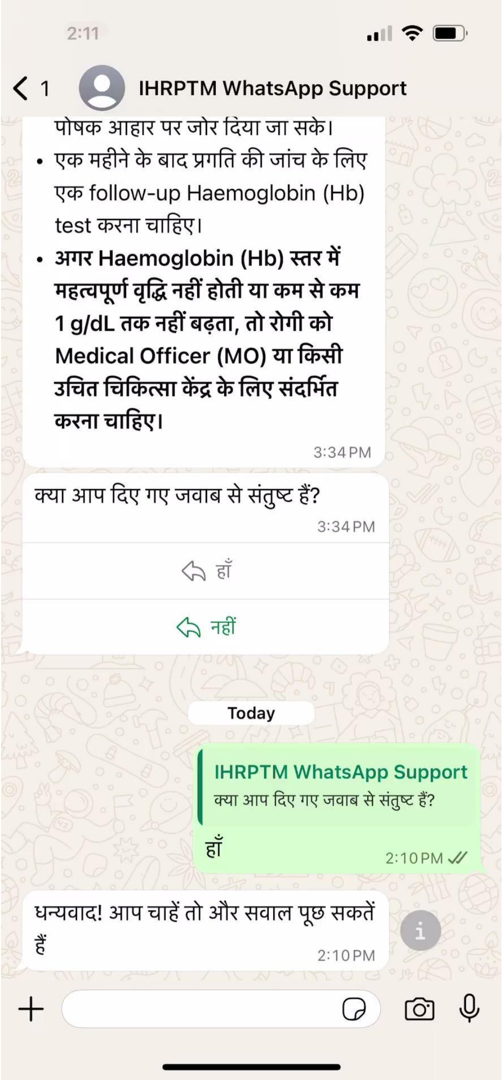
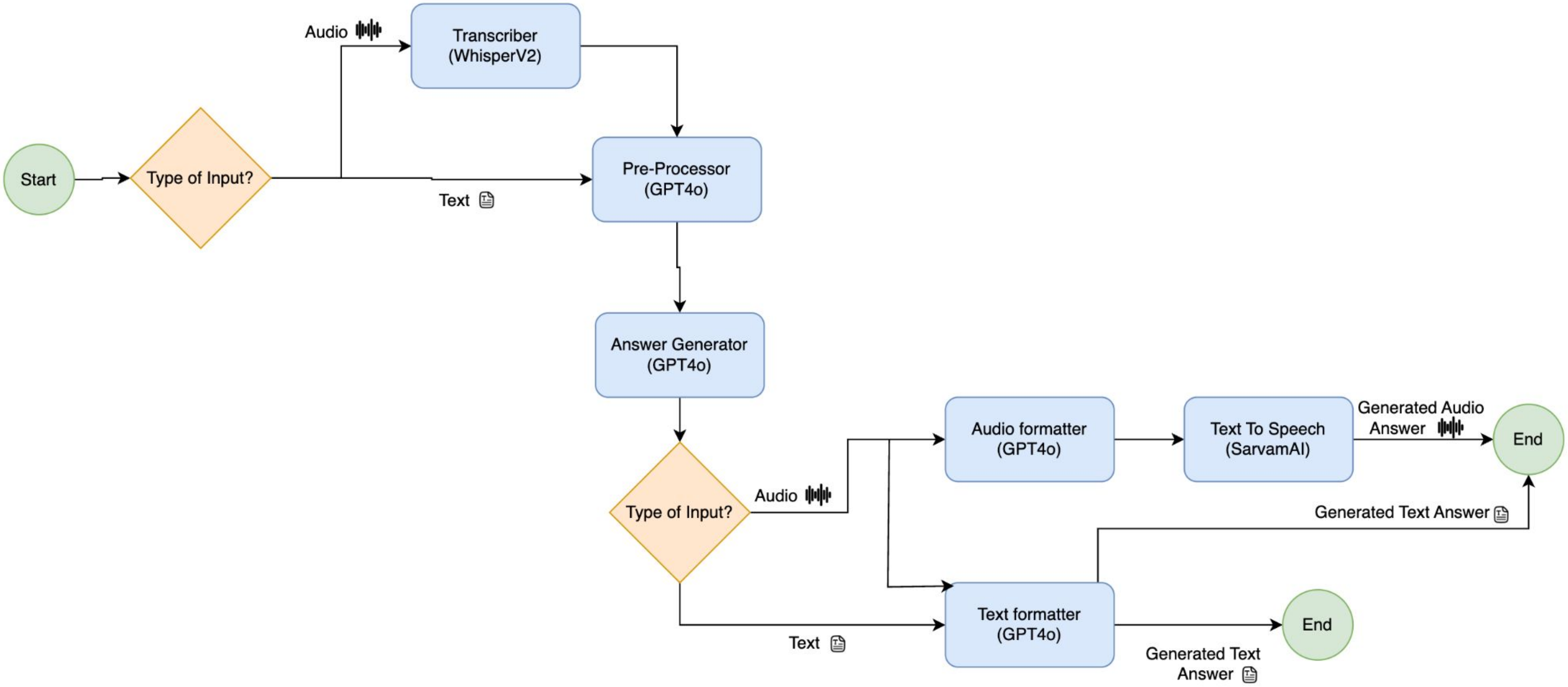
Chatbot overview



Chatbot Demo



System Architecture



Pilot: A Snapshot (March 2025)

100 FLWs enrolled

in stages across 2 districts in Uttar Pradesh

600+ queries

received from 72 FLWs

91% satisfactory responses

as rated by domain expert

92% positive feedback

by users on responses received

80% repeat users

who come back for second session

11% voice queries

vs 89% text queries

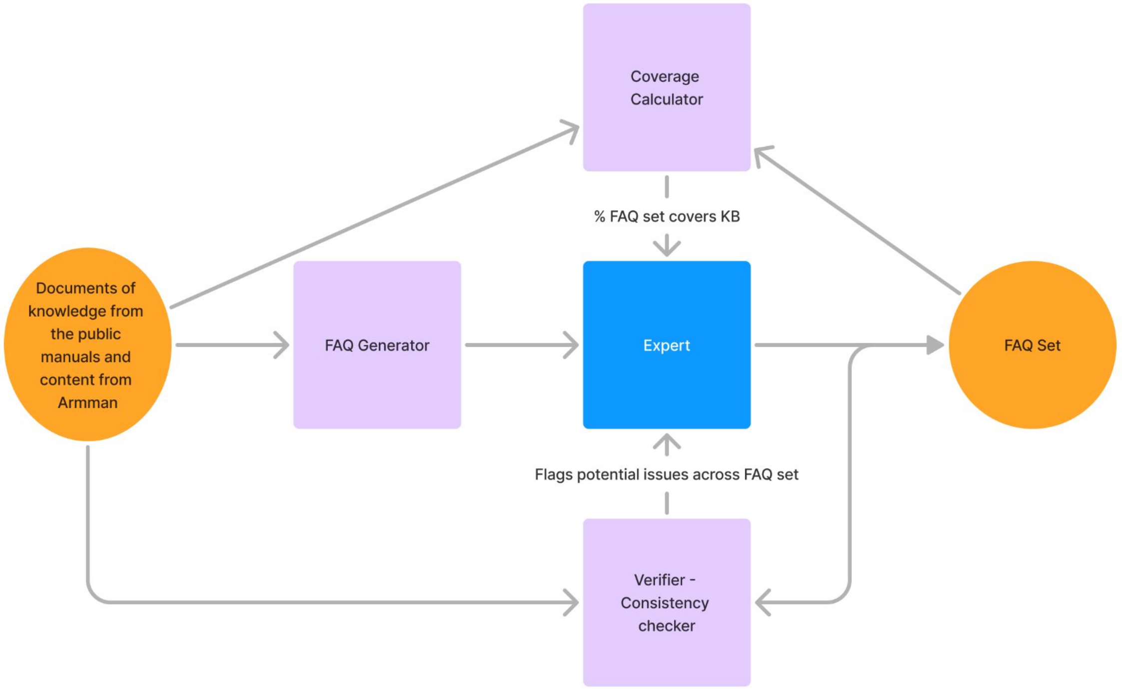
43% queries

escalated to human in the loop

LLM assistant's for Mothers

- Kilkari National Program: ~5M Mothers each year
- Current program is canned messages 2 times a week
- Before moving to LLM based conversation, build a verifiable system
- Verifiable: All responses are vetted
- Solution:
    - Offline QA Bank generation + Retrieval System
    - Can be deployed locally. 33M Embedding Model + Similarity Search
    - Cheap and efficient

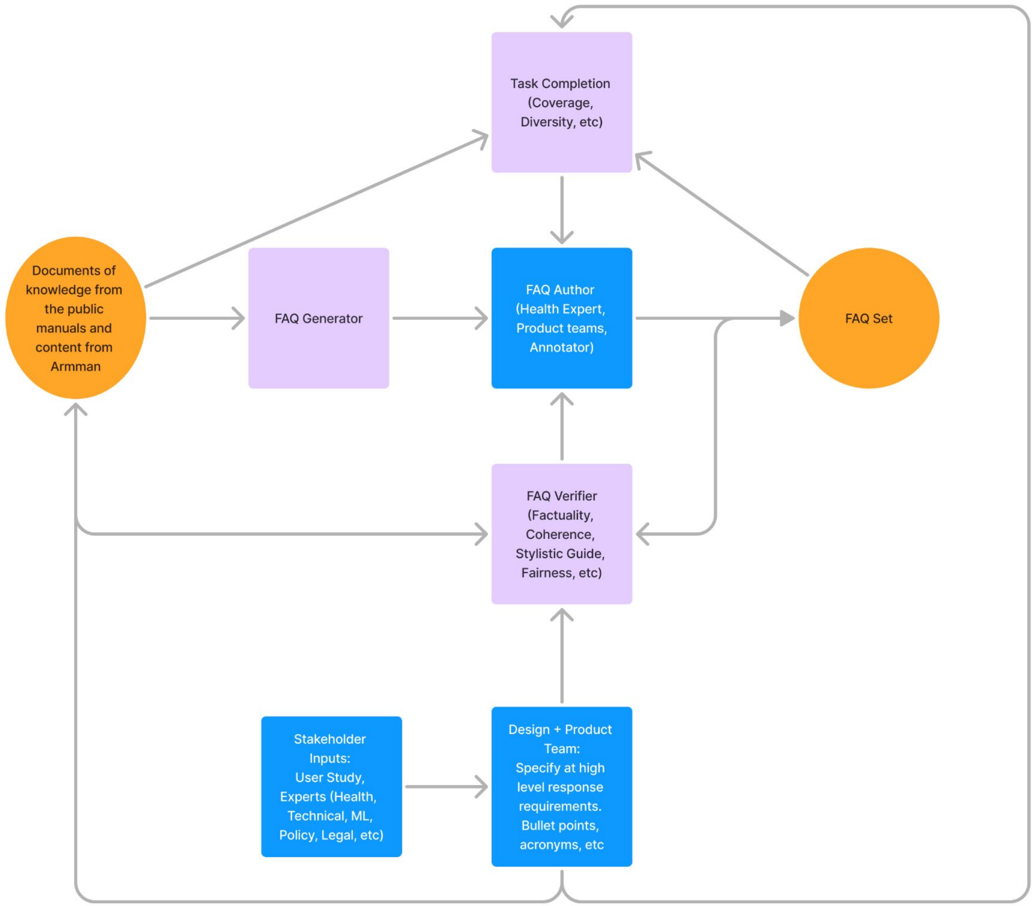
LLM + Human Exhaustive QA



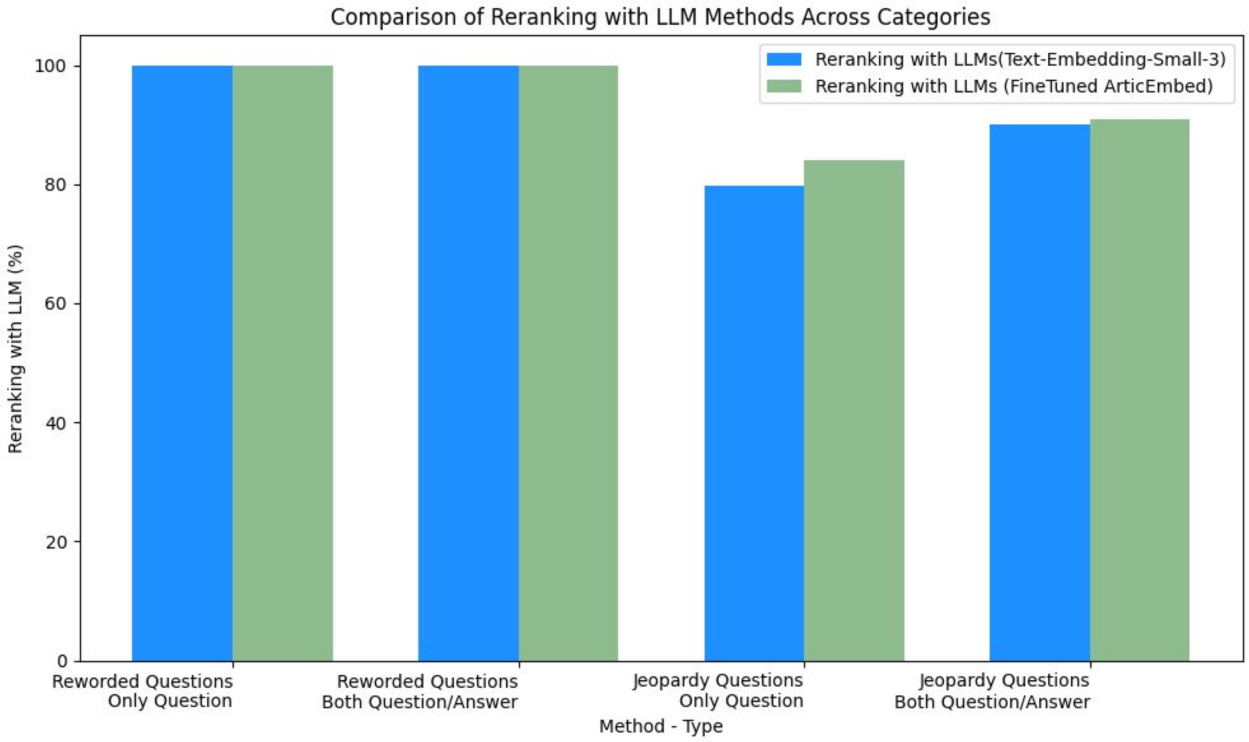
- Hallucination free
- Fast and Offline
- Converts 60K tokens knowledge base to 2K QA pairs

