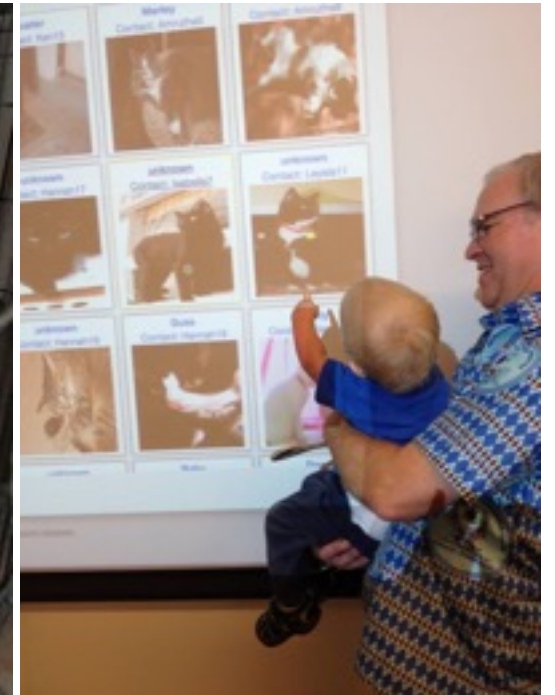


Engineering Crowdwork for Disaster Events: The Human-centered Development of a Lost-and- Found Tasking Environment



Mario Barrenechea

([@mbarrenecheajr](https://twitter.com/mbarrenecheajr))

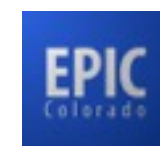
Kenneth M. Anderson

Leysia Palen

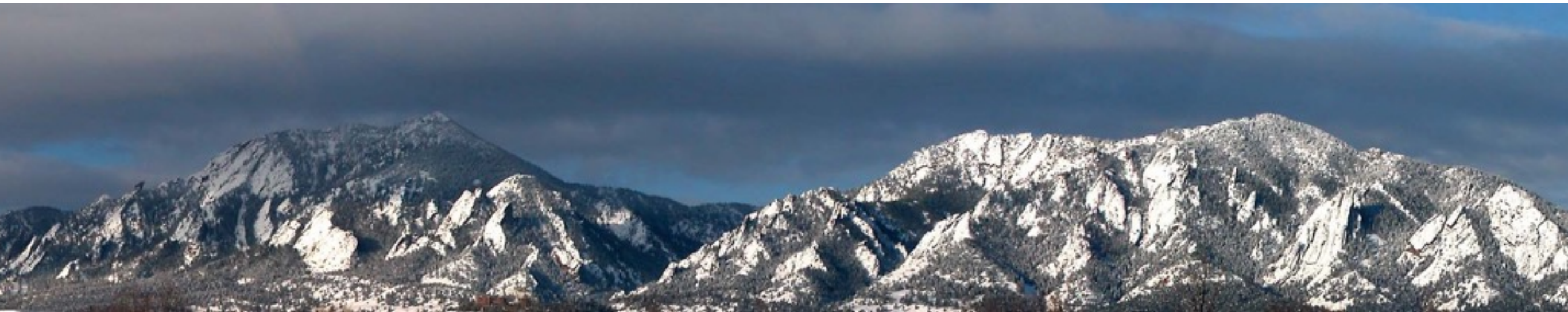
Joanne White

Project EPIC

The University of Colorado Boulder



Outline



Crisis Informatics Background

Nature of Crowdwork

The EmergencyPetMatcher System

Implications for Software Engineering in Disaster Events

Crisis Informatics

Seeks to understand how disaster-abetted behaviors of emergency management and members of the public inform the design and use of systems during such events

Crowdwork



Photo Sources: Jennings Anderson (Project EPIC)

Crowdwork Challenges

Misinformation and
Disinformation

Accuracy

Menial vs. Meaningful

Ethics

Liability



Photo Sources: UN Photo-Logan Abassi and Damon Winter for the New York Times

Pet Displacement in Disasters



Photo Sources: Krill Oil Animal Cruelty Overview (<http://krilloil.com/blog/cruelty-poison-control-disaster-preparedness-pet-care/>)

Pet Advocacy through Digital Volunteerism

Happy Holidays

HURRICANE SANDY
LOST & FOUND PETS
ONE PET AT A TIME



Hurricane Sandy Lost and Found Pets
Community

Liked

+ Follow

Message

Timeline

About

Photos

Likes

More

PEOPLE

>

33,321 likes

Amrutha Rajiv and Joanne White like this.



