



## Dr. James Landay

- Professor in Computer Science at Stanford
  - formerly professor at Cornell Tech, U. of Washington & Berkeley
  - spent 3 years as Director of Intel Labs Seattle
  - spent 2.5 years as visitor at Microsoft Research Asia & Tsinghua U.
  - ACM Fellow
  - Member SIGCHI Academy
- PhD in CS from Carnegie Mellon '96
- HCI w/ focus on ubiquitous computing, AI & human-drone interaction
- Founded NetRaker, 1<sup>st</sup> in web experience management (sold to Keynote)
- Co-authored *The Design of Sites* with Doug van Duyne & Jason Hong
- Email: landay@stanford.edu

Summer 2018

Designing & Prototyping Smart Applications



## Zhixiu Liu



- Digital Game Design Undergrad
- Information Arts & Design Masters @ Tsinghua University
- Interested in data-aided design, gamification, and social impact design
- I love photography, movies, travel, food

Summer 2018



## Zhican Yang

- Ph.D Candidate
  - Pervasive Human Computer Interaction
  - Department of Computer Science & Technology @ Tsinghua
- Bachelor's Degree
  - Computer Science and Technology @ Tsinghua
- Research Interests
  - Text entry, Smartphone interaction, Indirect touch

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## Why Teach In China

- China & US are two most important countries to the future of the world
- AI & UX Design are two key technologies & methodologies to make impact

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## Project Domain:

### Improving the Sustainability & the Environment with Smart Technology

Sustainability means using natural resources in a manner that ensures their future availability and in a way that won't damage the environment. We can create applications that encourage and enable more responsible use of resources such as water, food, and energy. We'll be looking at how to design products that use AI to help us.



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## B A L A N C E

### DESIGN

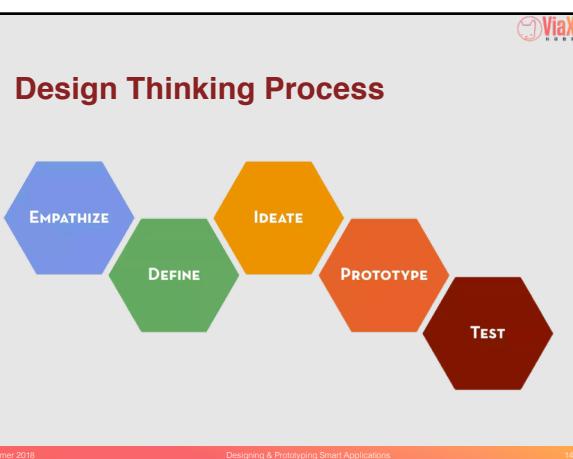
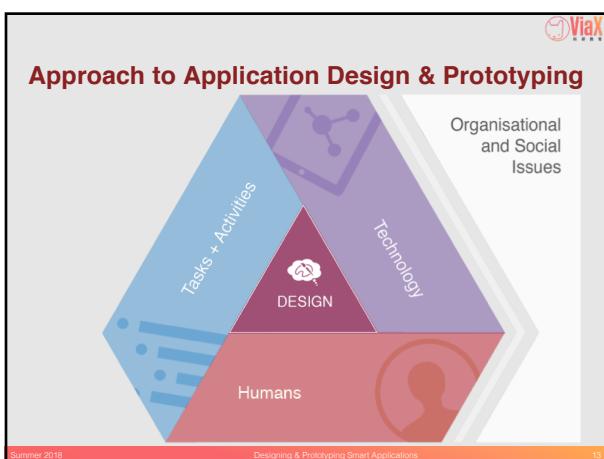
### TECHNOLOGY



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### Design Discovery

#### Needfinding & Task Analysis

Observe existing practices for inspiration  
Make sure key questions answered  
Ethical questions in design w/ underserved communities

ChoreoLab observed/interviewed dancers in studios.... and out in the streets ...

### Unpacking the Needfinding

SAY  
DO  
Think  
FEEL

ChoreoLab

### Develop Point of Views (Person + Insight + Challenge)

#### Brainstorm on How Might We Solve

WE WERE AMAZED TO REALIZE...  
IT WOULD BE GAME-CHANGING TO...  
ALL OF US COULD TAKE A RISK TO SEE A Stark INSTEAD AND NURTURE IT INTO A PORMISE TRANSFORMATION!

WHAT THANKS TO THE BOAT OWNER'S MONDAYDAYS THAT HE HAS BEEN AROUND FROM DAY 1 AND CHANGED HIS LIFE AROUND TO MAKE A JOB TO MAKE A LIVING SKILL + CHANCE (frame up an inspired challenge for your team! Don't dictate the solution!)