LLM + Human Exhaustive QA

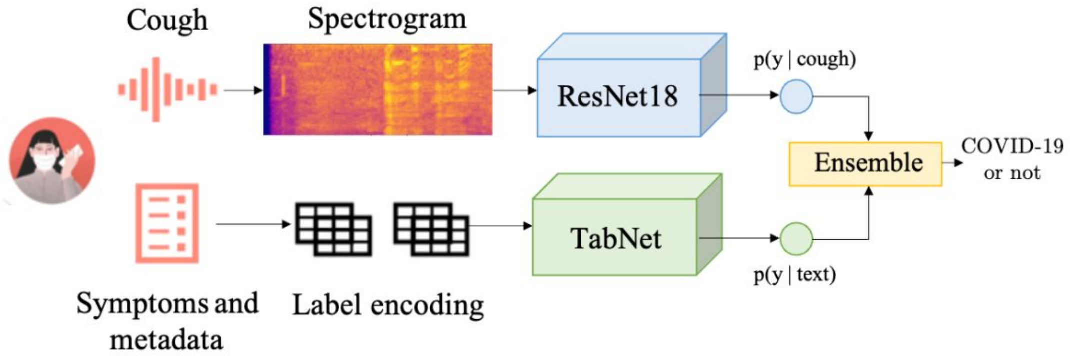
- Hallucination free
- Converts 60K tokens knowledge base to 2K QA pairs
- Product Insights
- LLM Calls
- Knowledge



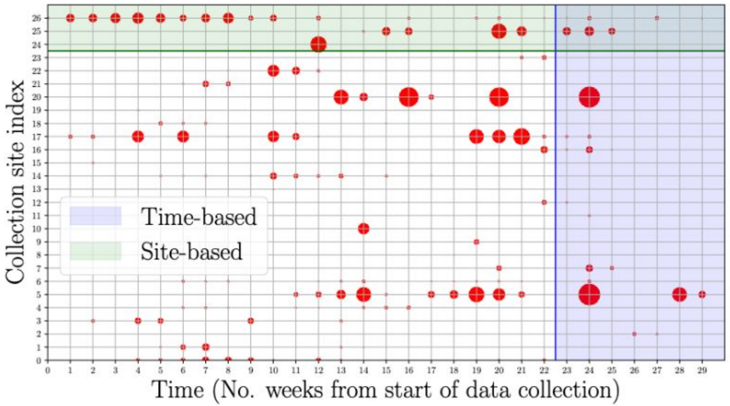
Results - Fine Tuned Embedder (33M)



Covid Screening using Cough



(a) *Schematic diagram of the proposed solution*



(b) *Data splitting strategy*

ICLR 2021 - Workshop [Link]
Main Paper - [Arxiv]

Covid Screening using Cough

Prevalence	Testing Capacity
1%	+44%
5%	+43%
10%	+41%
30%	+33%

Table 4: *Utility of our triaging tool.* We show the increase in the effective testing capacity of a system at different disease prevalence levels.

Screening TB based using Cough

Motivation:

- India accounts for ~26 % of global TB cases.
- Symptom-based screening misses partially symptomatic or asymptomatic cases.
- X-ray access is limited in many community settings.
- Need for a low-cost, deployable screening tool superior to symptom screening and more accessible than radiography.

Screening TB based using Cough

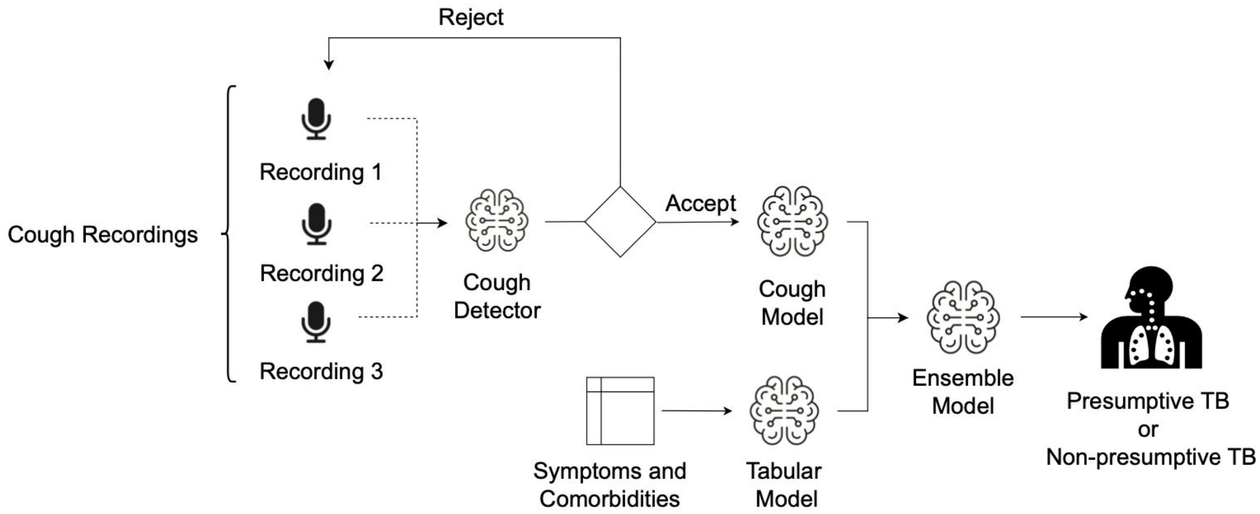


Fig. 4 An overview of the AI-based Pulmonary TB screening tool. The tool takes as input three solicited cough sound recordings which are validated using a cough detector and input to the cough TB model to obtain a likelihood score for the presence of TB. The symptoms, their duration, and comorbidities are input to the tabular model which gives another TB likelihood score. These two scores are combined and the resulting output thresholded to determine if the subject has presumptive TB or not.

Screening TB based using Cough

Key Results & Impact

Test-Set Performance (n = 1 551; TB prevalence = 53 %):
- Sensitivity: 91% Specificity: 69 %

Field Deployment:
- Screened 113063 subjects; flagged 17973 as presumptive TB.
- Of 5584 with diagnostic follow-up:
  - 359 confirmed TB cases (6.4 %), including **50 cases (14 %) missed by symptom screening**.

Implications:
- Detects partially/asymptomatic TB cases, reducing missed diagnoses.
- Scalable for low-resource settings without radiography, augmenting TB control efforts.

Day 2

Early pest warning and advisory system

CottonAce is an AI-powered early pest warning and instant advisory system developed by Wadhwani AI.

This pest management system helps cotton farmers to **protect their crops** by determining the right time to spray pesticides through **immediate and localized advice**, and helps extension program officers and administrators to monitor the solution.

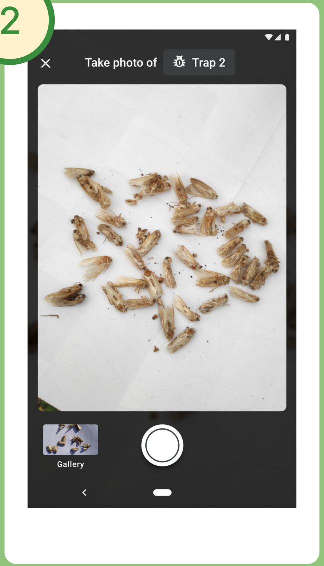
Slides from Jerome White

Early Pest Warning and Advisory System
Using computer vision to count and identify pests infecting cotton crops and provide advisory to smallholder farmers.

1

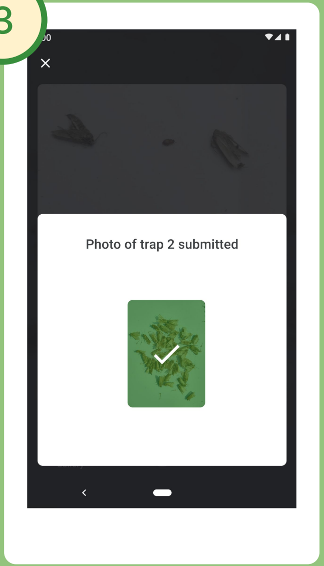
Users empty the pests caught in the pheromone trap installed at their farm.

2



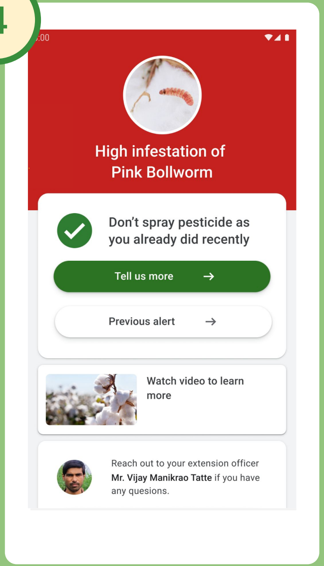
Next, they capture two photos of the trap catch using the CottonAce app.

3



The AI technology detects and counts the number of pests found in the trap.

4



The CottonAce app generates a real-time advisory, based on scientific action thresholds.

Cotton in India…

… is important

- Leads the world in*
  - Production: ~25% of world total
  - Area under cultivation ~41% of world total
- Has an estimate 6 million cotton farmers
  - More than 75% are smallholder
  - And an additional 40-50 million people engaged in related activities

… is not easy

- Pest attacks responsible for ~30% crop yield loss
  - 70% estimated proportion of pest damage caused by bollworms
- Half of India's total pesticide usage is on cotton

In Maharashtra, vicious cycle of cotton farmers' woes continues

Hindustan Times | By Ketaki Ghoge and Surendra P Gangan, Mumbai

Feb 18, 2018 12:18 AM IST

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worry is that the pink bollworm present in the soil can attack the crop again in the upcoming kharif season.

Pink bollworm may eat up half of Maharashtra's cotton crop

Warning of unprecedented

November 17, 2017 12:34 am | Updated 0

Maharashtra cuts cotton forecast on worm infestation

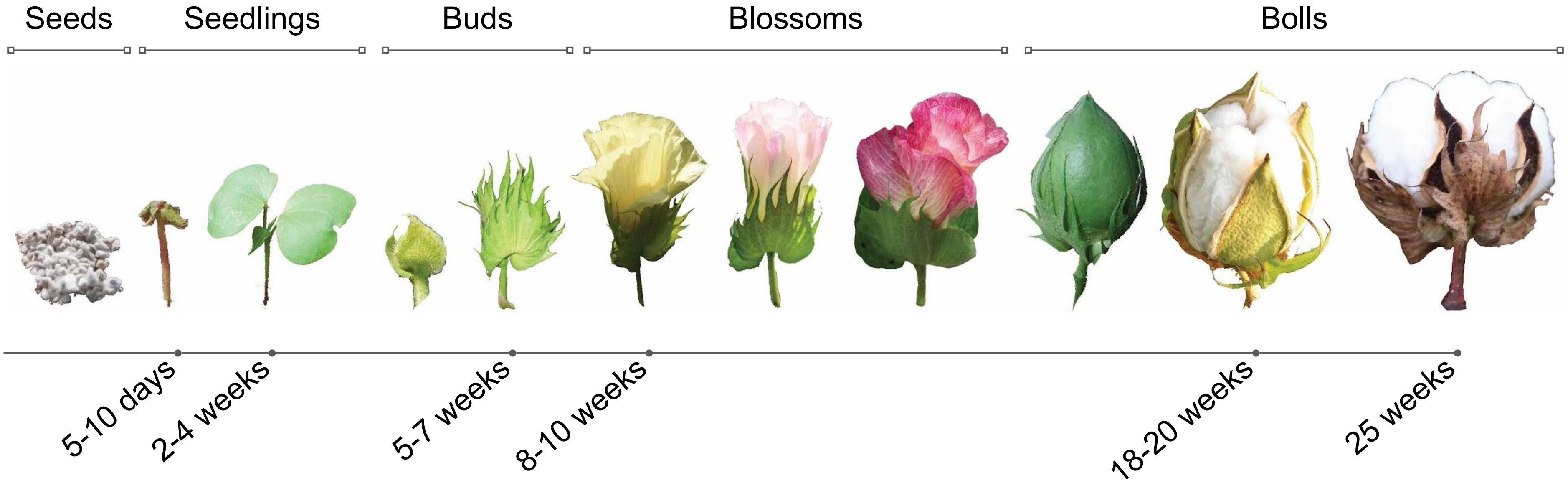
Maharashtra has cut its forecast for output of the fibre by 37 percent from its September outlook as a pest infestation has reduced yields.

