stelar
STEM LEARNING AND RESEARCH CENTER

Panel: Perspectives from the Field

Joyce Malyn-Smith, STELAR Senior Advisor, Education Development Center

June Ahn, Associate Professor of Learning Sciences/Educational Technology, New York University

Ingrid Dahl, Director, Service Design, Education @Scale, Adaptive Path at Capital One

NSF

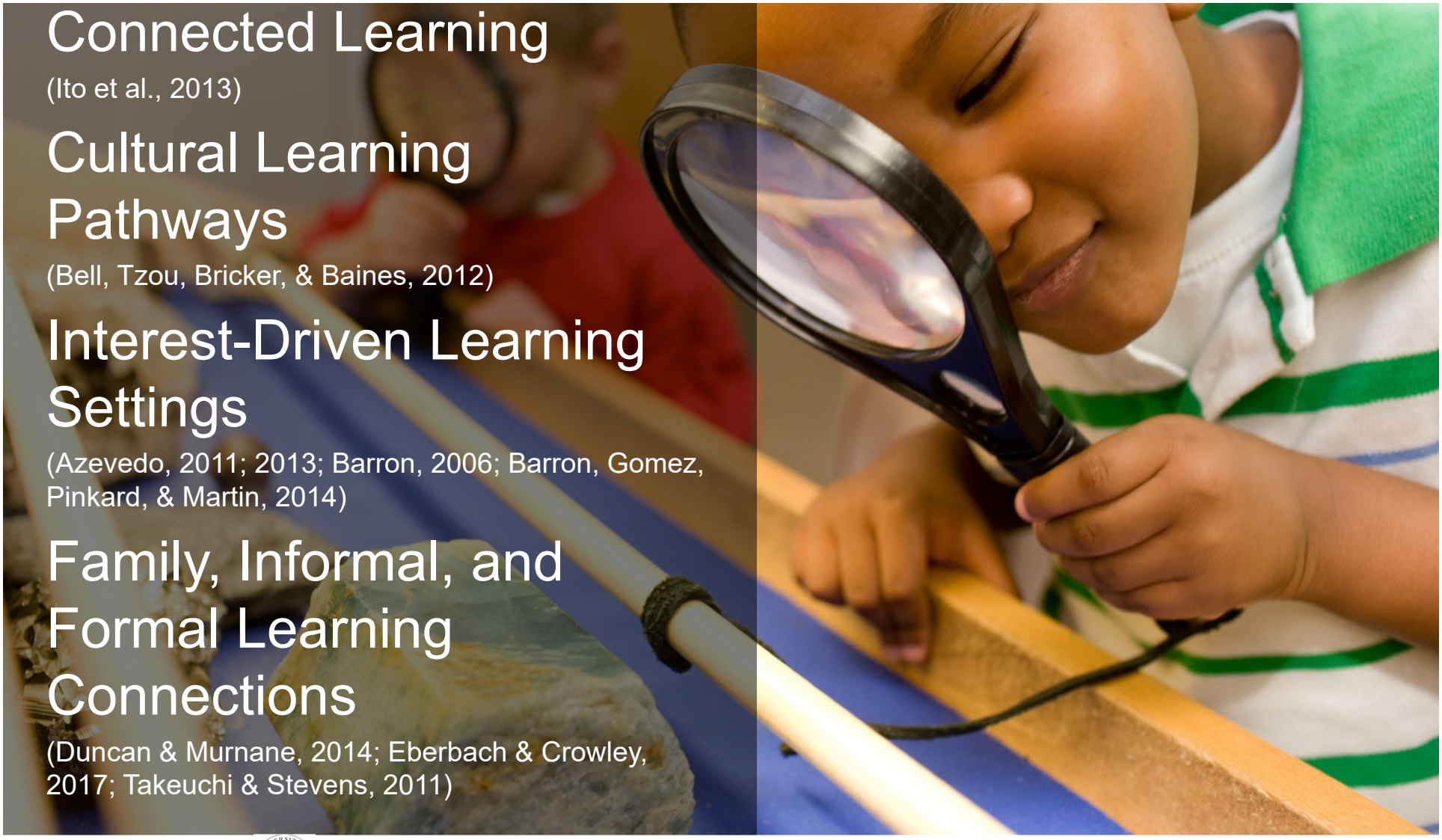
EDC Learning transforms lives.

Co-Designing for Equity

Science Everywhere: Connecting Science Inquiry Across Neighborhood Settings

National Science Foundation #1441523

June Ahn | @ahnjune | New York University



Connected Learning

(Ito et al., 2013)

Cultural Learning Pathways

(Bell, Tzou, Bricker, & Baines, 2012)

Interest-Driven Learning Settings

(Azevedo, 2011; 2013; Barron, 2006; Barron, Gomez, Pinkard, & Martin, 2014)

Family, Informal, and Formal Learning Connections

(Duncan & Murnane, 2014; Eberbach & Crowley, 2017; Takeuchi & Stevens, 2011)

