FAST AND CORRECT SYSTEMS (INCLUDING **ROBOTS**!)

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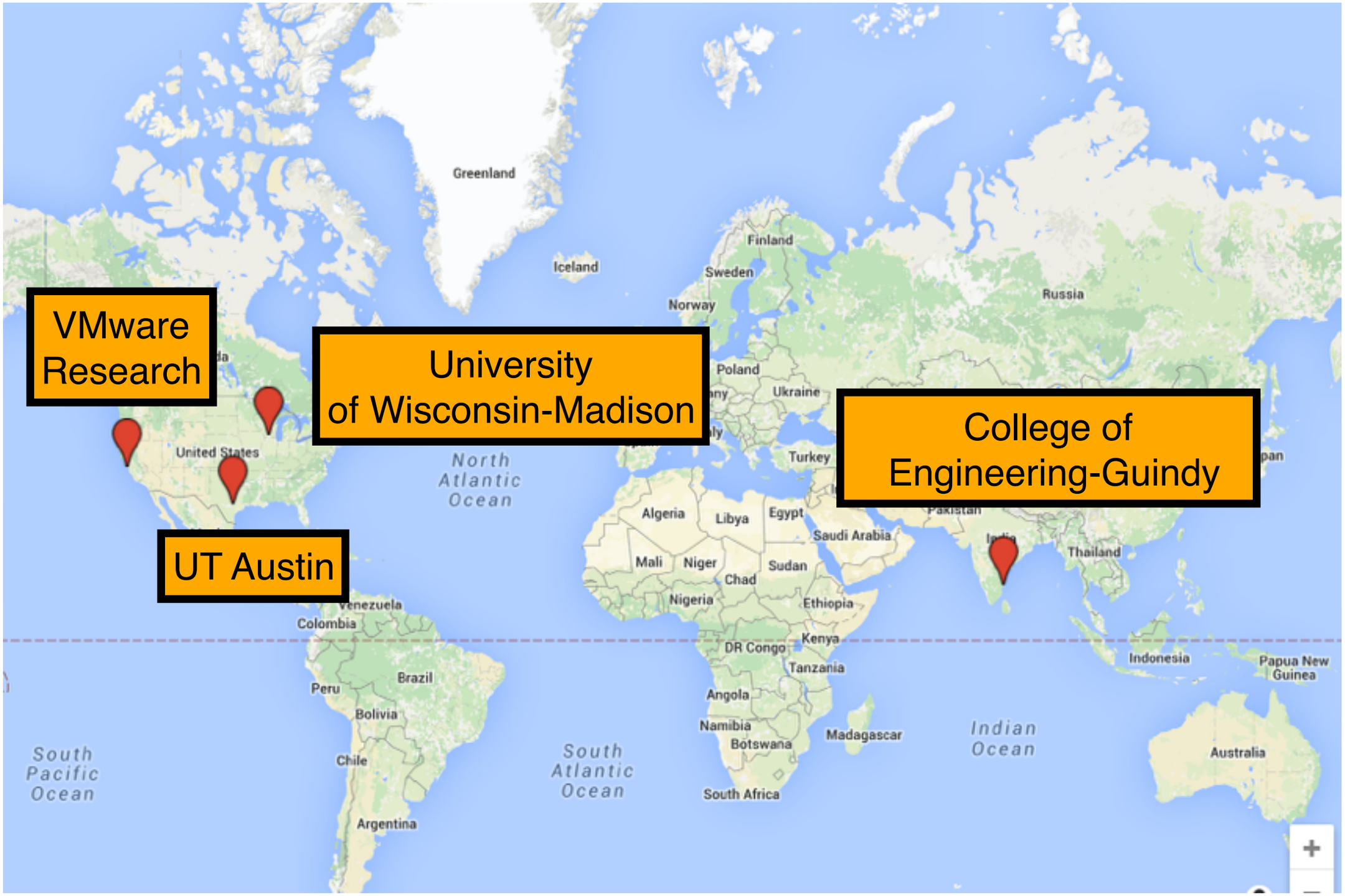
ABOUT ME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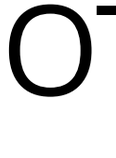
PRIOR ROBOTICS EXPERIENCE