Follow us on Google News

Published: 24th January 2018 04:41 PM | Last Updated: 24th January 2018 04:41 PM

*International Cotton Advisory Committee (ICAC)

The cotton lifecycle



The cotton lifecycle

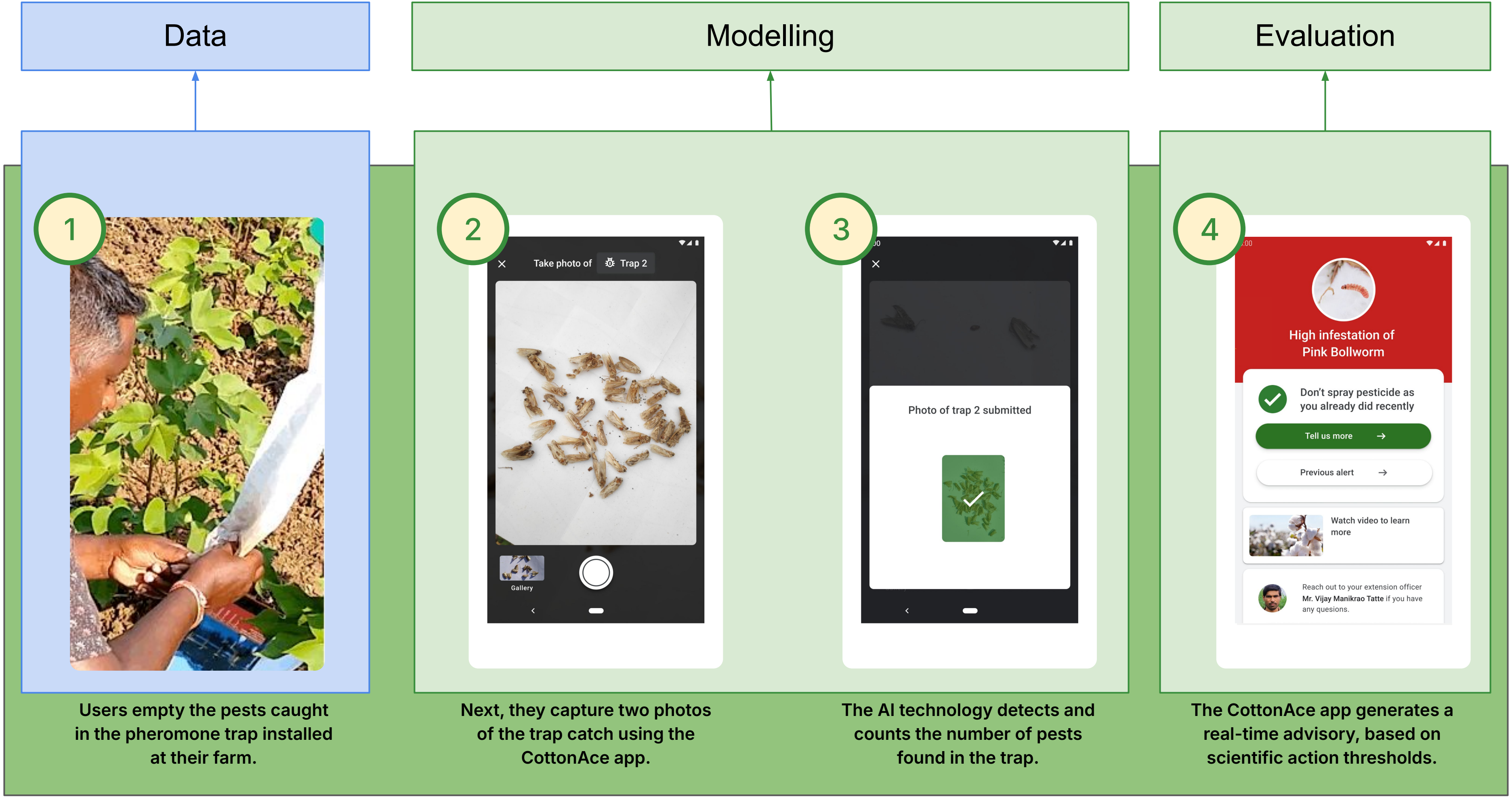
Pest traps

- Traps that can be placed in the field to monitor pest populations
- A recent push by the government to get more farmers using them

Traps are mounted throughout the field

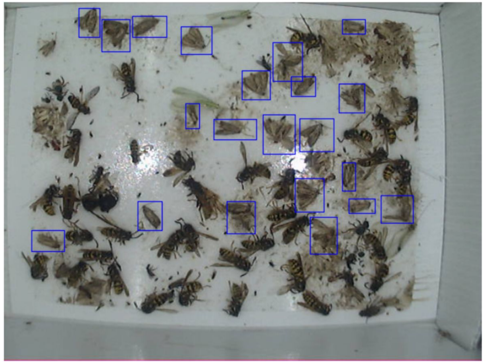
- Lure emits a pheromone that attracts males
- Different lures attract different bollworms

Bottom opens to release trap catch

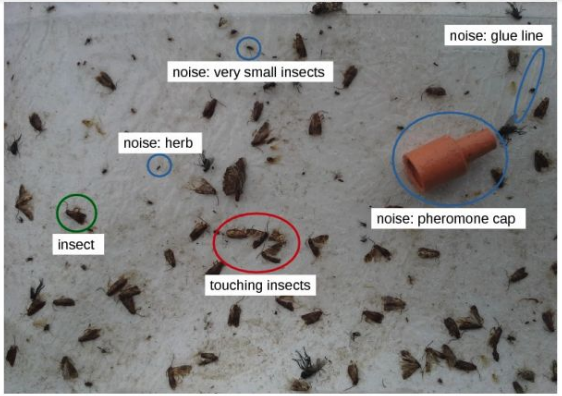


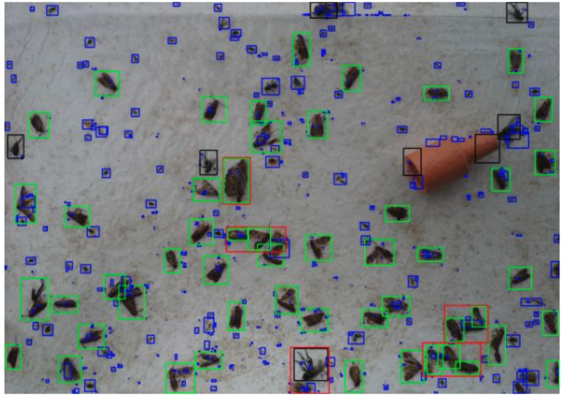
Data
Modelling
Evaluation
1
2
Take photo of Trap 2
Gallery
3
Photo of trap 2 submitted
4
High infestation of Pink Bollworm
Don't spray pesticide as you already did recently
Tell us more
Previous alert
Watch video to learn more
Reach out to your extension officer Mr. Vijay Manikrao Tatte if you have any quesions.
Users empty the pests caught in the pheromone trap installed at their farm.
Next, they capture two photos of the trap catch using the CottonAce app.
The AI technology detects and counts the number of pests found in the trap.
The CottonAce app generates a real-time advisory, based on scientific action thresholds.

Existing datasets



Ding and Taylor, 2016

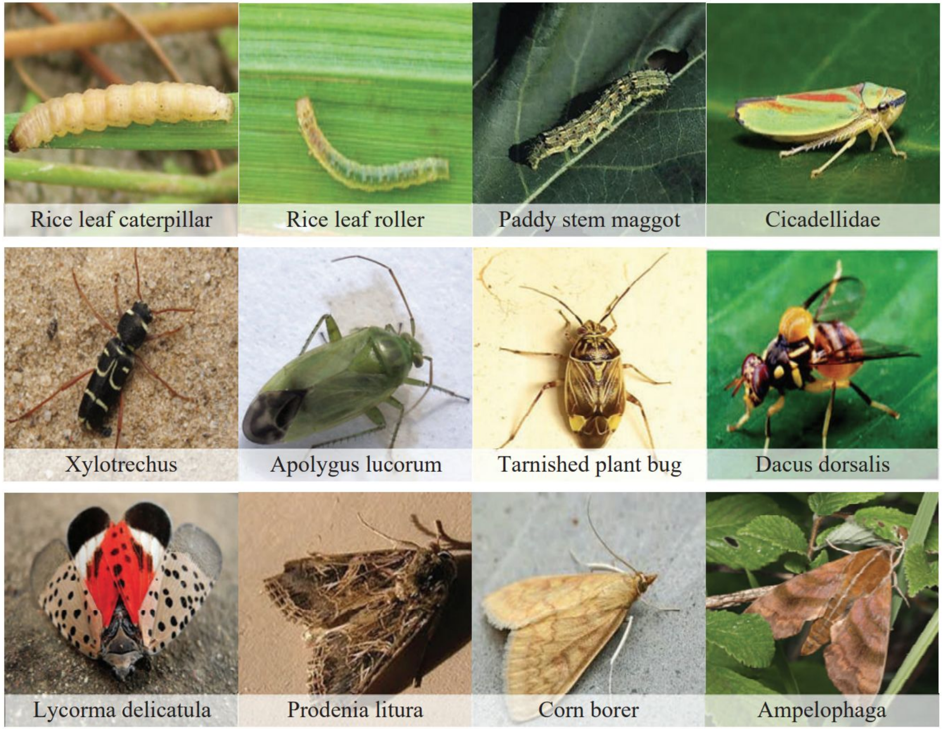




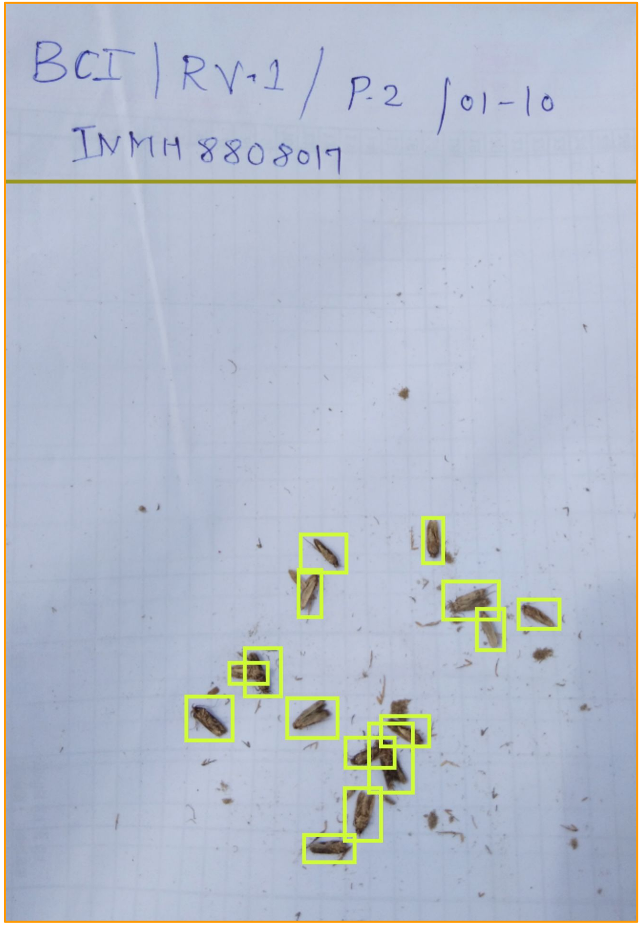
Bakkay et al., 2018

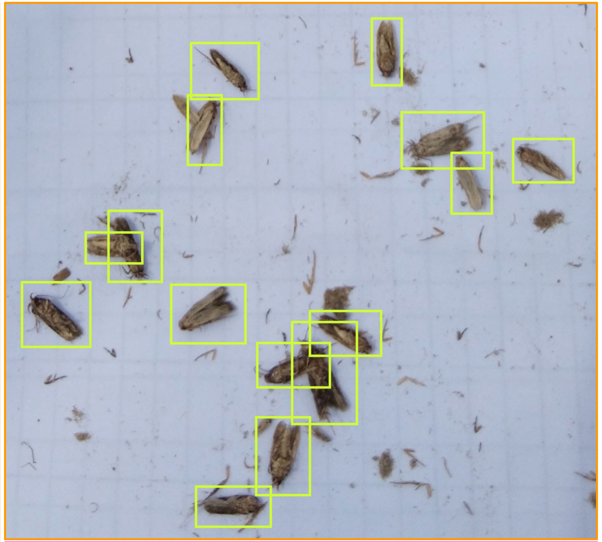
IP102 [Wu et al. 2019]

- 75K images across 102 categories
- Images extracted from internet search engine results