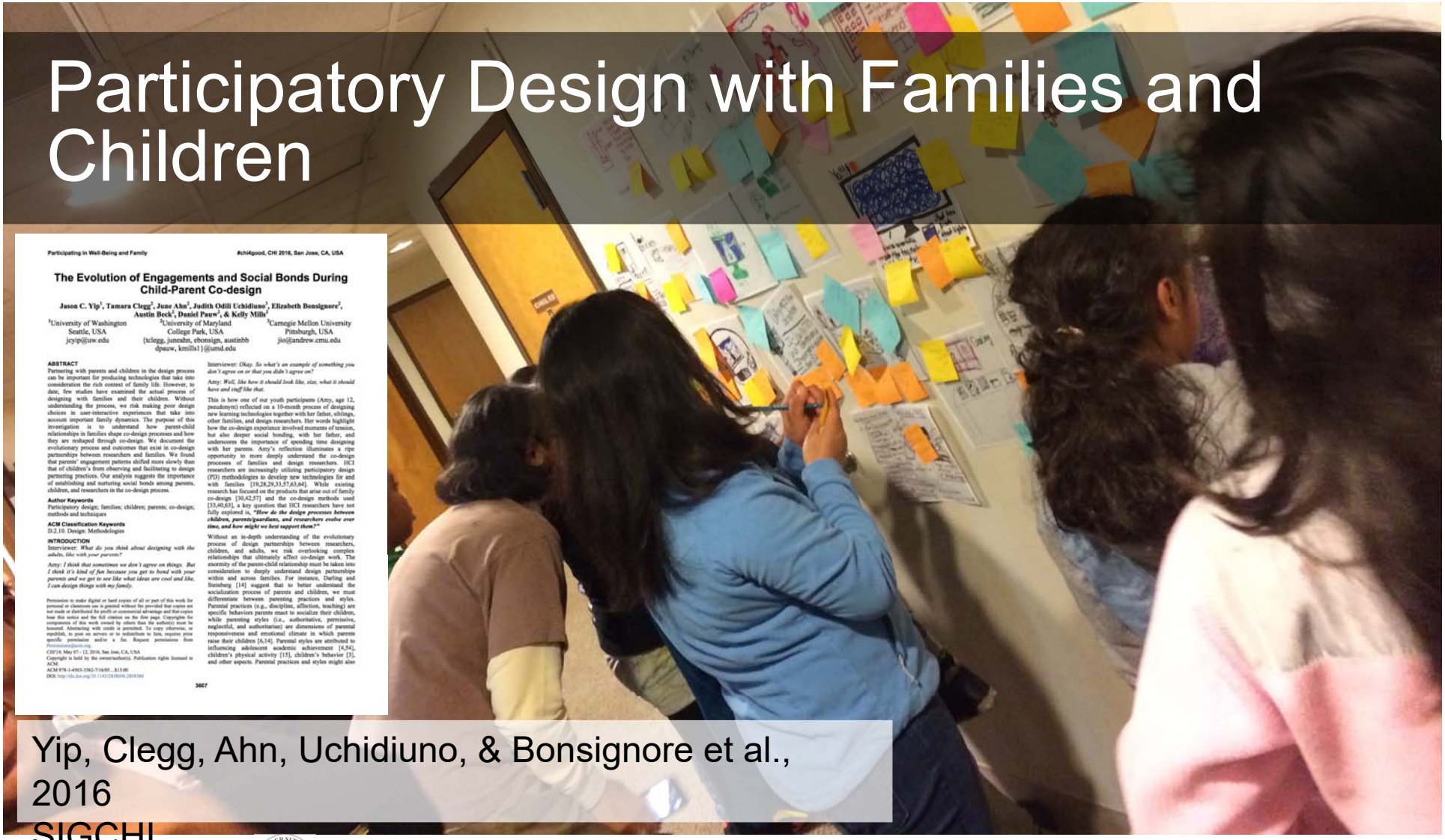
Learners have unequal experiences of aligned practices between settings, people, and learning activities.

Culturally Relevant
Socially Relevant
Deeper Dispositions & Identity

Building On vs. Conflicting With...

How can we support better alignment and coordination of practices between settings, people, and learning activities?

Participatory Design with Families and Children



The Evolution of Engagements and Social Bonds During Child-Parent Co-design

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ABSTRACT
Partnering with parents and children in the design process can be important for producing technologies that take into consideration the rich context of family life. However, to date, few studies have examined the actual process of designing with families and their children. Without understanding the process, we risk making poor design choices in user-interactive experiences that take into account important family dynamics. The purpose of this investigation is to understand how parent-child relationships in families shape co-design processes and how they are reshaped through co-design. We document the evolutionary process and outcomes that exist in co-design partnerships between researchers and families. We found that parents' engagement patterns shifted more slowly than that of children's from observing and facilitating to design partnering practices. Our analysis suggests the importance of establishing and nurturing social bonds among parents, children, and researchers in the co-design process.

Author Keywords
Participatory design; families; children; parents; co-design; methods and techniques

ACM Classification Keywords
D.2.10. Design: Methodologies

INTRODUCTION
Interviewer: *What do you think about designing with the adults, like with your parents?*

Amy: *I think that sometimes we don't agree on things. But I think it's kind of fun because you get to bond with your parents and we get to see like what ideas are cool and like, I can design things with my family.*

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CHI'16, May 07 - 12, 2016, San Jose, CA, USA
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ACM 978-1-4503-3362-7/16/05...$15.00
DOI: http://dx.doi.org/10.1145/2858036.2858360

Interviewer: *Okay. So what's an example of something you don't agree on or that you didn't agree on?*

Amy: *Well, like how it should look like, size, what it should have and stuff like that.*

This is how one of our youth participants (Amy, age 12, pseudonym) reflected on a 10-month process of designing new learning technologies together with her father, siblings, other families, and design researchers. Her words highlight how the co-design experience involved moments of tension, but also deeper social bonding, with her father, and underscores the importance of spending time designing with her parents. Amy's reflection illuminates a ripe opportunity to more deeply understand the co-design processes of families and design researchers. HCI researchers are increasingly utilizing participatory design (PD) methodologies to develop new technologies for and with families [19,28,29,33,57,63,64]. While existing research has focused on the products that arise out of family co-design [30,42,57] and the co-design methods used [33,40,63], a key question that HCI researchers have not fully explored is, ***"How do the design processes between children, parents/guardians, and researchers evolve over time, and how might we best support them?"***

Without an in-depth understanding of the evolutionary process of design partnerships between researchers, children, and adults, we risk overlooking complex relationships that ultimately affect co-design work. The enormity of the parent-child relationship must be taken into consideration to deeply understand design partnerships within and across families. For instance, Darling and Steinberg [14] suggest that to better understand the socialization process of parents and children, we must differentiate between parenting practices and styles. Parental practices (e.g., discipline, affection, teaching) are specific behaviors parents enact to socialize their children, while parenting styles (i.e., authoritative, permissive, neglectful, and authoritarian) are dimensions of parental responsiveness and emotional climate in which parents raise their children [6,14]. Parental styles are attributed to influencing adolescent academic achievement [4,54], children's physical activity [15], children's behavior [7], and other aspects. Parental practices and styles might also

Yip, Clegg, Ahn, Uchidiuno, & Bonsignore et al., 2016
SIGCHI

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Learning, Media and Technology, 2014
http://dx.doi.org/10.1080/17439884.2014.964254

Routledge

Seeing the unseen learner: designing and using social media to recognize children's science dispositions in action

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[a]*College of Information Studies, University of Maryland, 4105 Hornbake Building, South Wing, College Park, MD 20742, USA;* [b]*College of Education, University of Maryland, College Park, MD, USA;* [c]*Information School, University of Washington, Seattle, WA, USA*

(*Received 19 December 2013; accepted 8 September 2014*)

This paper describes the development of *ScienceKit*, a mobile, social media application to promote children's scientific inquiry. We deployed *ScienceKit* in *Kitchen Chemistry* (*KC*), an informal science program where children learn about scientific inquiry through cooking. By iteratively integrating design and implementation, this study highlights the affordances of social media that facilitate children's trajectories of disposition development in science learning. We illuminate how the technological and curricular design decisions made in *ScienceKit* and *KC* constrain or expand the types of data we can collect and the actionable insights about learning we can recognize as both educators and researchers. This study offers suggestions for how information gleaned from social media tools can be employed to strengthen our understanding of *learning in practice*, and help educators better recognize the rich actions that learners undertake, which may be easily overlooked in face-to-face situations.