Invite your friends to like this Page

ABOUT

>

 Posting photos of lost or found pets in the areas affected by Sandy, as well as posting animal shelters in need and temporary shelters that allow animals. ...
READ MORE

Post

Photo / Video

Write something on this Page...



Hurricane Sandy Lost and Found Pets
1 hr ·

1000 Days at an Overcrowded Shelter and Not One Inquiry on Sweet Sophie

This beautiful girl is Sophie, she is full of life and has so much love to give. She arrived by way of Animal Control Officer as a stray and no one came to bring her home. Sophie is not a fan of other dogs so prefers to be an only child and get all the love for herself!

Please don't Let her Waste Away Any Longer at a Shelter!... [See More](#)

EPM Design

Personas

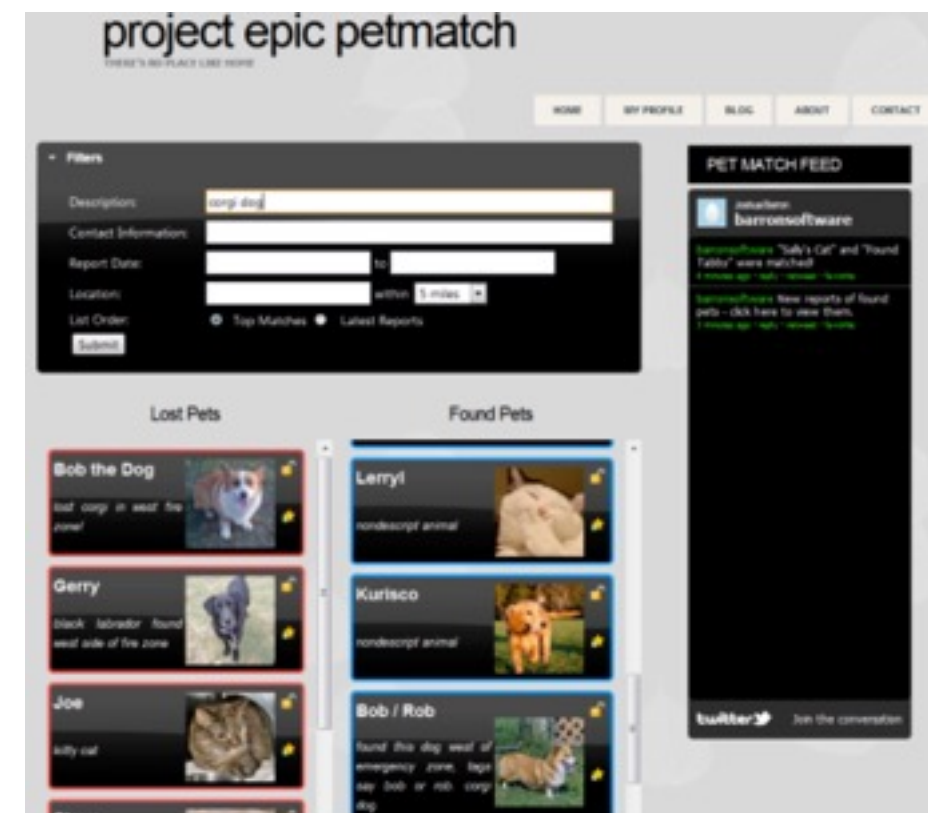
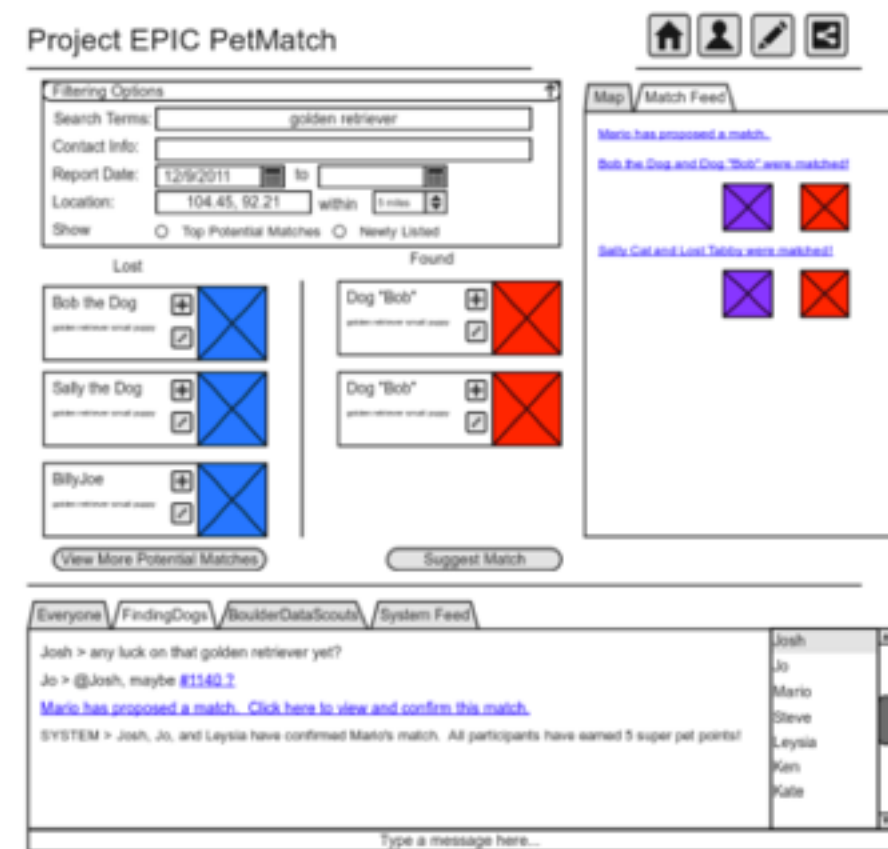
Data Scout, Matcher, Checker