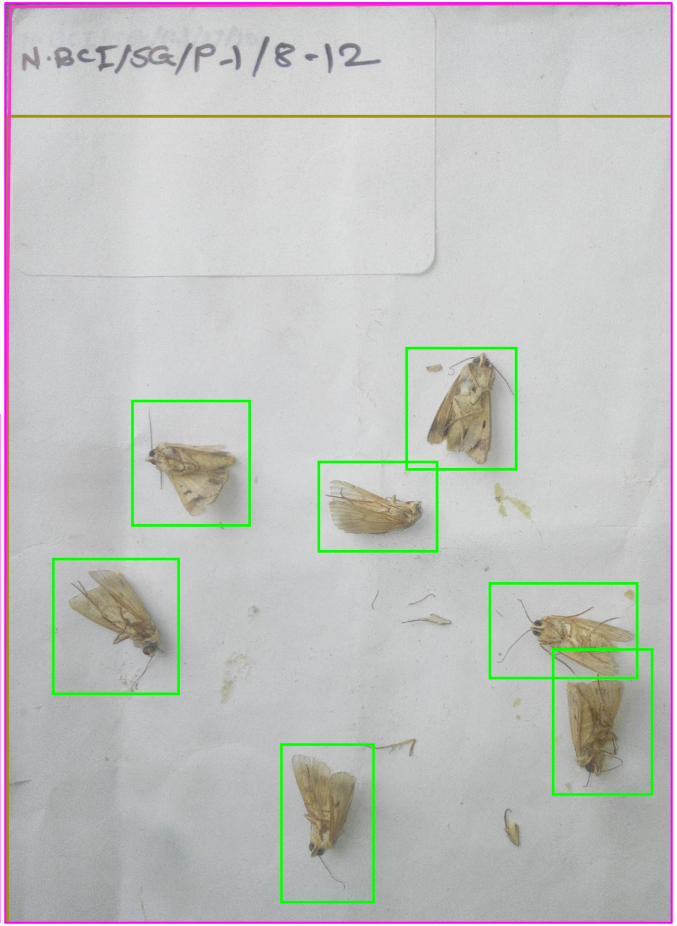
Data collection: process

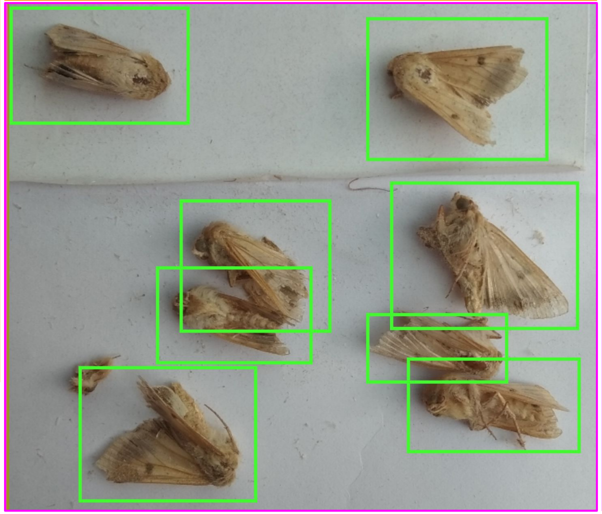


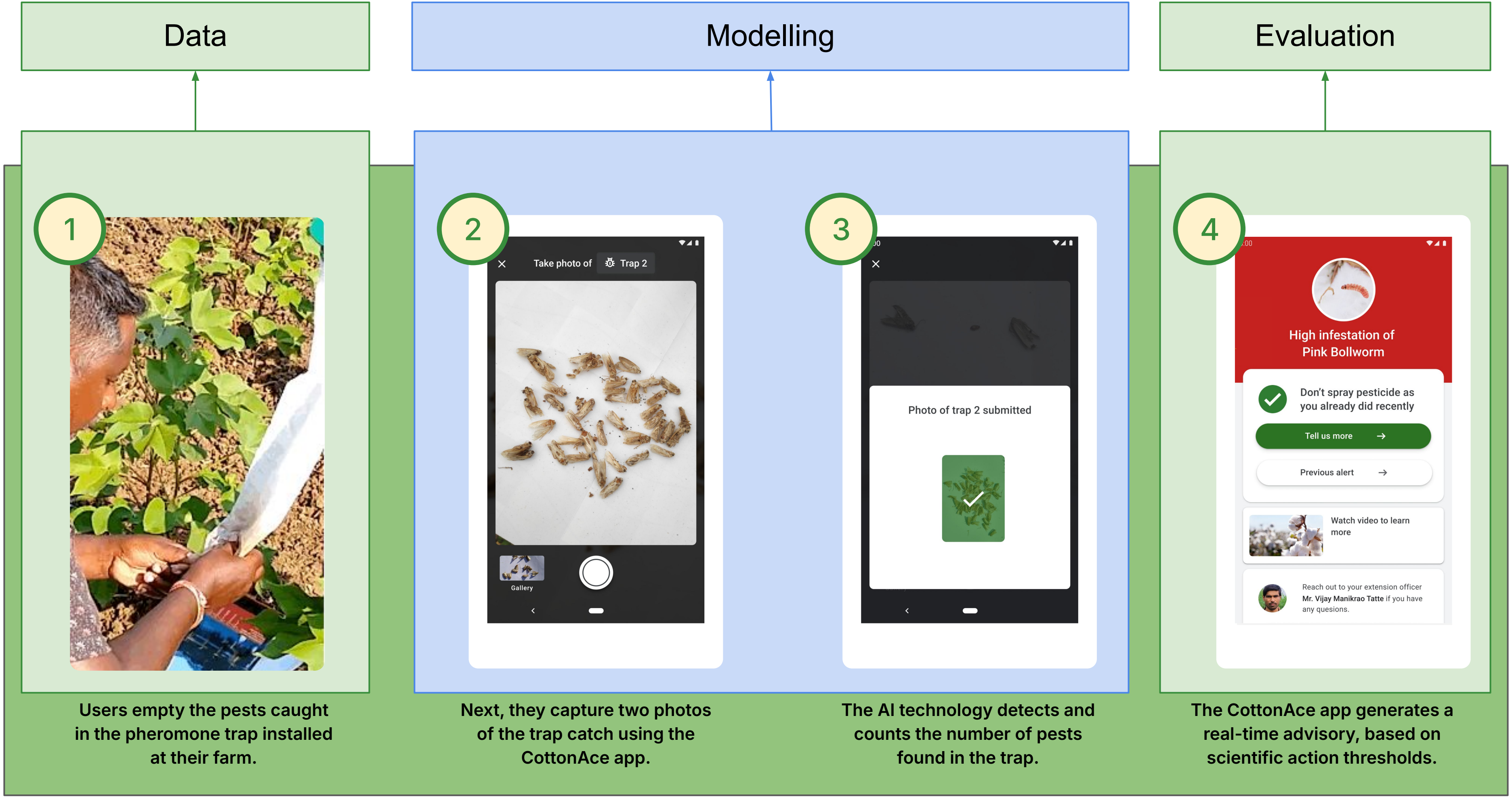


Pink bollworm

American bollworm



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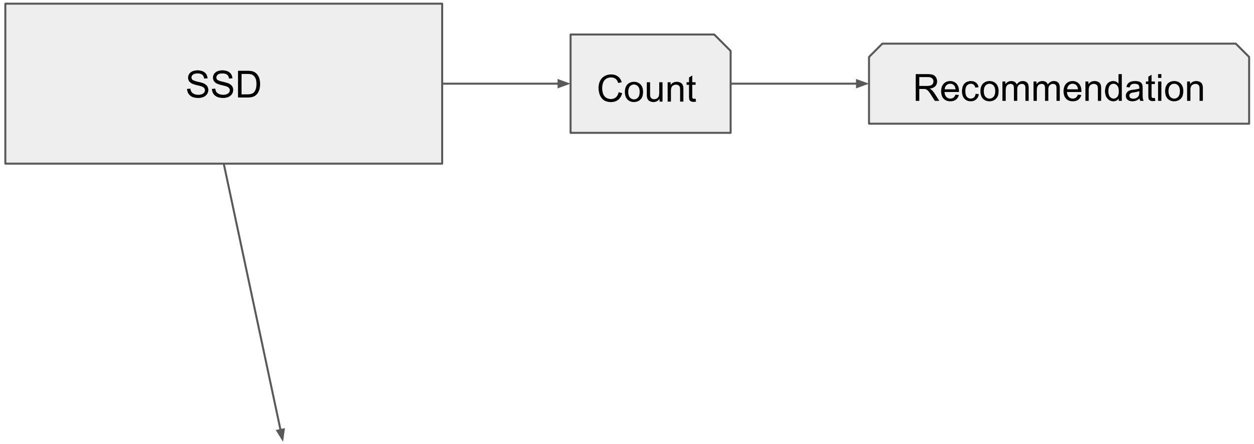
System workflow V1 (~2018)

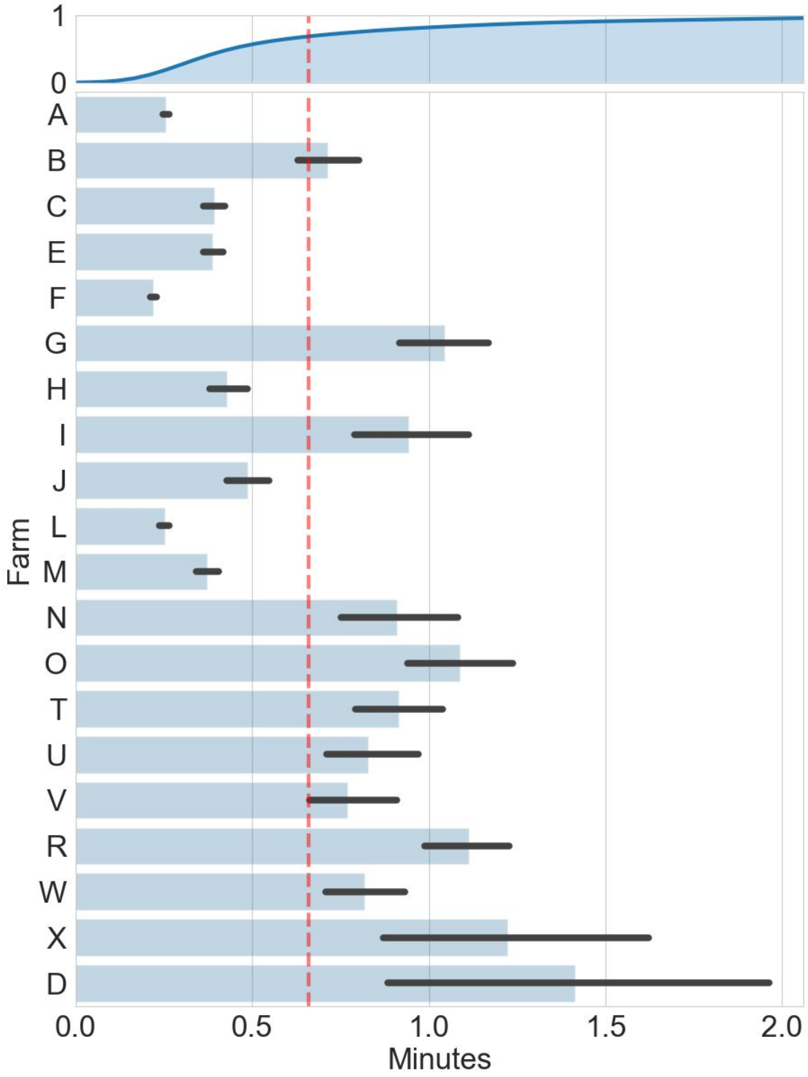


Single Shot MultiBox Detector [Lui et al 2016]

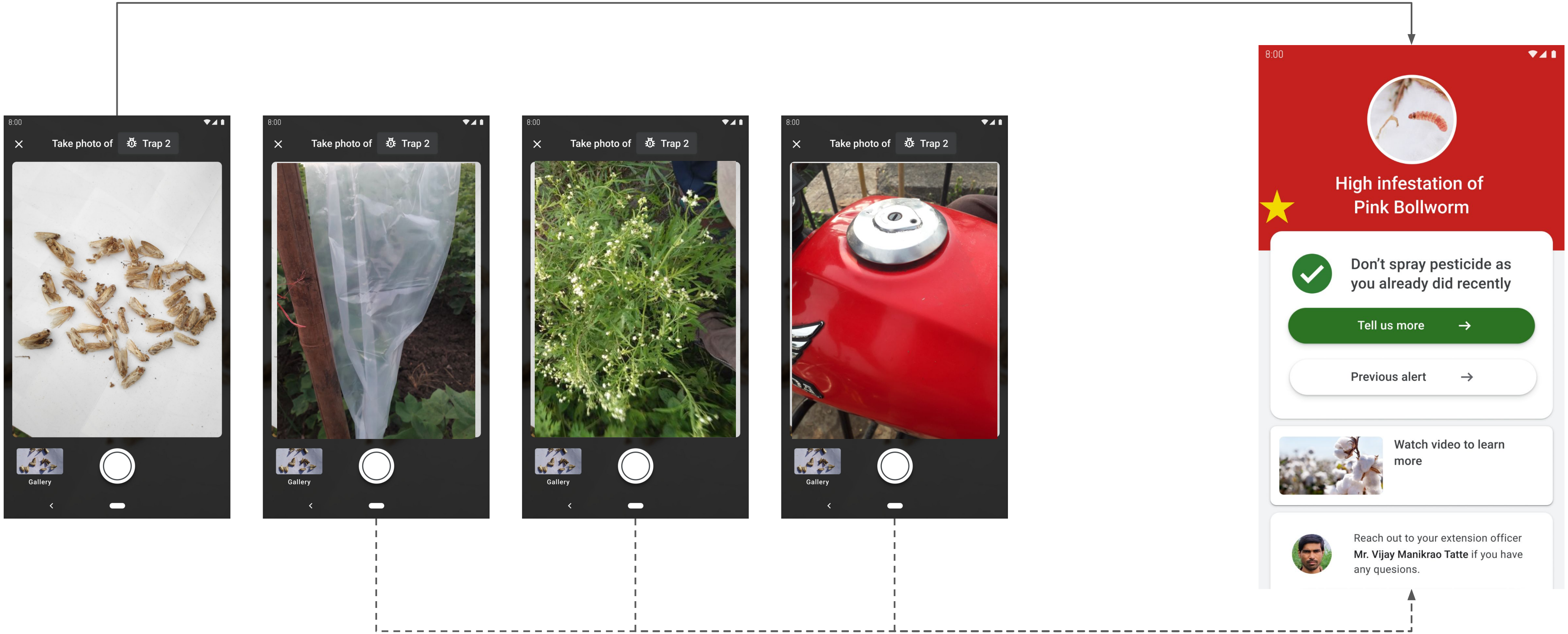
- Seminal architecture in object detection timeline
- Stable, established open source implementation in PyTorch
- Found to perform well on insect detection [Nam and Hung 2018]

Early lesson: upload time

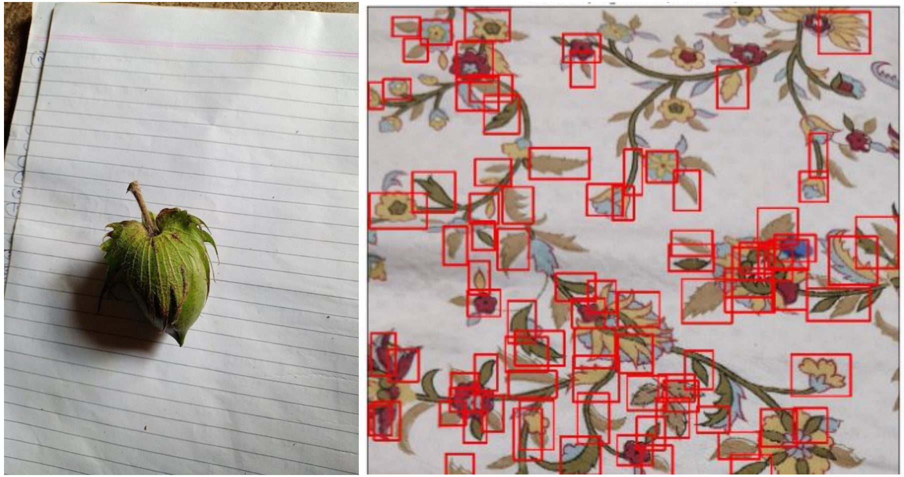
- Small study in early 2019
- Very early version of Cotton Ace
- Figure: Average upload time per field
- *Should not rely on internet!*