Keywords: social media; science dispositions; data-informed instruction

Introduction

Social media applications are a ubiquitous part of young people's lives and substantially influence how individuals relate to one another, share information, and engage with the world (Ahn 2011; Grimes and Fields 2012; Madden et al. 2013). Different social media platforms – for example, social network sites, micro-blogs, wikis, or media-sharing platforms – allow members to share text, images, video, and other digital media. Researchers observe that individuals use these technical features to establish a variety of social and cultural practices. For instance, social media tools significantly influence how people interact socially and share information (Lewis, Pea, and Rosen 2010; Morris, Teevan, and Panovich 2010). Similarly, there has been

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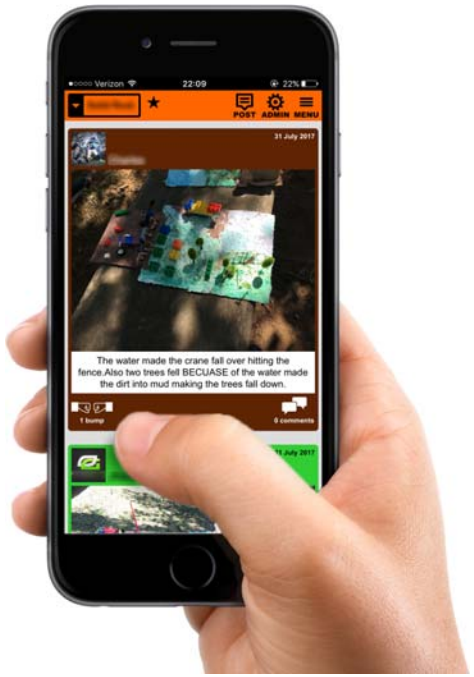


Ahn et al, 2016
Learning, Media and Technology

NYU

Partnerships with two neighborhoods

Learning Programs
(after school)

Community Programs
(e.g.,church, university)

Formal Classrooms
(teachers)

PAPA REWARDS
MOBILE APP

By recognizing other people, the displays oriented neighborhood members to note each other's ideas, afford opportunities to ask questions, have conversations, or build awareness of one another in the context of science.

Thank You!

Dr. Tammy Clegg
University of Maryland, College Park

Dr. June Ahn
New York University

Dr. Jason Yip
University of Washington, Seattle

Our Team

Elizabeth Bonsignore
Daniel Pauw
Lautaro Cabrera
Kenna Hernly
Kelly Mills
Rachael Marr

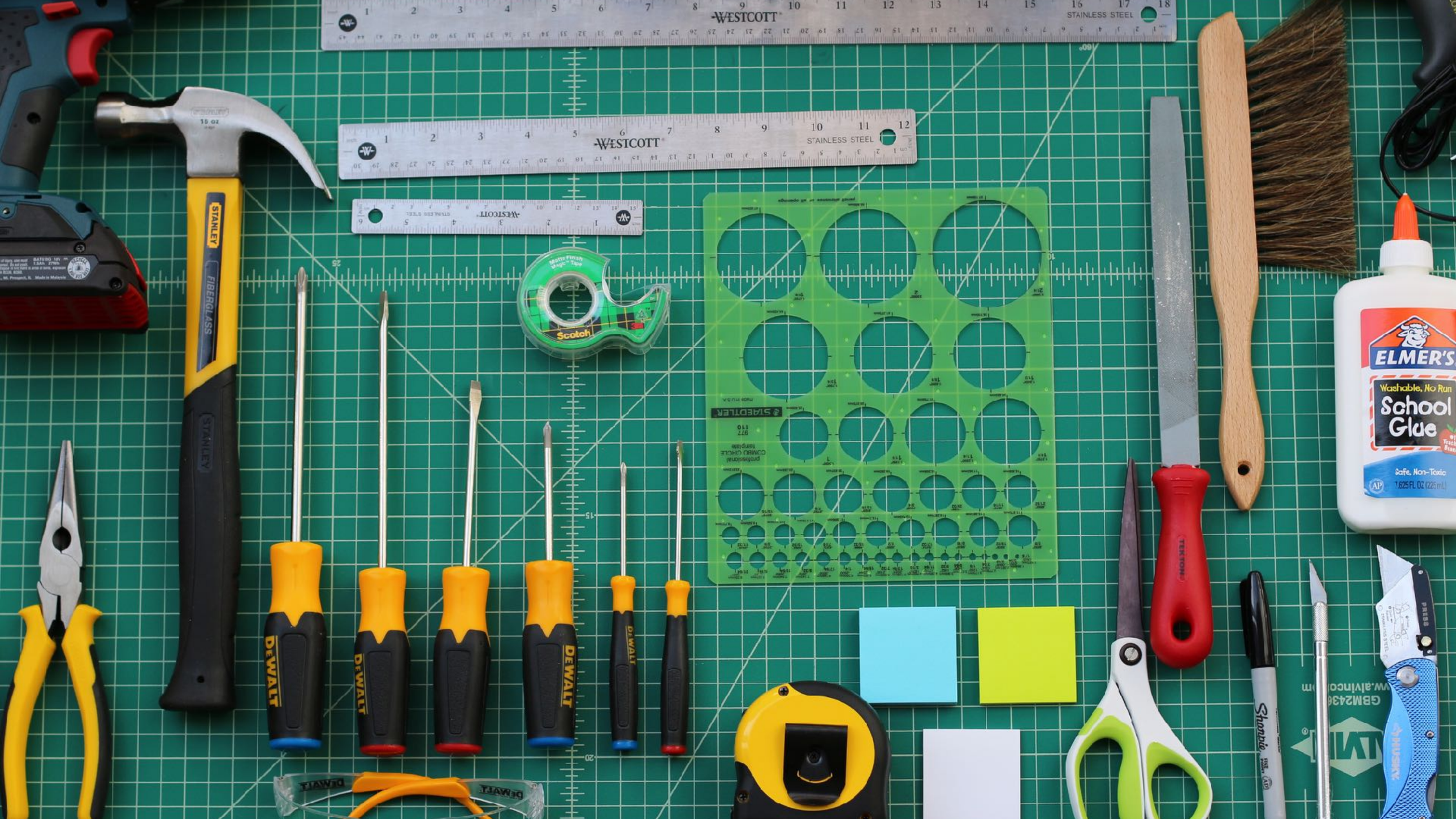
Caroline Pitt
Arturo Salazar
Diania Griffing

Jeff Rick

NYU

HI THERE!