Cognitive Walkthroughs

Suggest a Match for “Bob” the dog.

Think-Aloud Protocol Runs

8 participants (ages 16-71)



EPM Development

Agile methodology

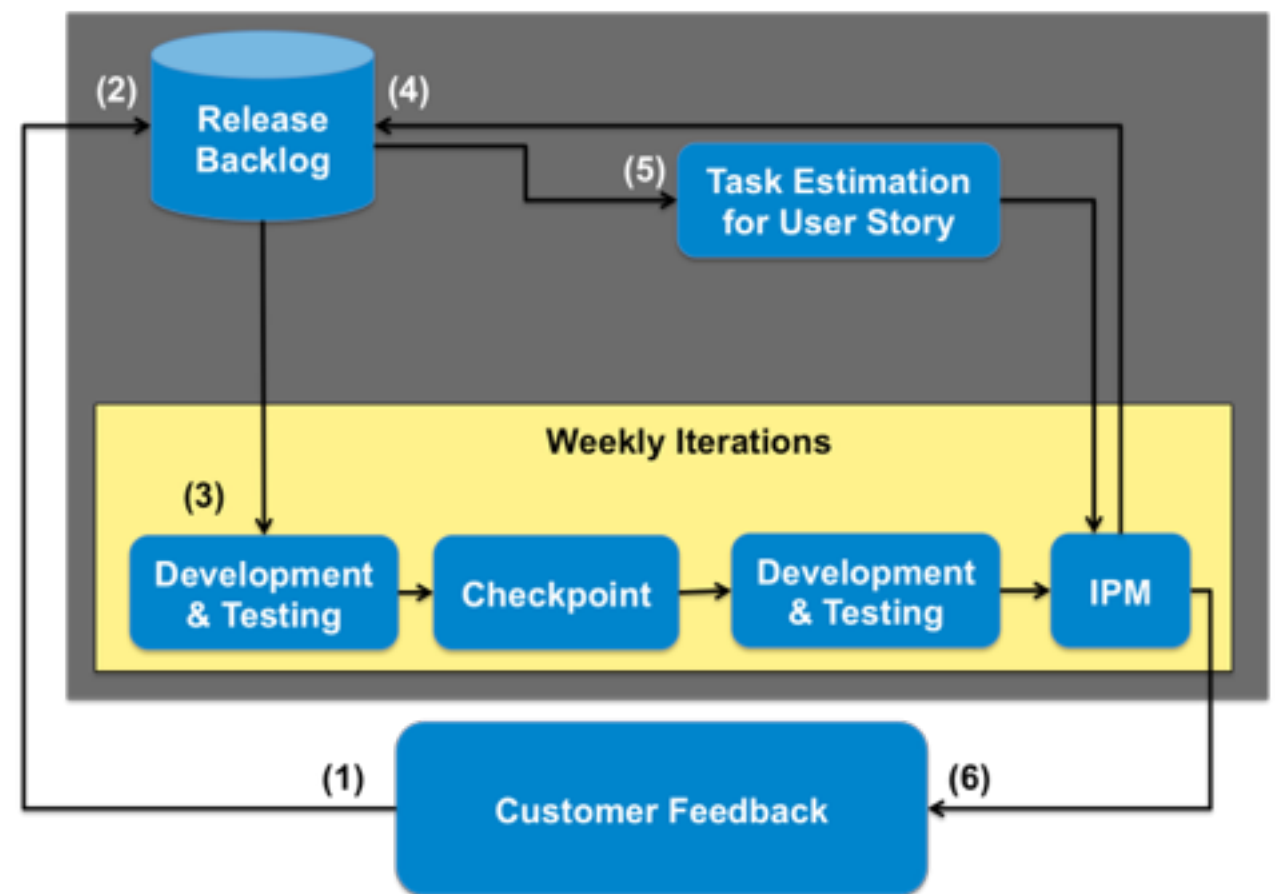
“Customers” were end-users in the research team

360-based Developer Reviews

Scalable Development and Deployment Technologies

Python/Django

Vagrant/Puppet



EPM Home Page

Pets



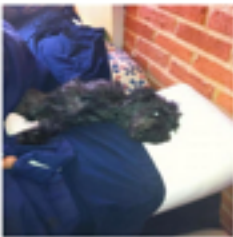

















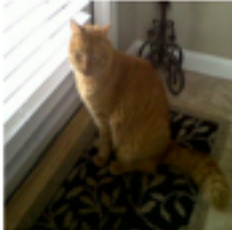
Pet Matches

Reunited Pets

Activity

Bookmarked

Click on a Pet to Begin Matching. Scroll down to see more pets!

<p>Marley Contact: danbarracuda</p> 	<p>Mark Contact: Matthew8</p> 	<p>Baby Contact: Matthew8</p> 	<p>unknown Contact: mbarrenecheajr</p> 	<p>Darling Contact: Robert9</p> 	<p>Buster Contact: Abby5</p> 	<p>Candy Contact: Greg2</p> 
