

# Human Computer Interaction

Latest and Greatest, Kivy Installation, and Upcoming Topics

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## L&G: The big hole in HCI research

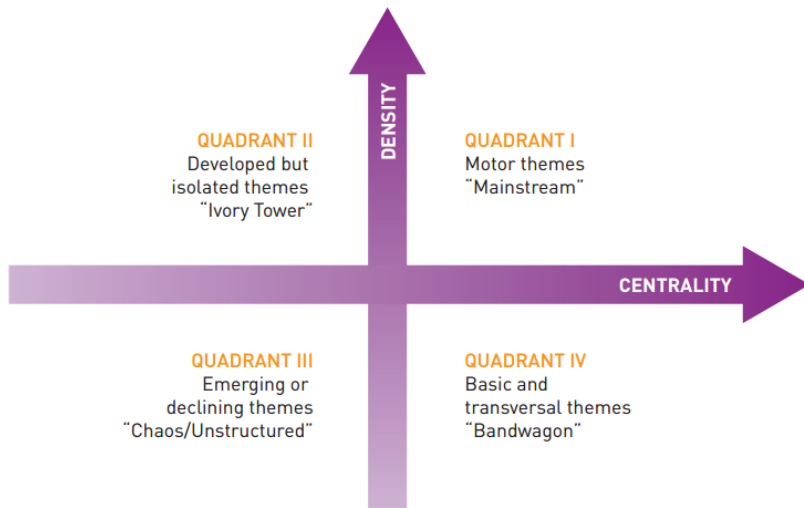
- The paper for this first Latest and Greatest sessions was:  
*Kostakos, Vassilis. “The big hole in HCI research.” Interactions 22.2 (2015): 48-51.*
- This paper offers general observations on a previous CHI paper by the author:

*Liu Y, Goncalves J, Ferreira D, Xiao B, Hosio S, Kostakos V.  
“CHI 1994-2013: Mapping two decades of intellectual progress through co-word analysis.” In: Proceedings of the 32nd annual ACM conference on Human factors in computing systems, 2014.*

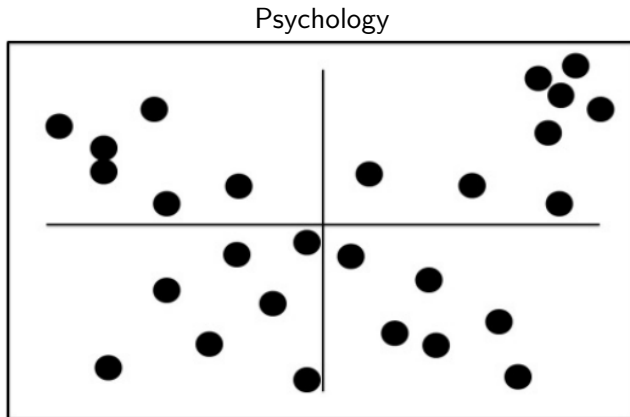
- This short paper is based on a **bibliometric analysis** known as of keyword co-occurrence in **twenty years** of CHI publications.
- The goal was to compare how this co-occurrence distribution in the CHI community compares with that of other disciplines.
- The most important finding in our paper was that CHI has systematically lacked **mainstream** or **motor themes**.
- **Themes** are identified by **keyword clustering**.
- Then, themes are quantified by two principal metrics:
  - **density** (the internal cohesion of the theme)
  - **centrality** (how "central" a theme is to the whole field)

- These two metric dimensions roughly divide the space into **four quadrants**:
  - A theme begins its life with **low centrality and density** in the **Chaos** quadrant.
  - As the theme becomes more central to the community, it moves to the **Bandwagon** quadrant.
  - The theme eventually matures its internal cohesion and moves to the **Mainstream** quadrant, **where the motor themes of a community lie**.
  - Finally, a theme loses its centrality and moves to the **Ivory Tower** quadrant, subsequently dying away by returning to the **Chaos** quadrant.