ROCK N ROLL


WESTCOTT
STAINLESS STEEL
STANLEY
FIBERGLASS
Scotch
DEWALT
ELMER'S
Washable, No Run
School Glue
Safe, Non-Toxic
Sharpie

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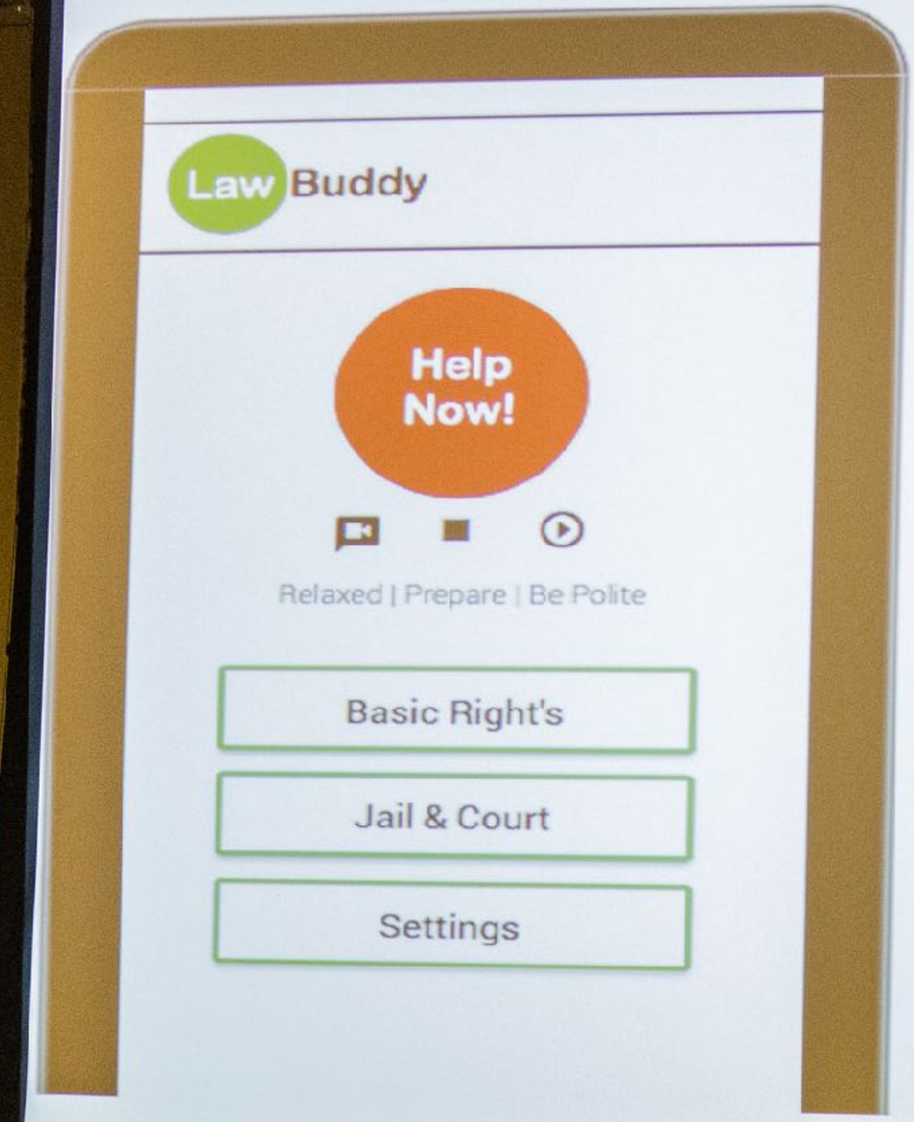
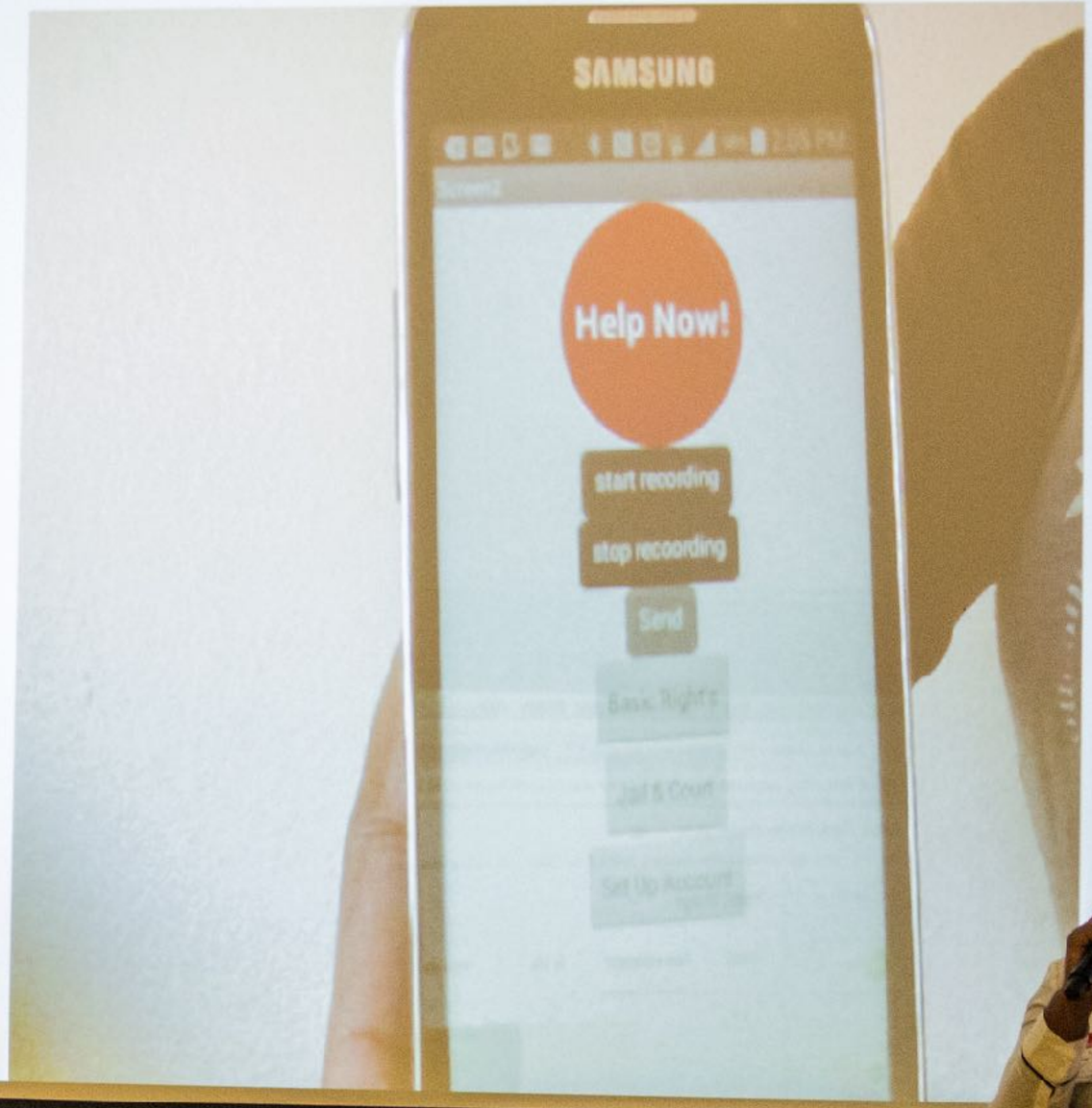
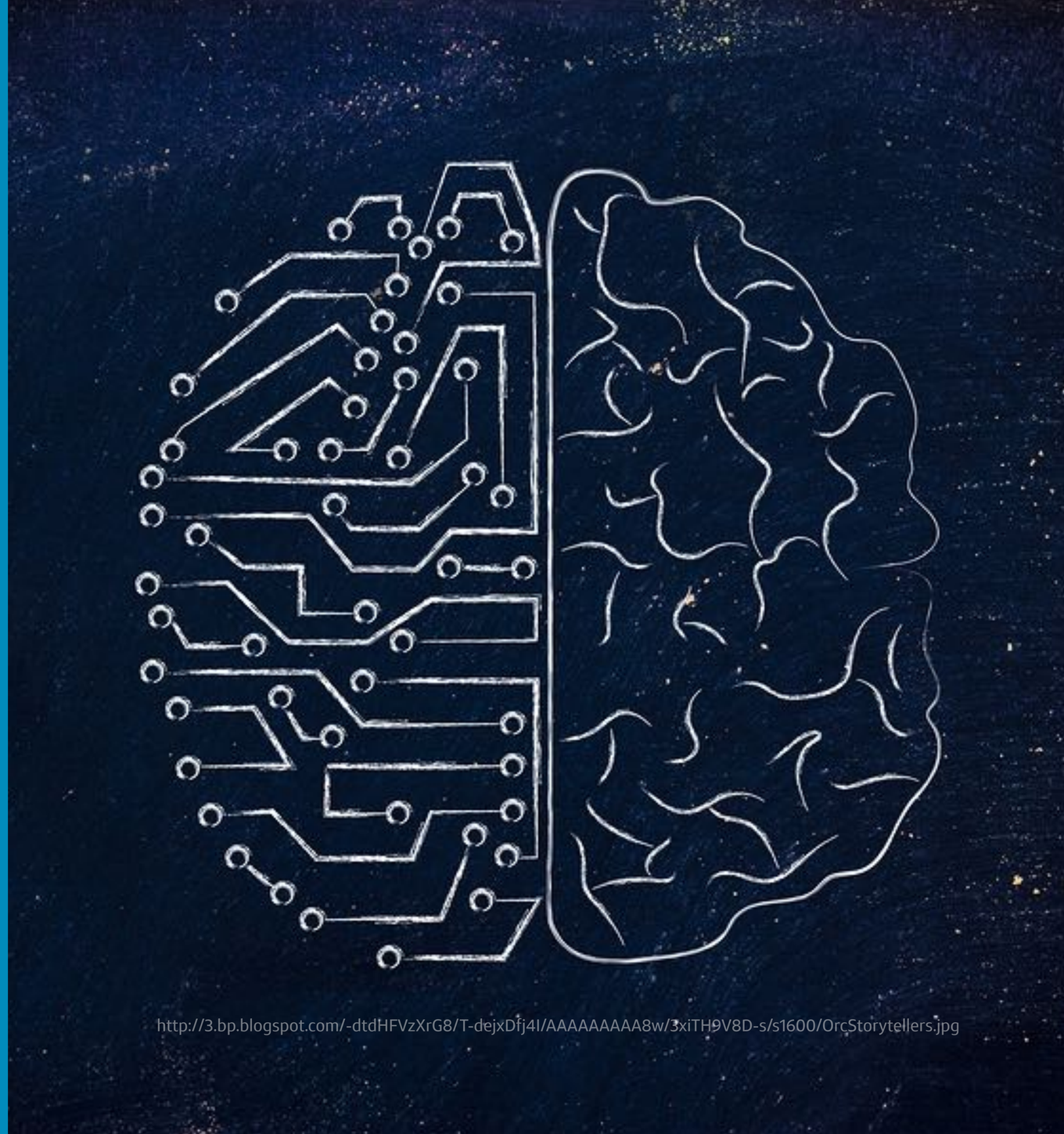
Prototype Design & Current features