<p>Rocket Contact: Greg2</p> 	<p>Sydney Contact: Abby4</p> 	<p>Apollo Contact: Matthew6</p> 	<p>Daisy Contact: Matthew6</p> 	<p>Apollo Contact: Greg2</p> 	<p>Fousey Contact: Matthew8</p> 	<p>Guss Contact: Greg2</p> 
<p>unknown Contact: mbarrenecheajr</p> 	<p>Darling Contact: Angela7</p> 	<p>Missy Contact: Matthew6</p> 	<p>unknown Contact: Angela7</p> 	<p>Baby Contact: Robert9</p> 	<p>Darling Contact: Abby4</p> 	<p>unknown Contact: Matthew6</p> 


EPM Pet Report

emergencypetmatcher
Project EPIC


Feedback

Pets


Hero
Contact: mbarrenecheajr




Candy
Contact: Greg2




Guss
Contact: Greg2




unknown
Contact: mbarrenecheajr



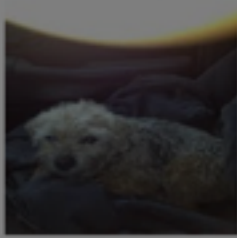
Darling
Contact: Angela7




Missy
Contact: Matthew6




unknown
Contact: Angela7



Baby
Contact: Robert9




Darling
Contact: Abby4




Bookmarked

Buster
Contact: Abby5




Fousey
Contact: Matthew8



Lost Dog: Hero

EmergencyPetMatcher
Hero
Proposed by mbarrenecheajr
Nobody is working on this pet yet.