# The big hole in HCI research

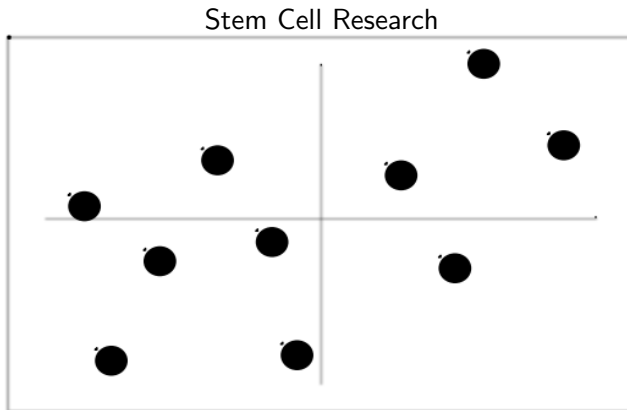


- The results of the **original** paper illustrate the difference between CHI and other communities:

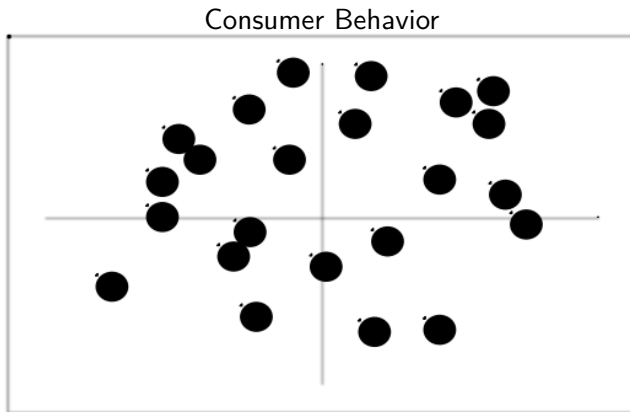




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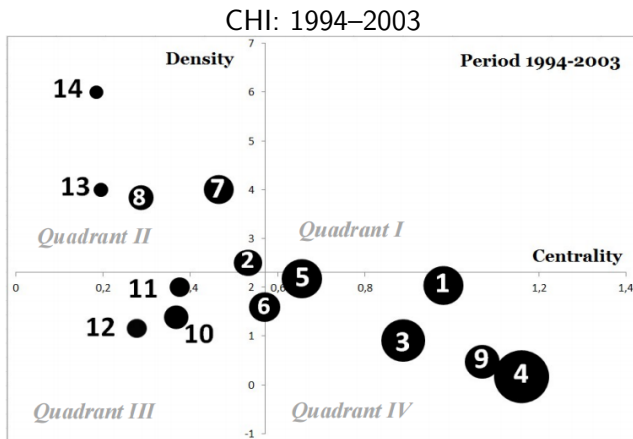


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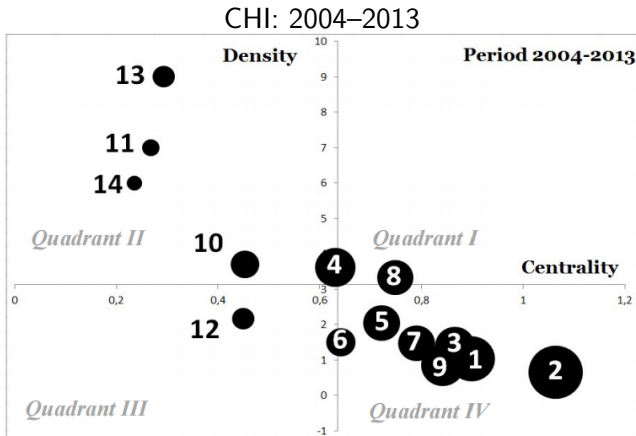


# The big hole in HCI research

- And now for the CHI research community:



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- So what?
- The authors claim that “Motor themes are the heart and soul of a discipline, its main topics or schools of thought.”
- This is probably true, and their results show that HCI is **decidedly lacking in motor themes**.
- That most research themes at CHI remain at the **Bandwagon** or **Chaos** quadrants.
- That the CHI community “simply rolls from topic to topic, year after year, without developing any of them substantially.”

- The final conclusion (intended to stimulate discussion, presumably) is that too much concentration is given to **implications to design**.
- This has the following negative effects:
  - Implications for design put **practitioner** needs above those of researchers.
  - Implications for design give preference to **contextual** knowledge.
  - Implications for design are usually just a well-crafted **argument**.
  - Implications for design **demotivate incremental research**.
  - Implications for design **demotivate repeating studies**.

- The main insights of the paper:
  - Research in HCI has consistently lacked motor themes, mainstream topics, and schools of thought.
  - Implications for design have likely contributed to the scattered nature of our research.
  - Our discipline can establish motor themes by placing value in tools, data, and theory.
- Thoughts?