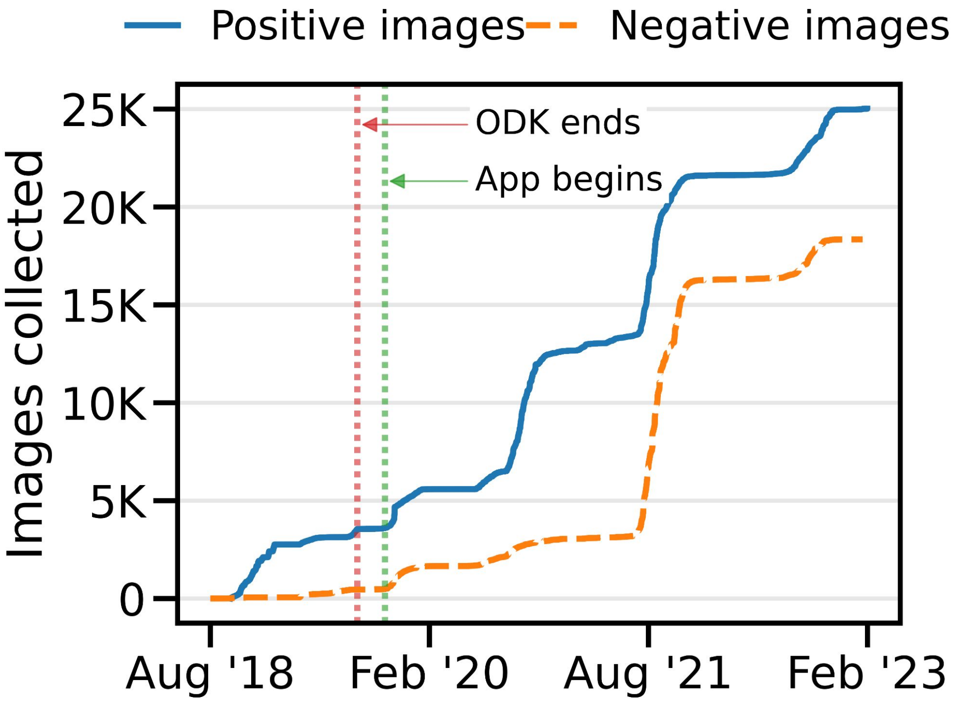


Early lesson: interaction varies

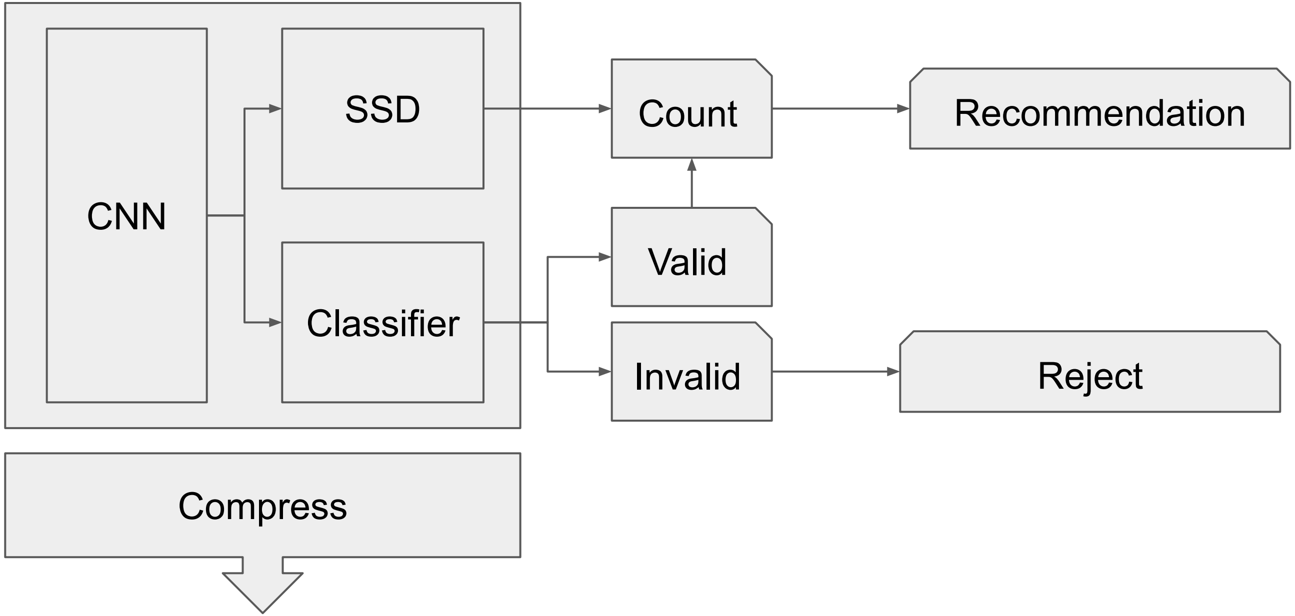


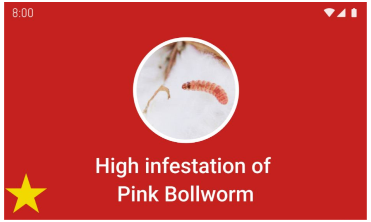
Scale of the negatives

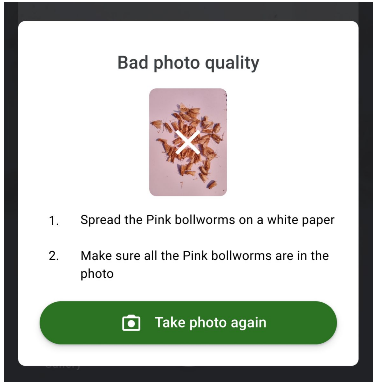




System workflow V2 (~2019)







2022: A combination of ideas

Our current model (2023) is a result of several ideas coming together

1. Alert abstention
2. Alert delay
3. Model development using the crowd

OOD Rejection - Saw Tooth

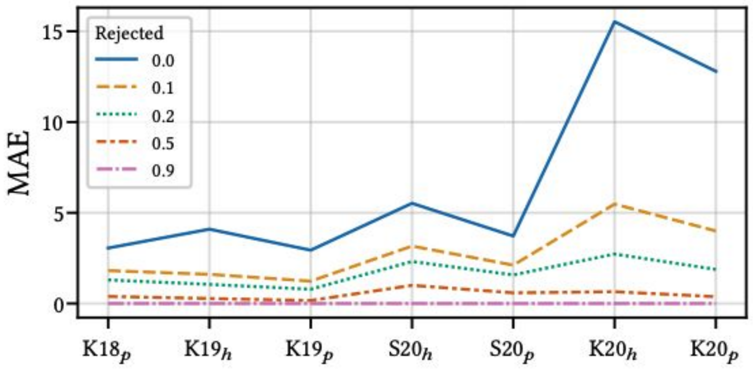


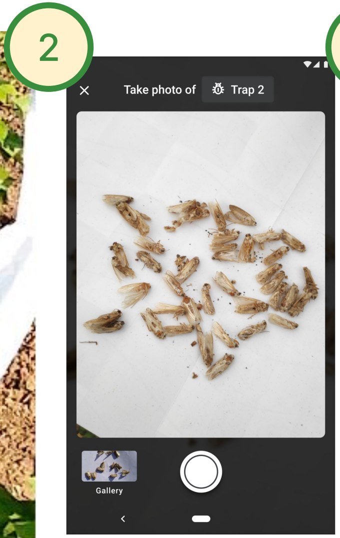
Figure 1: Model performance across seasonal (2018–2020) development and test sets. With each season performance decreases (increasing X_p's), but can be improved by training on that seasons data (decrease in immediate X_h's). Performance can improve further by rejecting some fraction of worst-performing samples.

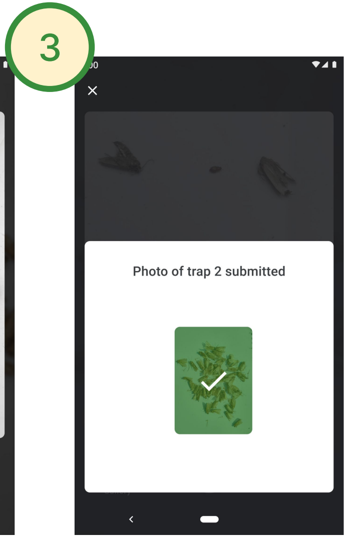
	Train	Test
$S20_h$	• Data up to summer 2020 start	Data from summer 2020
$S20_p$	• $S20_h$ + data from that season	Data from summer 2020

White, J., Madaan, P., Shenoy, N., Agnihotri, A., Sharma, M., & Doshi, J. (2022). A Case for Rejection in Low Resource ML Deployment. Challenges In Deploying And Monitoring Machine Learning Systems Workshop, NeurIPS 2022

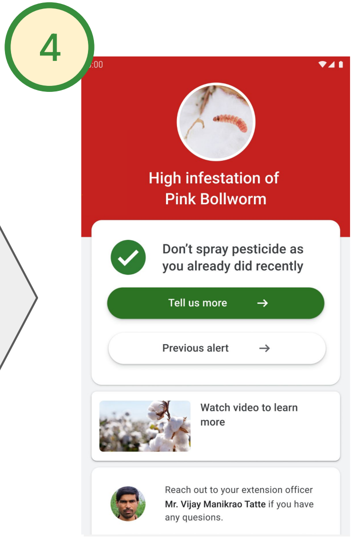
2022: A combination of ideas → *Alert delay*

- During the 2022 season, a group of users did not receive alerts immediately
- Instead…





… alert generated within 24 hours, after human review



2022: A combination of ideas → *Using the crowd*

Overall performance

Objective:

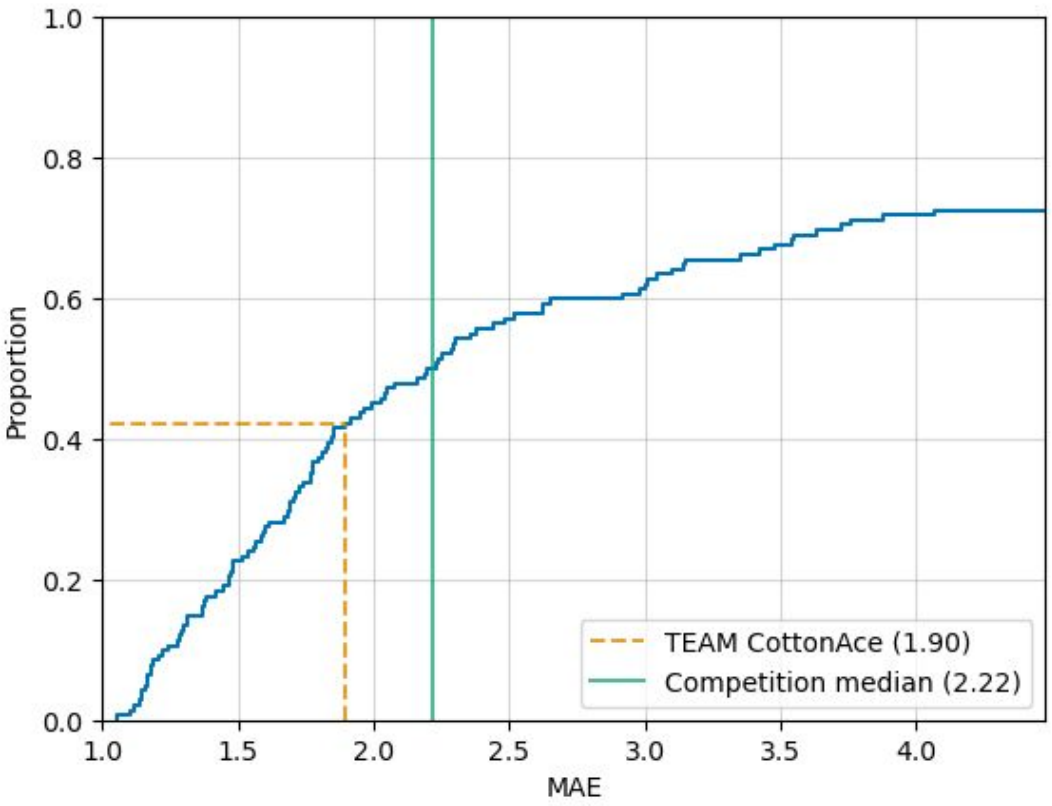
- Classify pests in an image and count them
- Correctly provide zero for images with no pests

Figure

- Proportion of teams with errors less than a given value
- MAE based on complete (public and private) test set

Takeaways

- Very strong numbers from best-performing teams
- Long tail is to be expected
- Our models performed better than most
    - Lots to learn from the crowd!