ID 810

Pet Name Hero

Pet Type Dog

Lost/Found Lost

Contact mbarrenecheajr

Date Lost/Found September 26, 2014

Location Boulder, CO

Microchipped No

Close

Share

Bookmark this Pet

Match this Pet

EPM Pet Matching

Match this Pet



Propose Match

Clear Pet

ID	810	784
Pet Name	Hero	unknown
Pet Type	Dog	Dog
Lost/Found	Lost	Found
Contact	mbarrenecheajr	Angela7
Date Lost/Found	September 26, 2014	January 15, 2012
Location	Boulder, CO	G1ZMMIBI1YGW2L6B83OXQG2V73X MZUPB63JD5U98YG6PZHWHUPBNT 1J46IRME56P0G690QU6I76PU4930J T6VD04F20558GRJO8Z
Microchipped	No	Yes
Spayed/Neutered	Neutered	Not Known

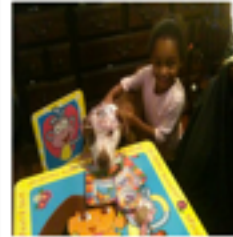
Click and Drag from these Ranked Pets to Match

Prev

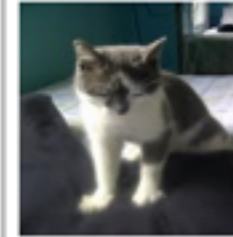
1

Next

unknown
Contact: Robert9



unknown
Contact: Greg2



unknown
Contact: danbarracuda



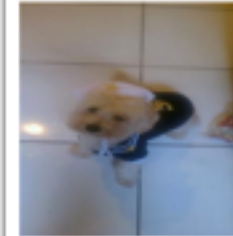
unknown
Contact: Robert9



Apollo
Contact: mbarrenecheajr



Nugget
Contact: Matthew8



unknown
Contact: mbarrenecheajr



Marley
Contact: danbarracuda



unknown
Contact: Angela7





EPM Pet Match

EmergencyPetMatcher



Project EPIC

Pets
Feedback



Buster with Apollo
Contact: Madison13

Fousey with Toodle
Contact: Abe10






Apollo with unknown
Contact: Nicholas19

Dandy and Apollo

Proposed by [Mark1](#)
3 people have voted on this match.





ID	2014	1931
Pet Name	Dandy	Apollo
Pet Type	Dog	Dog
Lost/Found	Lost	Found
Contact	Daniel11	Olivia6
Date Lost/Found	February 09, 2012	March 13, 2012
Location	IVK.IIIM7F4P.I7SV1AFGZROV179FAW122CPI	NICVTQWRVII VKMY1KMI :3LIHIFNRMWWIC4V


Vote for this Pet Match

Casting enough votes will bring this match to the owners' attention.

2 Downvotes





1 Upvote


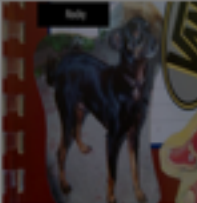


Close
Share


Rocket with Sparky
Contact: Abby17

Baby with Nugget
Contact: Mark1

Activity



Software Engineering for Disaster ICT

Usability - Design with users and types of users in mind

Adaptability - Feedback loops and fast iteration

Reliability - Keep system up at all costs

Thank you



Ken Anderson
Leysia Palen
Joanne White
Mazin Hakeem
Sahar Jambi
Amrutha Rajiv
Lise St. Denis
and rest of **Project EPIC**
CUBoulder
NSF