## Homework review



## Exercise 1.1: Don Norman: How good design makes us happy

- Design and happiness
- The curse of logic

## Exercise 1.2: Doug Engelbart's "Mother of all Demos"

- Visionary hypertext workstation

## Exercise 1.3: Vannevar Bush's "As We May Think"

- Modern reprint
- Scan of original magazine (entertaining)

## Exercise 2.1: Observing and not taking for granted

Think about and observe the interfaces to common websites you visit or of common applications you use. Identify the **affordances** offered by them, and determine whether they are **perceived** or not. Can you find examples of **false affordances**? What about **signifiers** and **mapping**?

## 3.1: Baby steps

A pangram is a sentence that contains all the letters of the English alphabet at least once, for example: The quick brown fox jumps over the lazy dog. Write a function to check a sentence to see if it is a pangram or not.

## 3.2: Lists

Write a program that maps a list of words into a list of integers representing the lengths of the corresponding words.

## 3.3: More lists

Write a function that takes a list and returns a new list that contains all the elements of the first list minus all the duplicates. Try be **concise**.

# Leftovers

- Over the next week it is important that you familiarize yourselves with the main features of Conda/Anaconda.
- Use this guide:

<http://conda.pydata.org/docs/test-drive.html>

- It is important have a basic understanding of Anaconda package management in order to understand the Kivy installation instructions that follow.

## Linux solution #1 (kivy 1.8 from conda)

```
conda create --name conda-kivy1.8 --channel https://conda.anaconda.org/Judo
--channel https://conda.anaconda.org/auto \
--channel https://conda.anaconda.org/tlatorre \
kivy ipython pil path.py=7.6.1
```

## Linux solution #2 (latest github via pip + cython)

*# First install opengl deps.*

```
sudo apt-get install libgl1-mesa-dev mesa-common-dev
```

*# Create the anaconda env with Cython, pygame, pillow and ipython.*

```
conda create --name pip-kivy1.8 \
--channel https://conda.anaconda.org/tlatorre \
ipython pillow cython=0.20
```

*# Switch to the virtual env and install kivy from github*

```
source activate pip-kivy1.8
```

```
pip install pygame git+https://github.com/kivy/kivy.git@1.8.0
```

## OSX (possible solution)

*# Install some dependencies with brew.*

```
brew install sdl2 sdl2_image sdl2_ttf sdl2_mixer gstreamer
```

*# Create the anaconda env with Cython, pygame, pillow and ipython.*

```
conda create --name pip-kivy1.8 \\  
            --channel https://conda.anaconda.org/tlatorre \\  
            ipython pillow cython=0.20
```

*# Switch to the virtual env and install kivy from github*

**source** activate pip-kivy1.8

```
pip install pygame git+https://github.com/kivy/kivy.git@1.8.0
```

## Caveats and gotchas

- There are serious versioning problems with Kivy installation.
- We would like to be running 1.9, but it can be difficult to build and install.
- For now, we will settle for Kivy 1.8, which seems stable.

# Latest and Greatest



- On **Tuesday, October 18th 2016**, we will have our next Latest and Greatest session:

*König WA, Rädle R, Reiterer H. **Squidy: a zoomable design environment for natural user interfaces**. Proceedings of CHI, 2009.*

- With this paper we are taking a jump **backwards** in time.
- This paper is a good example of what **natural interaction** meant in 2009.

## The road forward

- **Next week:** NO CLASSES.
- Week of **17 October:** GUI programming basics
  - Events and event-driven programming
  - Inversion of control
  - The KV design language
- Week of **24 October:** The psychology of action
  - How do we figure stuff out?
  - The Gestalt theory of perceptual organization
- After
  - Kivy on Android lab
  - Functional reactive programming
  - More Latest and Greatest
  - Special requests?

# Homework

## Exercise 5.1: Kivy installation

Over the next week, try to get a working Kivy installation up and running on your own. Note you are not **required** to use the Anaconda distribution and I suggest. In fact, there are Kivy packages for most OSes that you can also try.

## Exercise 5.2: Latest and Greatest

Be prepared to discuss this paper on **18 October**:

*König WA, Rädle R, Reiterer H. **Squidy: a zoomable design environment for natural user interfaces**. Proceedings of CHI, 2009.*