Preparing for the Future of Artificial Intelligence

—WHITE HOUSE REPORT 2016



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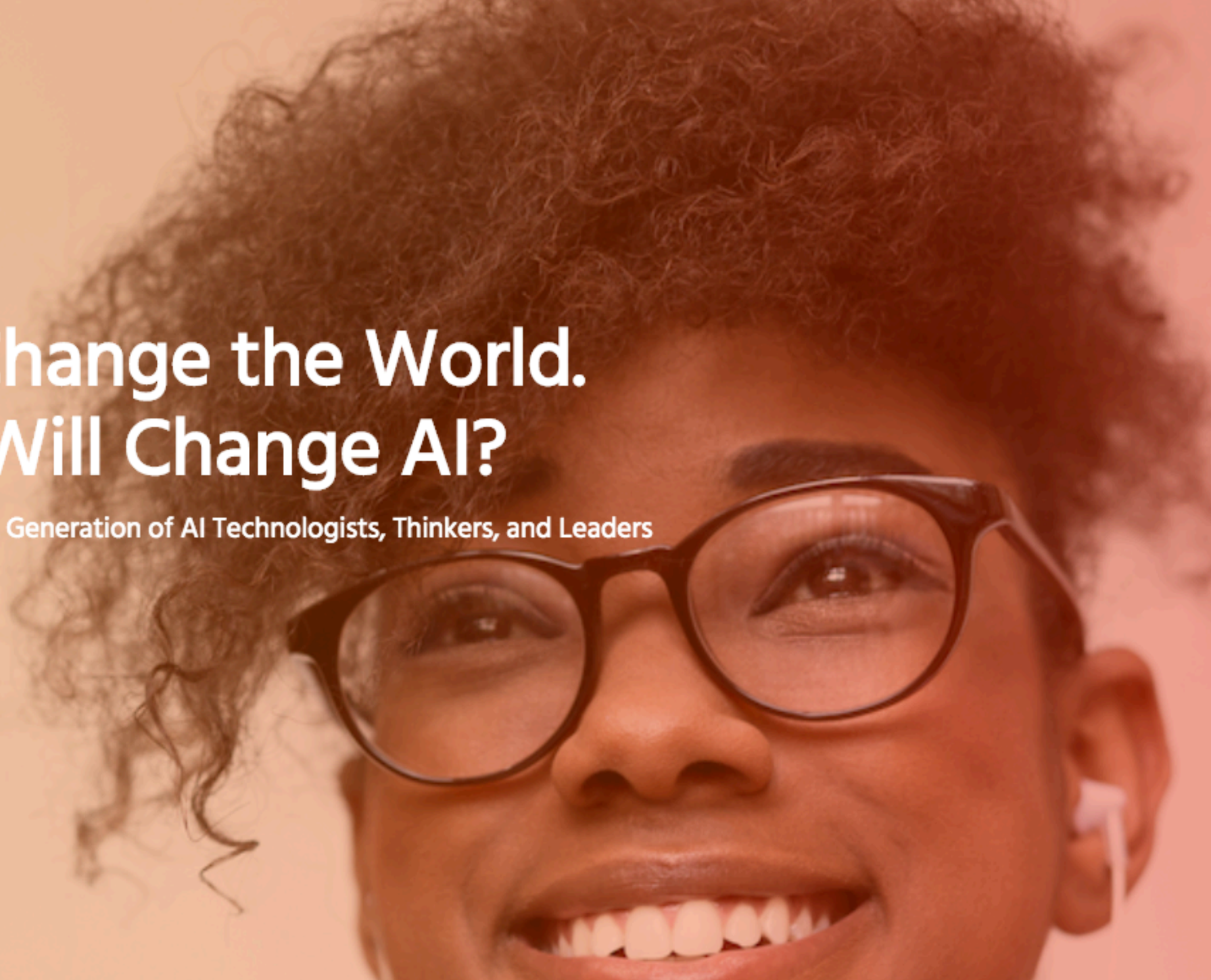
AI Will Change the World. Who Will Change AI?

AI4ALL is Educating the Next Generation of AI Technologists, Thinkers, and Leaders



We need diverse perspectives in A.I. design.
Representation is key.

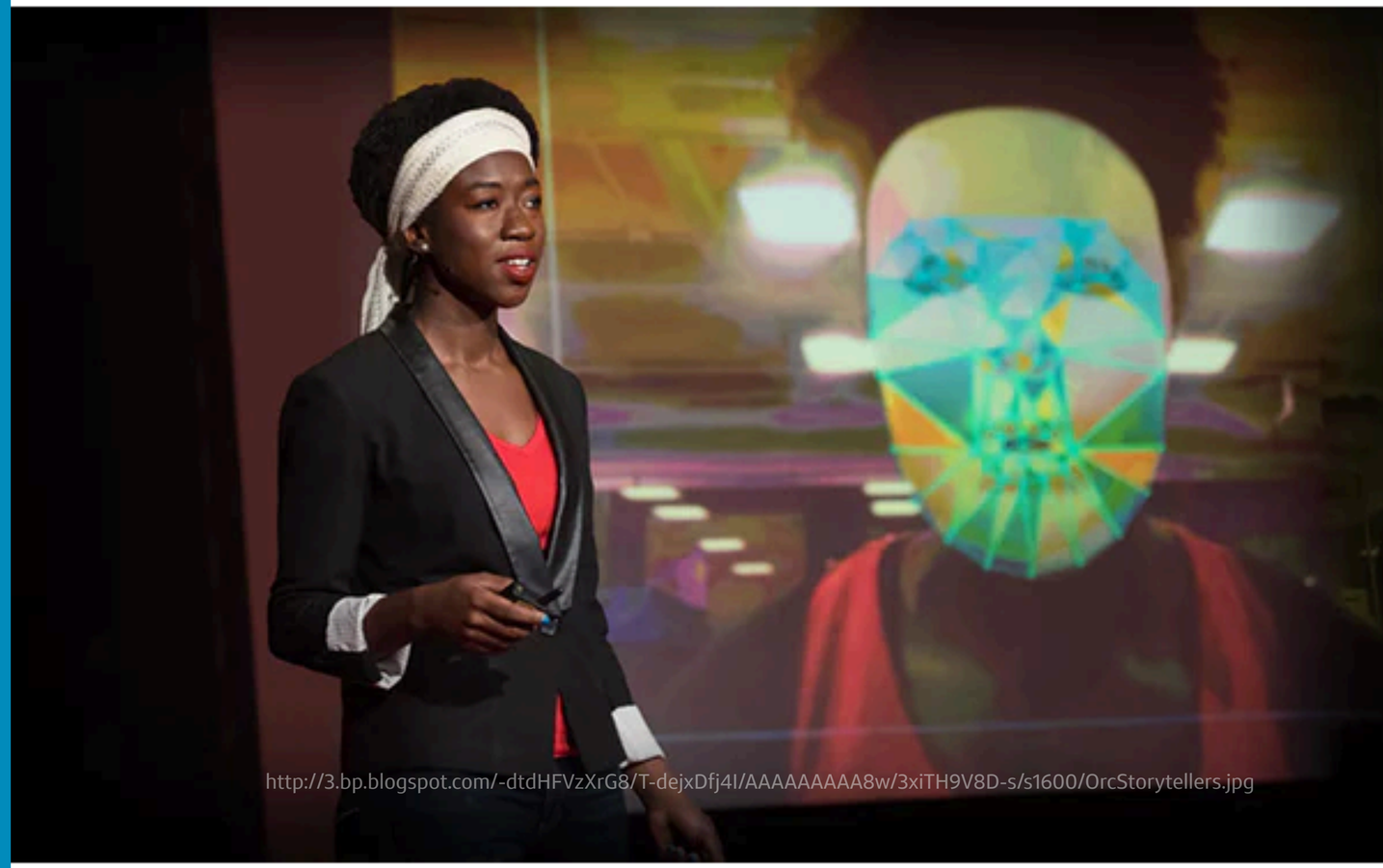
-CHECK OUT
+JOY BUOLAMWINI
+BLACKINA.I.
+AI4ALL