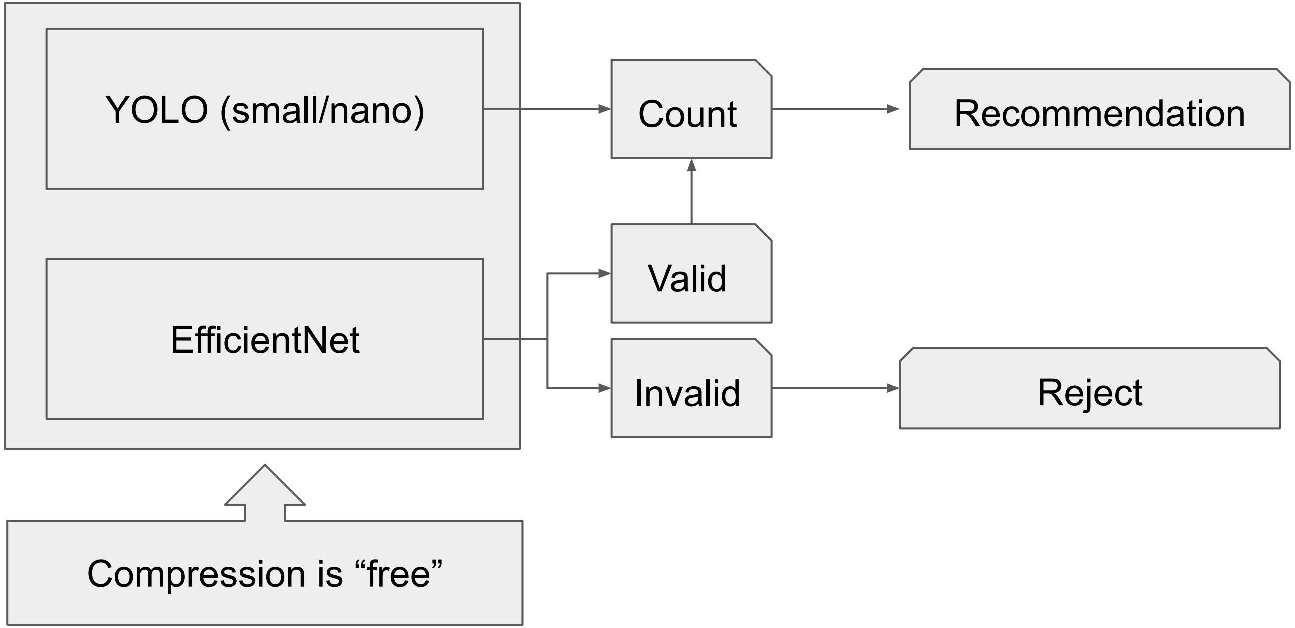
https://zindi.africa/competitions/wadhwani-ai-bollworm-counting-challenge

Notable winning techniques

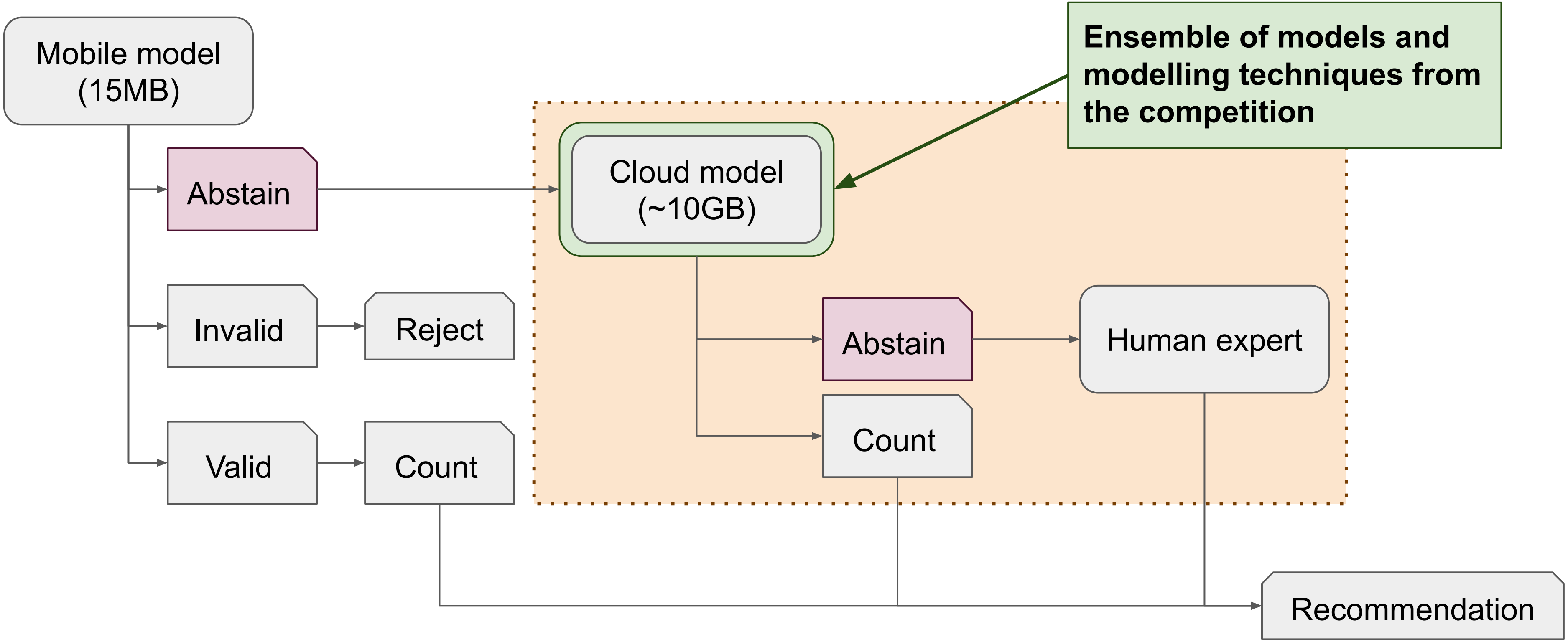
YOLO	● Four of the top six models used YOLO somewhere in their pipeline ● … including first and second place ● … transformers made a middling appearance (within the six)
Large images	● Train resolution ranged from 1024 to over 2500!
Augmentations	● Mosaic ● Mixup
NMS magic	● NMS tuning is key (we knew this, but good get validation) ● Weighted Boxes Fusion (WBF)
Ensembling	● Some used test time augmentation (TTA; we'd been experimenting with this, good to see examples) ● Cross validation to improve confidence

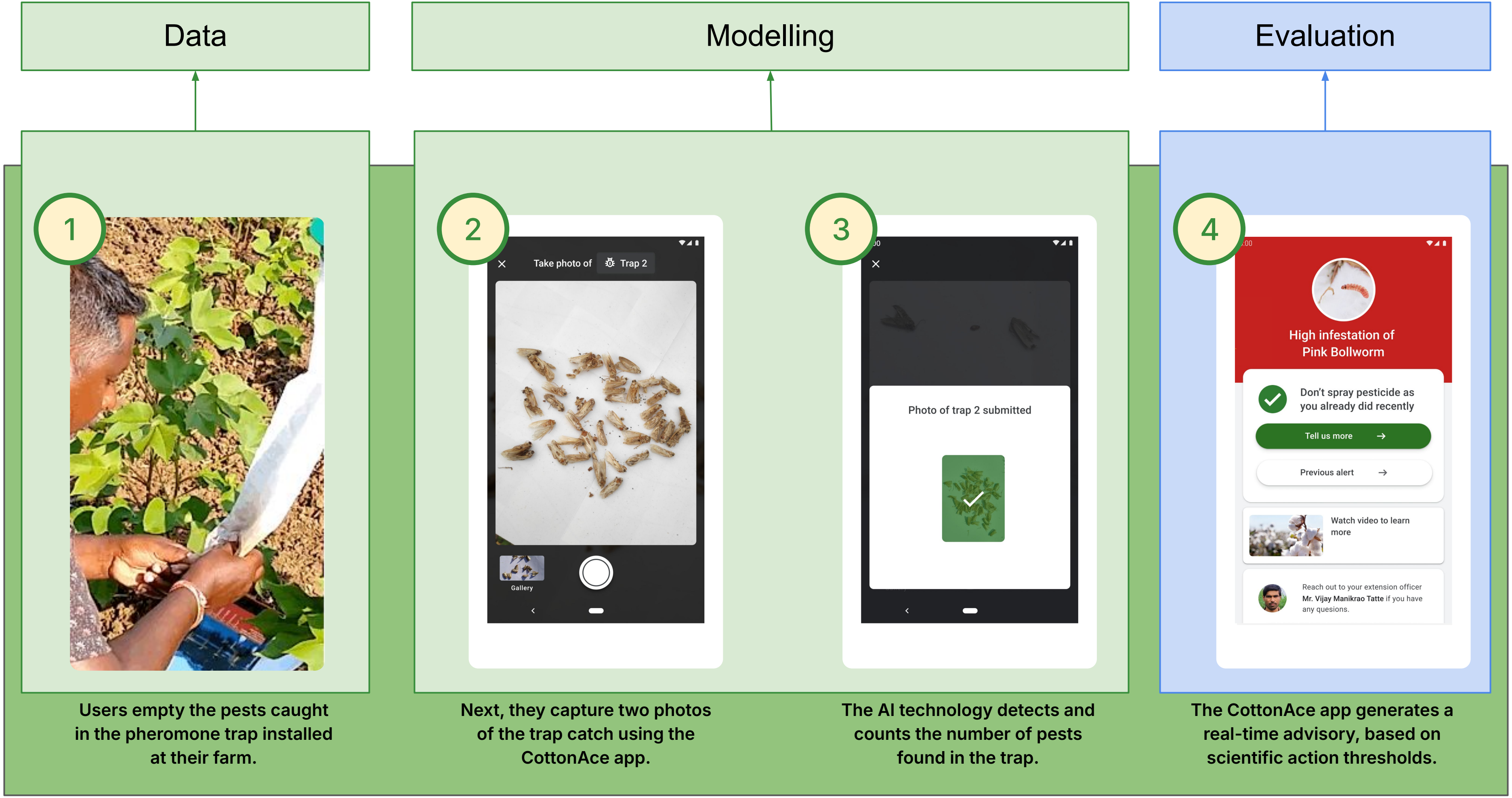
https://zindi.africa/competitions/wadhwani-ai-bollworm-counting-challenge

System workflow (2023)



System workflow extended (2023)





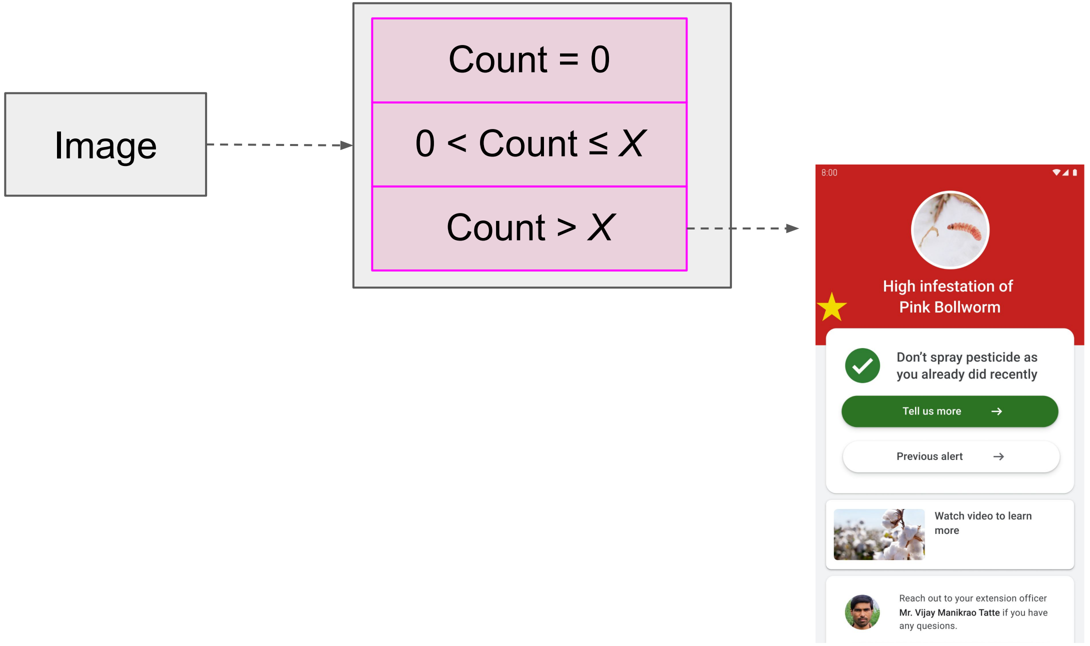
Data
Modelling
Evaluation
1
2
3
4
Take photo of
Trap 2
Gallery
Photo of trap 2 submitted
High infestation of
Pink Bollworm
Don't spray pesticide as
you already did recently
Tell us more
Previous alert
Watch video to learn
more
Reach out to your extension officer
Mr. Vijay Manikrao Tatte if you have
any quesions.
Users empty the pests caught
in the pheromone trap installed
at their farm.
Next, they capture two photos
of the trap catch using the
CottonAce app.
The AI technology detects and
counts the number of pests
found in the trap.
The CottonAce app generates a
real-time advisory, based on
scientific action thresholds.