HMW bring routine (and instill discipline) into home less people's lives

### Sketching & Storyboarding

Phocus

## Rapid Prototyping

- Build a mock-up of design so you can test it
- Low fidelity techniques
  - paper sketches
  - cut, copy, paste
- Interactive prototyping tools
  - HTML, Balsamiq, Axure, proto.io, Sketch+Marvel, Modao, etc.
- UI builders
  - Expression Blend + Visual Studio, Xcode Interface Builder, etc.

Fantasy Basketball

Player Comparison - Tools

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## Evaluation

- Test with real customers (participants)
  - w/ interactive prototype
  - low-fi with paper “computer”
- Low-cost techniques
  - expert evaluation
  - walkthroughs
  - online testing

ESP

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## Goals of the Course

- Learn to design, prototype, & **evaluate** Smart apps
  - the **needs & tasks** of prospective customers
  - technology & techniques used **to prototype smart** apps
  - techniques for **evaluating** design
  - how to work together on a **team** project
  - communicate** your results to a group key to your future success
- Understand where technology is **going** & what Smart applications of **the future** might be like

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## Course Format

- Interactive lectures → you speak!
- Each day
  - 1-2 lectures on techniques & background
  - 1-2 hands-on activities
- Week-long project
- Readings (evening)
- Course material will be online
  - slides, exercises, readings, schedule

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## Projects

- Each team will propose a project
  - based on **team needfinding**
- Theme
  - smart mobile/wearable for **sustainability & environment**
- Groups
  - 3-4 students to a group
- Cumulative
  - apply several methods to one app

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## Lecture Schedule (5 days)

- Mon
  - Needfinding & Define

Solas observed/interviewed people in their homes..

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## Lecture Schedule (5 days)

- Mon
  - Needfinding & Define
- Tue
  - Ideation & Brainstorming
  - Solution Exploration
  - AI Tools

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## Lecture Schedule (5 days)

- Mon
  - Needfinding & Define
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  - Solution Exploration
  - AI Tools

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## Lecture Schedule (5 days)

- Mon
  - Needfinding & Define
- Tue
  - Ideation & Brainstorming
  - Solution Exploration
  - AI Tools
- Wed
  - Designing AI Interfaces
  - Low Fidelity Prototyping
  - User Testing
  - Prototyping Tools

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## Lecture Schedule (5 days)

- Thur
  - Medium-fi Prototyping
  - Heuristic Evaluation
- Fri
  - Future Smart Interfaces
  - Project Presentations

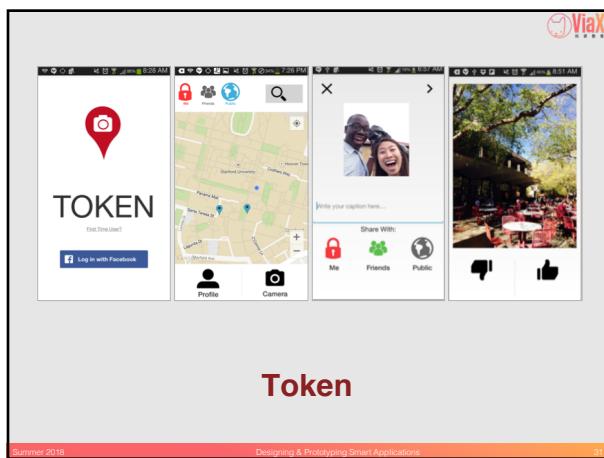
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## Project Process Timeline

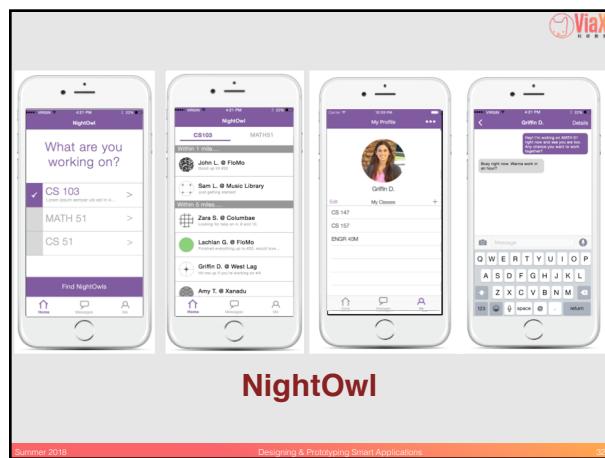
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## Cookable

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Token



NightOwl

**Upon Successful Completion of this Course, You will...**

- Learn to create & test prototype **smart** applications that can be demoed on your phone
- Learn Stanford's popular Design Thinking process
- Learn to train & test machine learning algorithms
- Learn to use design & prototyping tools
- Receive a reference letter from me

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**Summary**

- UX design is an important part of most of today's software
- Smart applications require even more thought
- Getting the app & its interface right is hard, but...
- Solution in **Iterative Design** including repeated cycles of Design, Prototyping, & Evaluation

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