Interview

'A white mask worked better': why algorithms are not colour blind

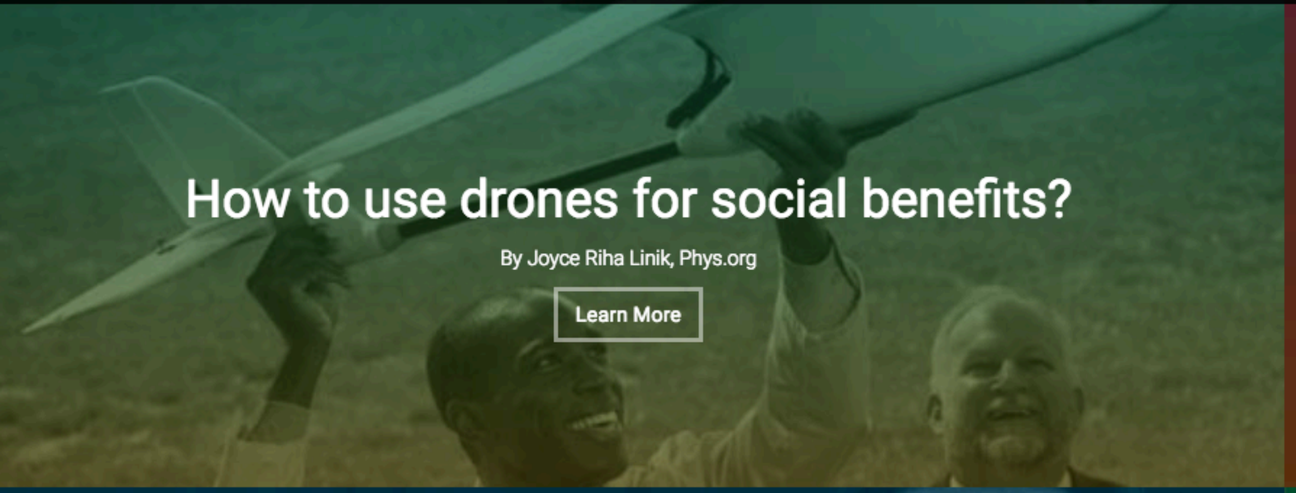
By Ian Tucker

When Joy Buolamwini found that a robot recognised her face better when she wore a white mask, she knew a problem needed fixing



▲ Joy Buolamwini gives her TED talk on the bias of algorithms Photograph: TED

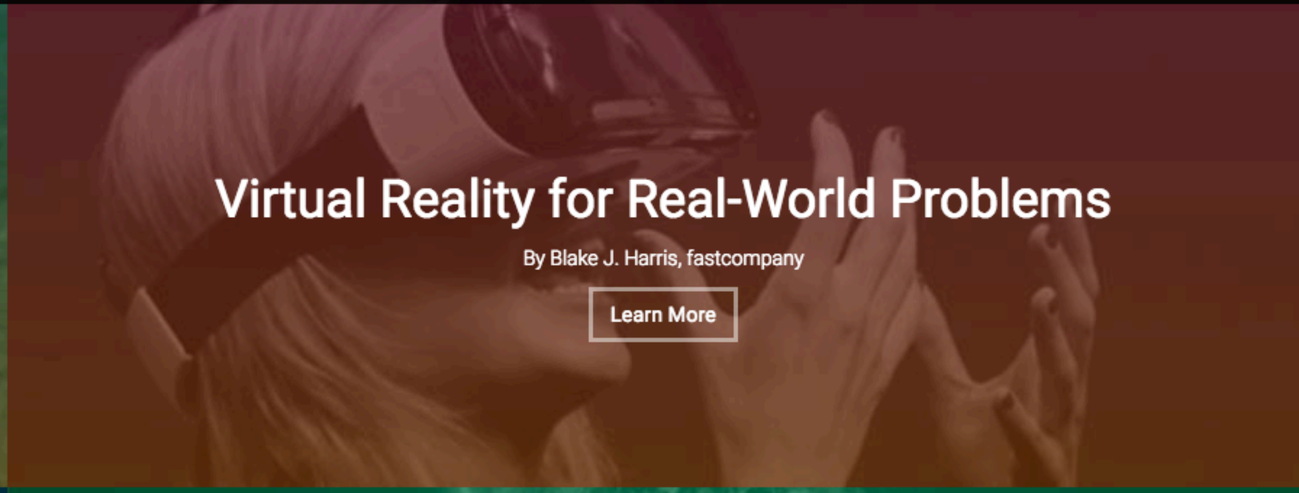
HUMANITY DESIGN + SOCIAL FLUENCY



How to use drones for social benefits?