User-centric evaluation

- Modelling produces counts
- Business logic produces categorical RED/Yellow/Green alerts

Business logic can vary, and can be difficult to model directly

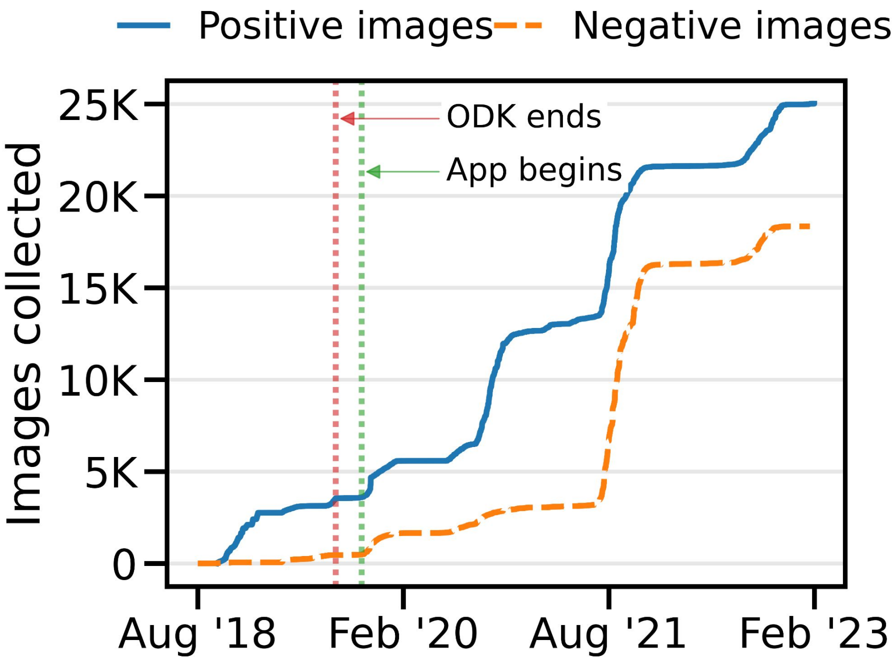
… but it’s prudent to keep in mind during tuning and evaluation



Open source data: facilitating collaboration

Overview

- 36K+ images
- Captured during formal data collection and app deployment
- Mix of
  - pink and American bollworms
  - Images without bollworms



White, et al. PML4DC@ICLR, 2023

https://github.com/WadhwaniAI/pest-management-opendata

Low barrier to entry

```
$> git clone https://github.com/WadhwaniAI/pest-management-opendata.git
$> cd pest-management-opendata
$> aws s3 sync --no-progress s3://wadhwaniai-agri-opendata/ data/
$> ./bin/to-ultralytics.sh -d data -o /desired/output/location
$> git clone https://github.com/ultralytics/yolov5.git
$> cd yolov5
$> python train.py --data /desired/output/location/config.yaml ...
```

```
from datasets import load_dataset # HuggingFace!
dataset = load_dataset('wadhwani-ai/pest-management-opendata', streaming=True)
```

White, et al. PML4DC@ICLR, 2023

https://github.com/WadhwaniAI/pest-management-opendata

Scaled Social Impact

- Reduction in pesticide usage by **20%**
- Translates to increase in profit by **25%**
- Reached 500K farms in 2023
- Adopted by National Pest Surveillance System (NPSS)
- Awards and Recognition
    - $3.3M grant from Google.org 2023
    - Global Change Award Winner - H&M Foundation 2021
    - Fast Company World Changing Ideas 2021
    - $120K grant from GIZ for kaggle-like competition

Building AI Solutions

Beginning AI for Social Impact - Story (~2017)

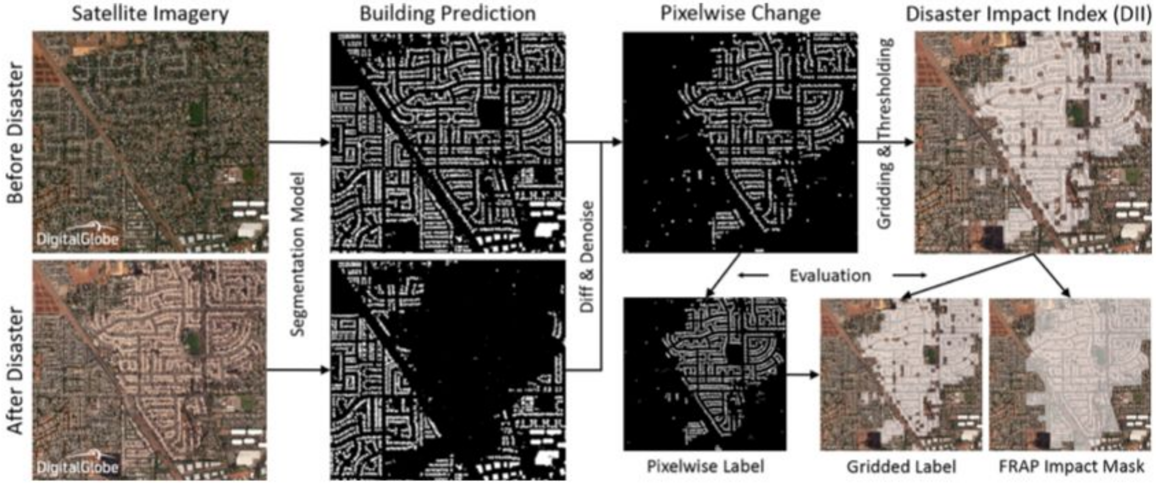


Figure 1: Flow diagram of our proposed approach for disaster impact analysis. We run pre-trained CNN on satellite imagery before and after disaster, compare the change in extracted man-made feature, then compute Disaster Impact Index (DII) to understand impact of each area

Doshi, J., Basu, S., & Pang, G. (2018). From Satellite Imagery to Disaster Insights. *AI for Social Good, Neural Information Processing Systems (NeurIPS) Workshop*.

Boin, J.-B., Roth, N., Doshi, J., Llueca, P., & Borensztein, N. (2020). Multi-class segmentation under severe class imbalance: A case study in roof damage assessment. *Humanitarian Assistance and Disaster Response, NeurIPS Workshop*.

Wadhwani Institute for Artificial Intelligence

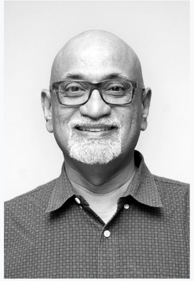
Wadhwani AI

Non-profit dedicated to making positive social impact

- By developing and deploying AI/ML based solutions
- Focusing on underserved communities in India and other developing countries

Inaugurated in February 2018

P. Anandan



Born	Madras, India
Alma mater	Indian Institute of Technology Madras (B.Tech, Electrical engineering) University of Nebraska (Masters in Computer Science) University of Massachusetts, Amherst (PhD in Computer Science)

How to pick a problem? 8 Questions

Impact potential: Is it a big problem? What is the specific problem that AI is expected to solve, and in what settings? Will solving that specific problem have large enough impact?

AI feasibility: Is an AI-based solution feasible, technically? Are there logical and scientific reasons to believe the envisioned AI model is possible? Does the data exist or acquirable?

AI necessity: Will AI be sufficiently better than other (potentially easier) approaches to warrant the (additional) effort?

Full solution + System design: Will AI make enough difference, given other issues? What else needs work (workflows/processes upstream, downstream, in parallel) for the full system-integrated solution to have expected outcomes?

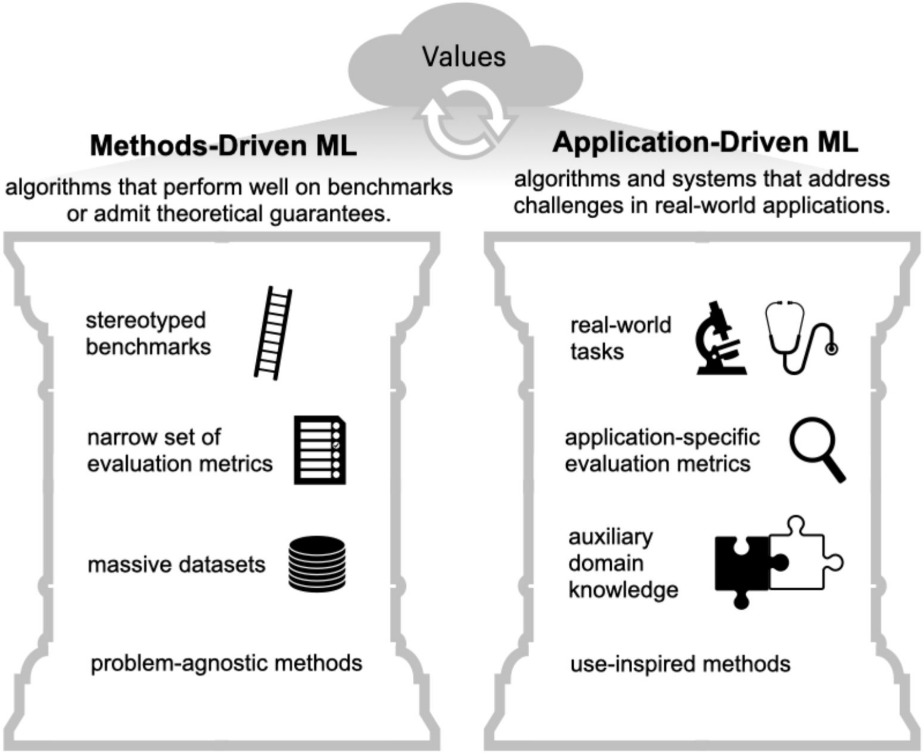
Acceptance & Usage: Will stakeholders (chooser, payer, user, beneficiary) accept it and use it the way it's envisioned?

Partners: Who are the partner orgs to co-innovate, co-deploy, iterate, pilot with? Do they have the complementary competencies required?

Scaling: Who are the owners, programs and pathways for scaling? Can the all the (technical and non-technical) components of the solution scale to ensure financial and operational feasibility?

Why Us: What makes us uniquely qualified to work on this? Is this the most highest leverage work I could be working on?

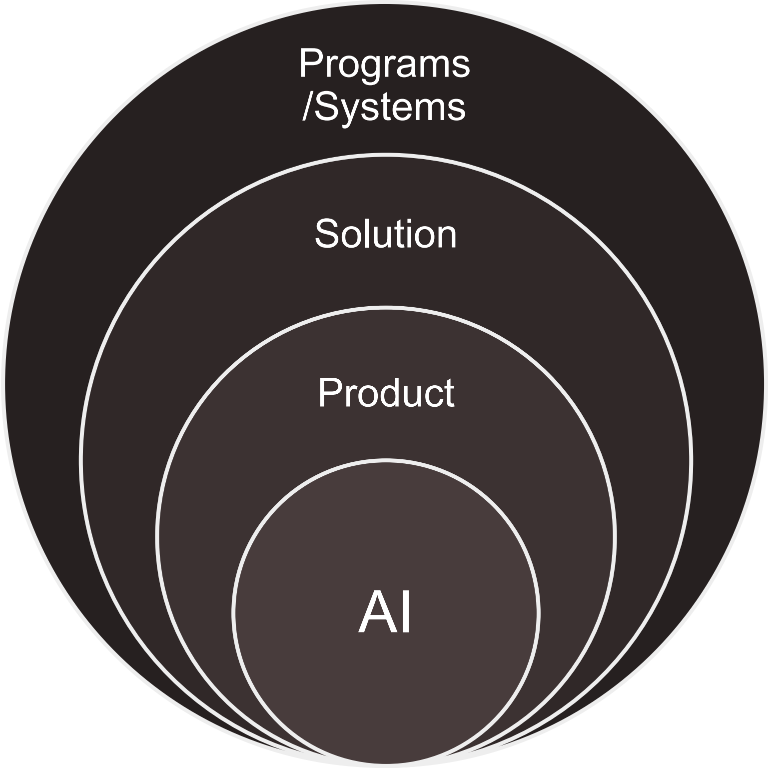
Methods Driven ML vs Application Driven ML



Source: https://arxiv.org/abs/2403.17381

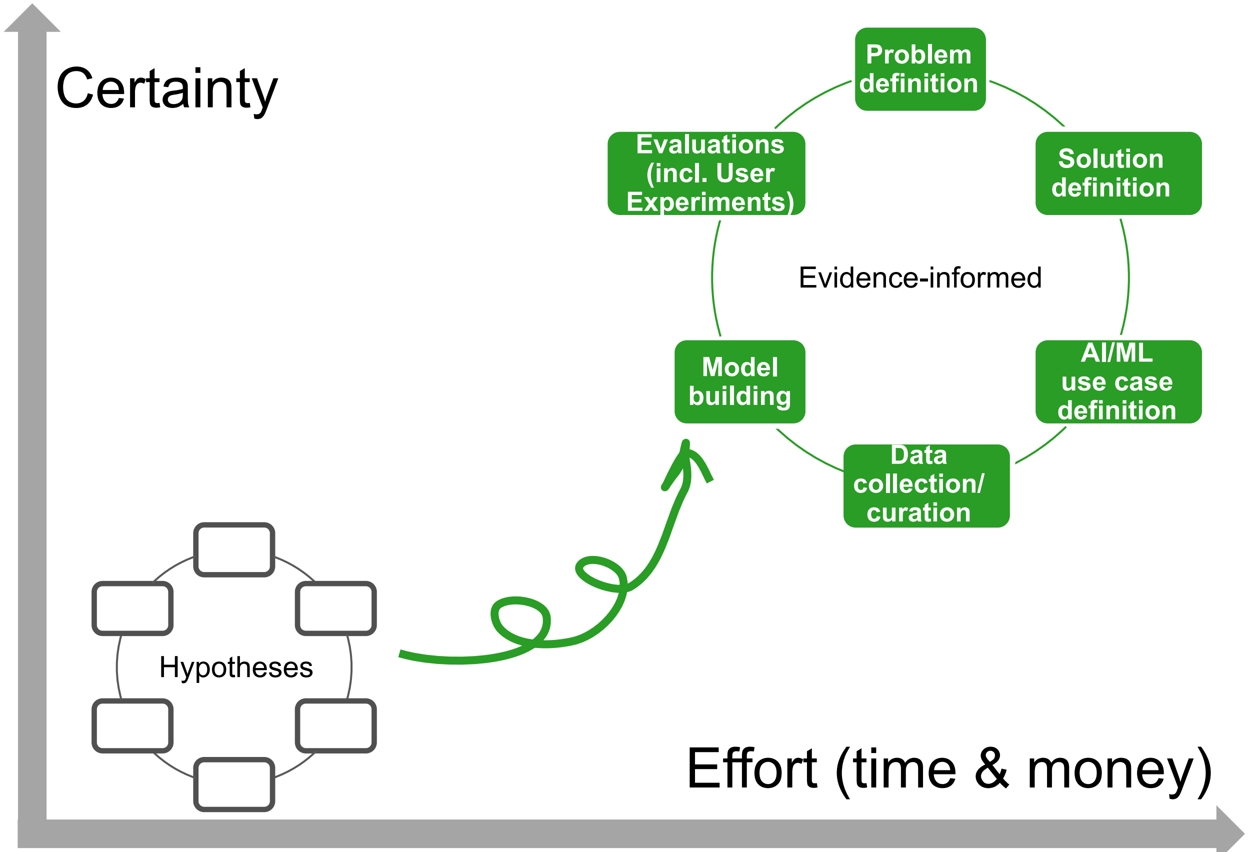
AI Solutioning

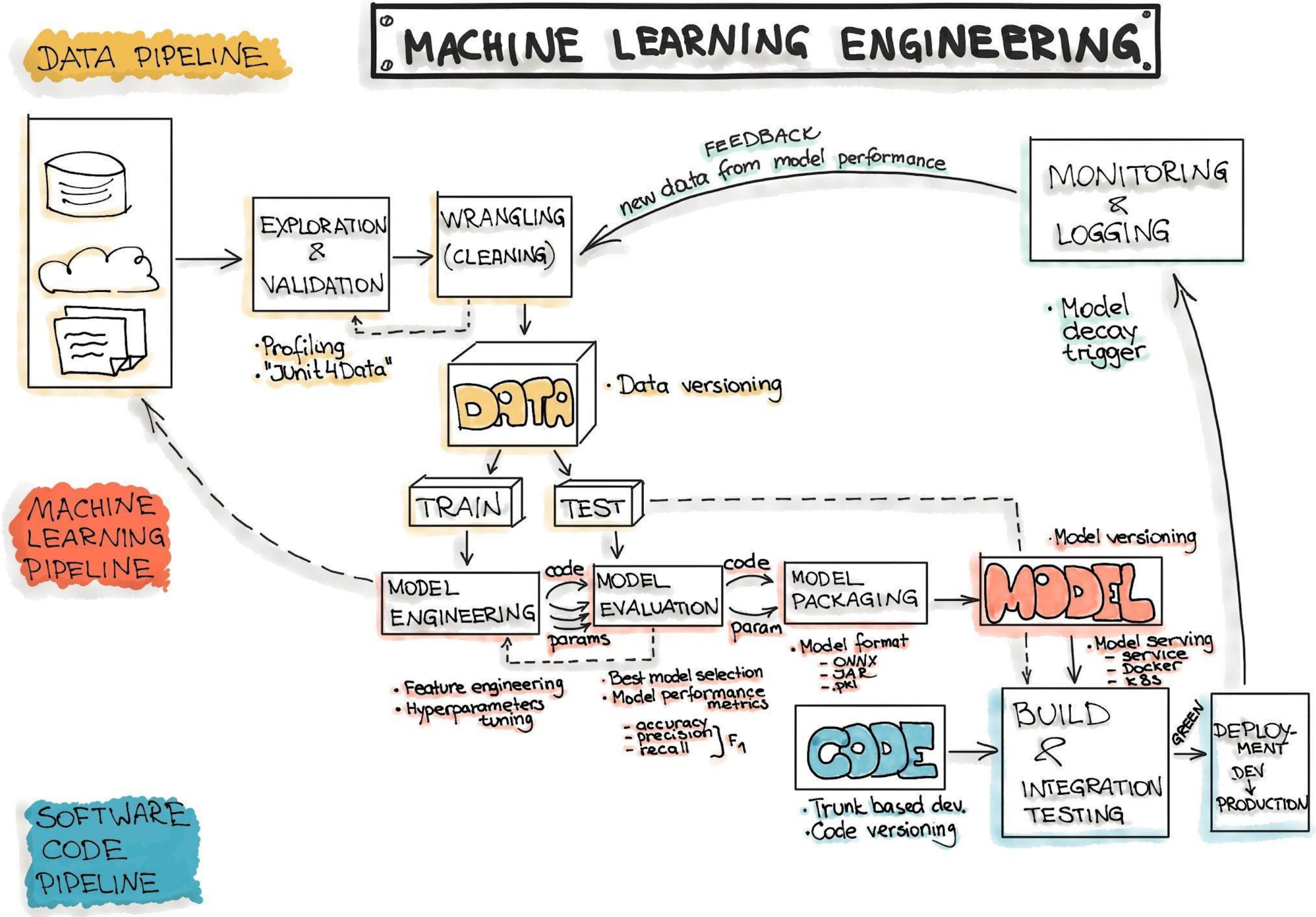
AI can play a potentially transformative role, but only **as part of complete** solutions integrated with systems for impact at scale



A mental model to help imagine the real process of building ~~AI~~ AI-based solutions responsibly

The whole process is about making key interconnected choices with increasingly greater certainty, iteratively, while figuring out trade-offs and generating evidence.





MACHINE LEARNING ENGINEERING
DATA PIPELINE
MACHINE LEARNING PIPELINE
SOFTWARE CODE PIPELINE
EXPLORATION & VALIDATION
· Profiling
· "Junit4Data"
WRANGLING (CLEANING)
FEEDBACK
new data from model performance
MONITORING & LOGGING
· Model decay trigger
DATA
· Data versioning
TRAIN
TEST
MODEL ENGINEERING
code
params
MODEL EVALUATION
code
param
MODEL PACKAGING
MODEL
· Model versioning
· Feature engineering
· Hyperparameters tuning
· Best model selection
· Model performance metrics
- accuracy
- precision
- recall
F_1
· Model format
- ONNX
- JAR
- .pkl
· Model serving
- service
- Docker
- K8S
CODE
· Trunk based dev.
· Code versioning
BUILD & INTEGRATION TESTING
GREEN
DEPLOYMENT
DEV
PRODUCTION

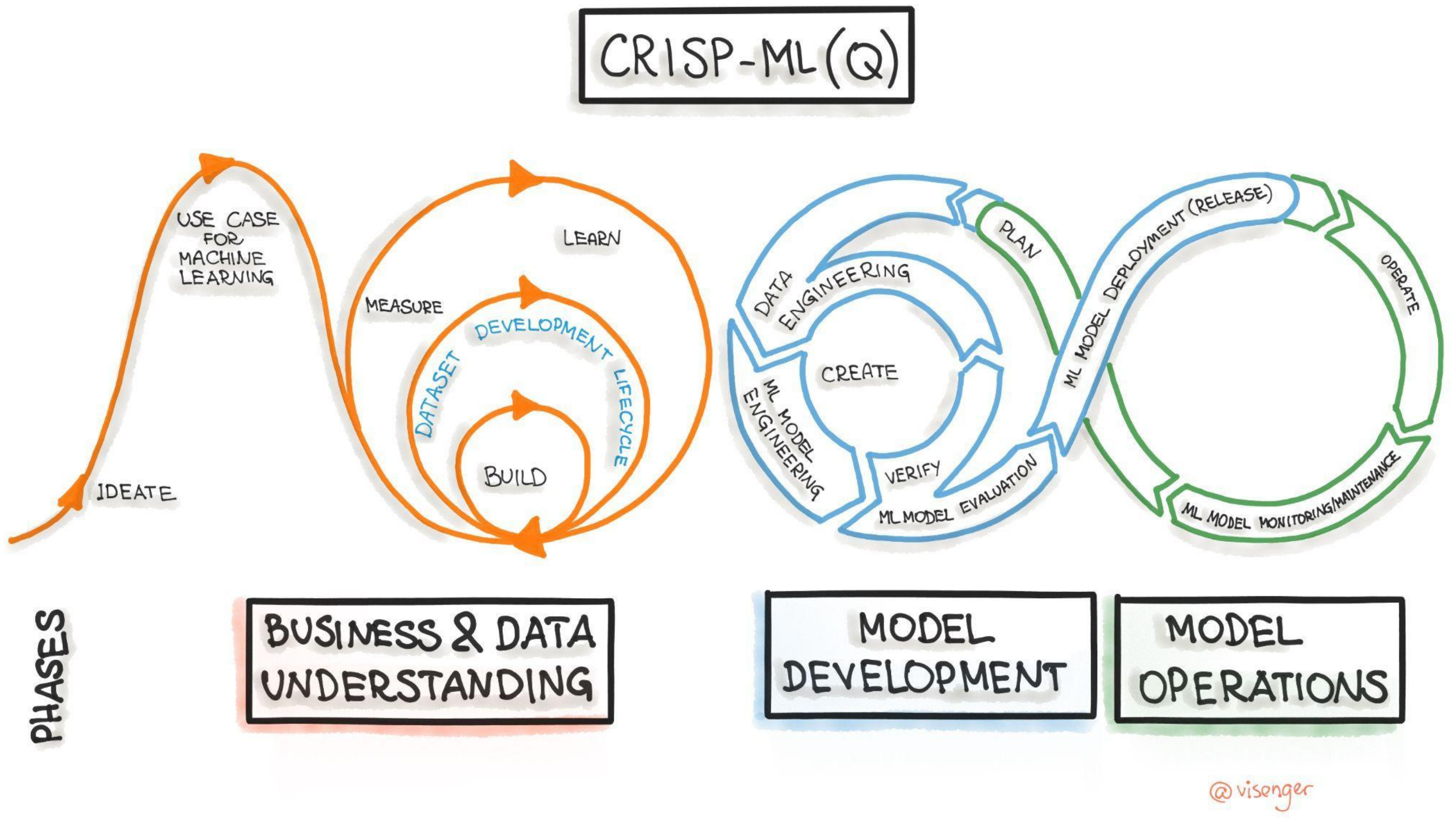

CRISP-ML(Q)
USE CASE FOR MACHINE LEARNING
IDEATE
MEASURE
LEARN
DATASET DEVELOPMENT LIFECYCLE
BUILD
DATA ENGINEERING
ML MODEL ENGINEERING
CREATE
VERIFY
ML MODEL EVALUATION
PLAN
ML MODEL DEPLOYMENT (RELEASE)
OPERATE
ML MODEL MONITORING/MAINTENANCE
PHASES
BUSINESS & DATA UNDERSTANDING
MODEL DEVELOPMENT
MODEL OPERATIONS
@visenger

Fig. Source

Principles and Heuristics

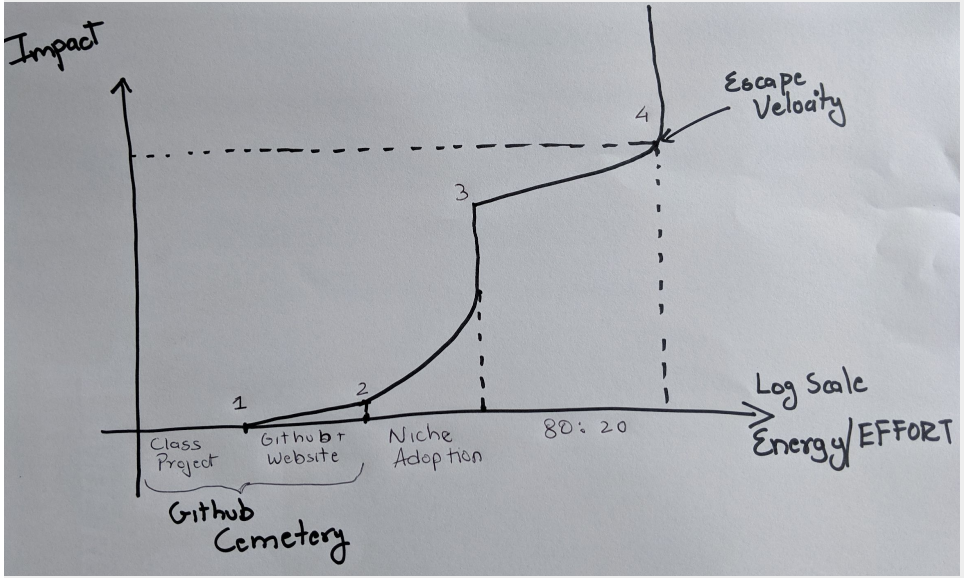
1. Imperfect solution to a right problem > perfect solution to a wrong problem
   a. Breadth-first. Not depth-first
2. Premature optimization is the curse of ML (and any field)
   a. Start simple.
   b. Simple, low-tech debt solution to complex but highly performant
3. No perfect launch. It is a journey.
   a. Iterate quicker. Fail faster.
   b. Prioritise where to improve, not what you think is important
4. “So what” > Why > What > How (solution)
   a. Insist on “So What?” seven times.
   b. But we often start with a solution (or a technology)
5. Err on “data” side.
   a. Collect more but purpose driven (even if the purpose is anticipatory).
6. Outputs will be wrong
   a. Abstain when not sure (can the UX support it?)
      i. Models need not make decision all the time
      ii. Abstention is a lever, in addition to “scope (functionality)”, “resources (time, compute, human)”, “quality”.
      iii. Design is about tuning these four degrees of freedom via negotiation.
7. Not all decisions are equal.
   a. Cost-aware decision making.

Source: Slides of Soma Dhavala

How develop taste for problems?

- Opinionated First Principled Framework
  - Find your **values**, what change do you wish to see in the world?
    - You must be willing to live that yourself first
    - Boil it down to 2 or 3 values
  - Given a set of values, find large **‘unsolved’ domain**
    - Hill you are willing to ‘die’ on
    - https://encyclopedia.uia.org/problems/1
    - Climate Change, Mental Health, Financial inclusion, Epidemics, Social Injustice, Drug Discovery Misinformation, etc
  - **Pursue it** with all your time, energy and attention
    - Be open minded on the ‘how’ to get there. Startup, Non-profit, Academia, Content Creator etc
    - Immerse yourself within these communities or build your own
    - Aim higher than your imagination. Though pursue it with integrity, humility and honesty
    - Don’t chase status, awards, recognition. Make enough money to continue to pursue this.

Effort vs Impact Curve



Thanks!

jigarkdoshi.com

Outline

- Jigar’s Journey into Social Good
    - Story time with Disaster Mapping and Joining Wadhwani AI
- Problem Selection
    - 8 + 1 Question Framework
    - Innovative Taste
- LLM for FLWs
- Anthropometry
- TB & Covid Cough
- Building Solution Journey
    - How to
- Satellite Imagery
- Pest Management
- Future: Agents for Public Health System