By Joyce Riha Linik, Phys.org

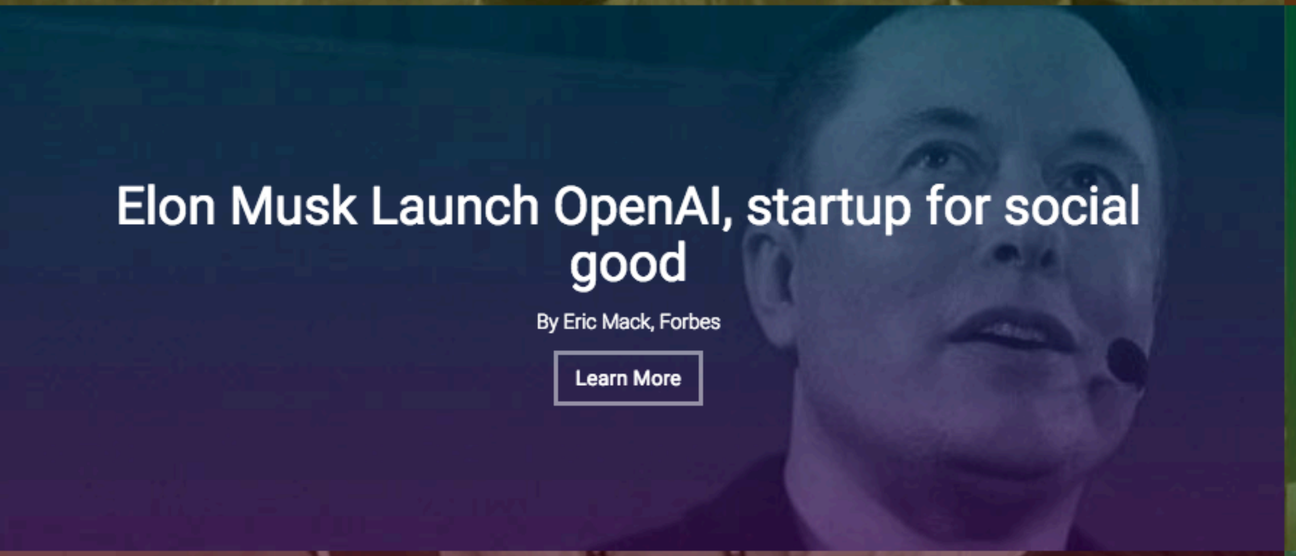
Learn More



Virtual Reality for Real-World Problems

By Blake J. Harris, fastcompany

Learn More



Elon Musk Launch OpenAI, startup for social good

By Eric Mack, Forbes

Learn More

Delivering hope to humanity through technology

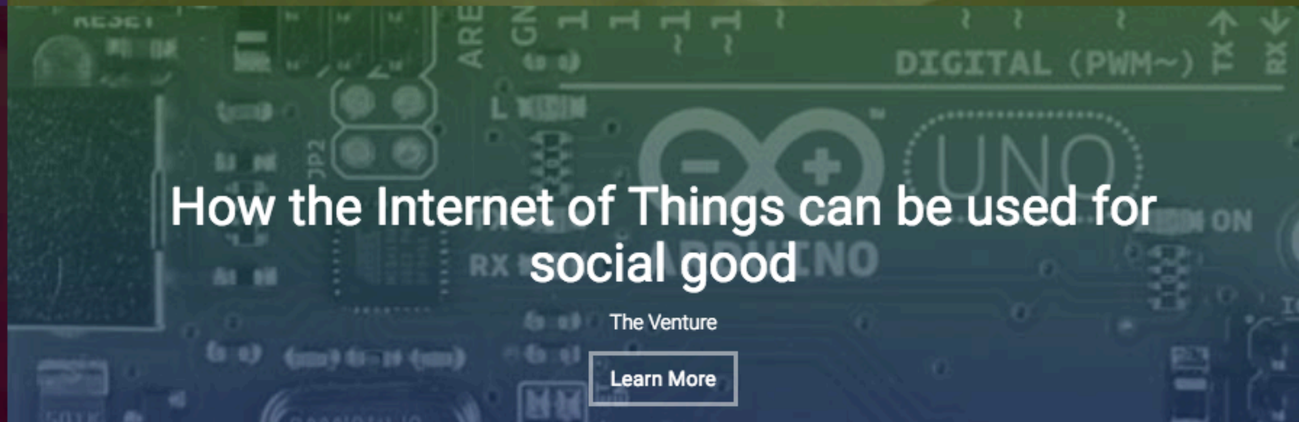
By Lauren Gilmore, Insider

Learn More

ARKHumanity, a proactive technology to help save lives

FOX10

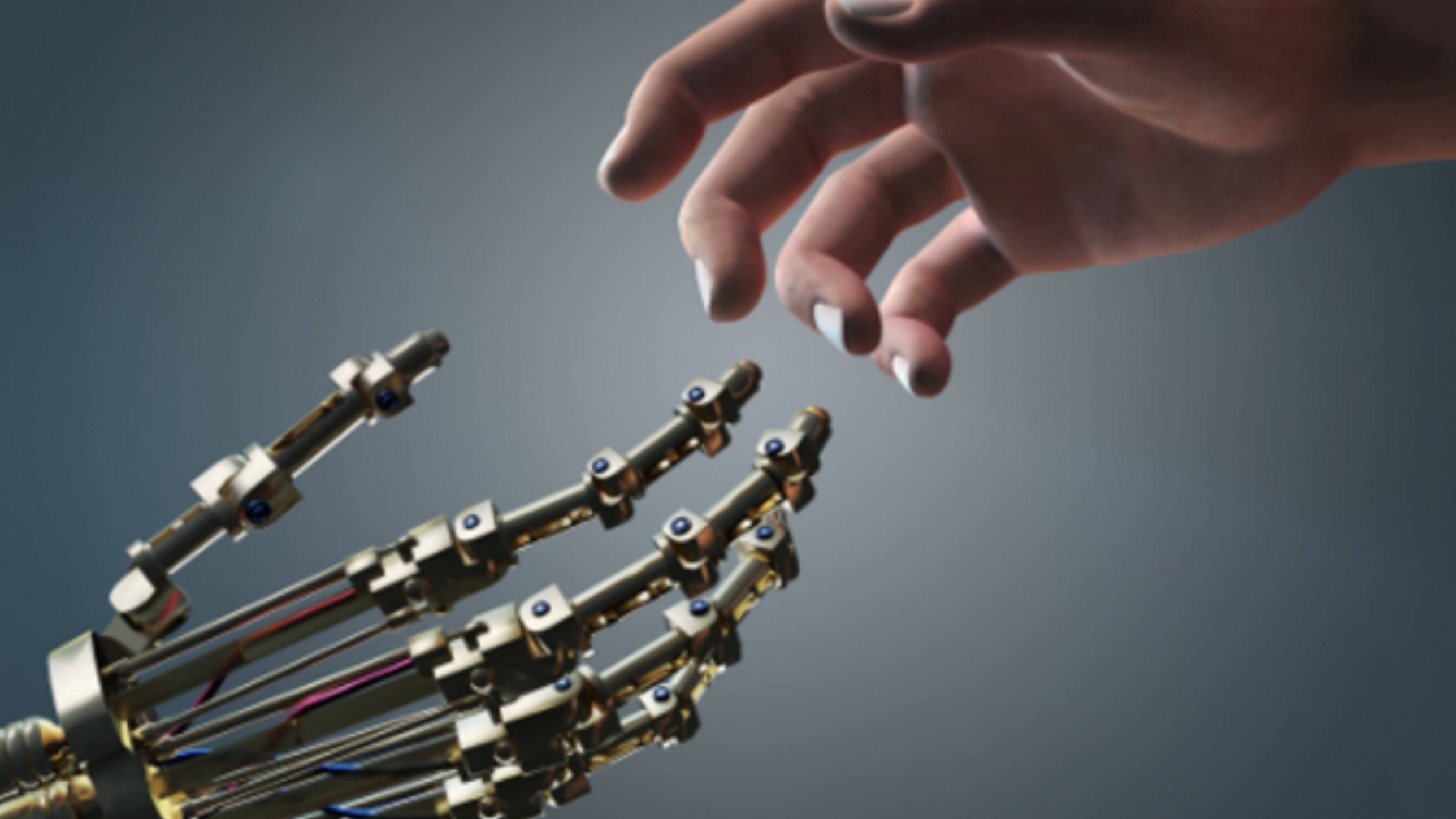
Learn More



How the Internet of Things can be used for social good

The Venture

Learn More



THANK YOU!

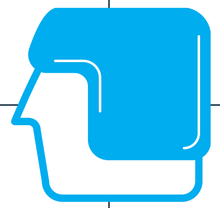
AUDIENCE EMPATHY MAP

SAY

What is your key message?

THINK

What do you want the audience to think?



DO

What do you want them to do?

FEEL

What do you want the audience to feel?

HOW TO PROTOTYPE YOUR MESSAGE

FRAME YOUR INTENT

WORK IN THE PHYSICAL

TRY IT ON +
GET FEEDBACK

DISCUSSION