DESIGNING PERSUASIVE ROBOTS:

HOW ROBOTS MIGHT PERSUADE PEOPLE USING VOCAL AND NONVERBAL CUES


CHIDAMBARAM


CHIANG


MUTLU

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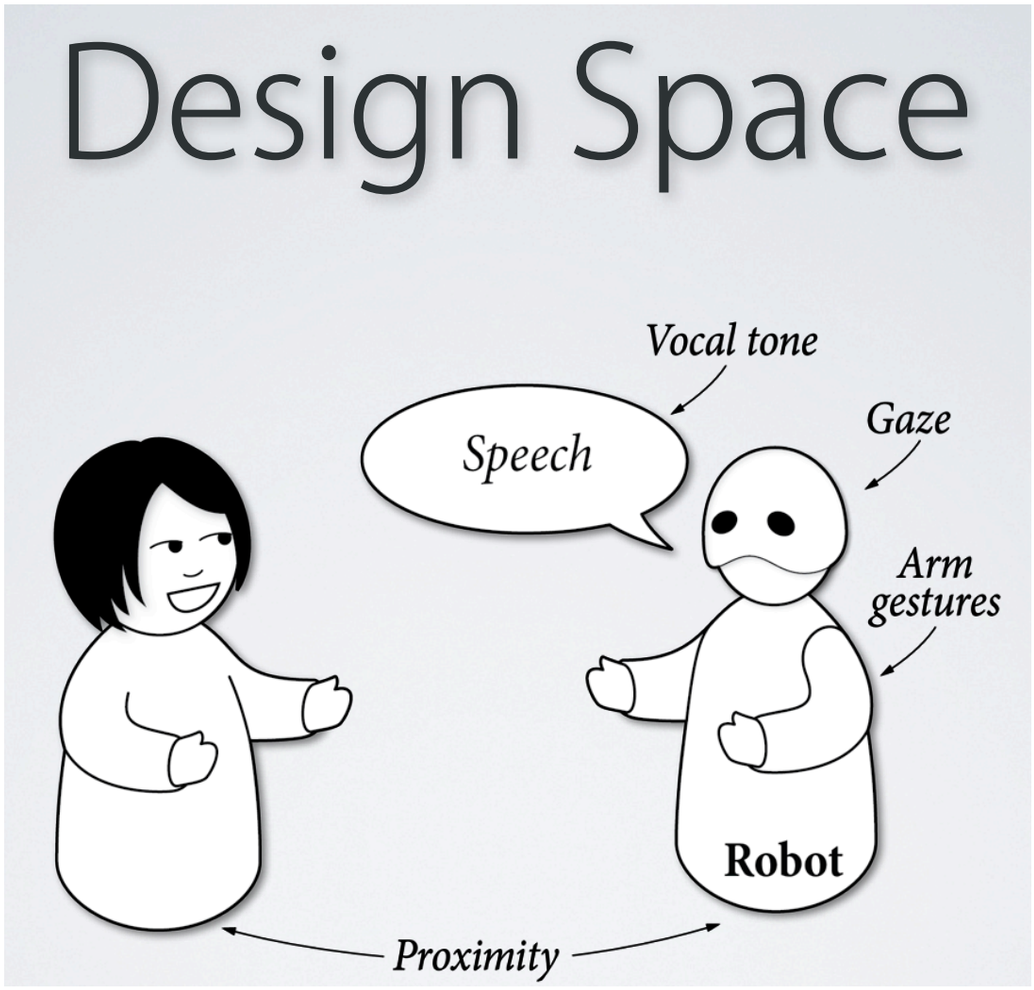
HUMAN-COMPUTER INTERACTION LAB, UNIVERSITY OF WISCONSIN–MADISON



RESEARCH APPROACH

Build better infrastructure for robotics research

- Make the Robot Operating System better
- Make the robot more power efficient
- Develop operating-system primitives for robots
- Help collect and analyze robot sensor data

TWO PROBLEMS

#1: How to increase battery life of the robot? Are there software inefficiencies eating up energy?

#2: How to handle the flood of data from the sensors so that we only log interesting data?

#1: INCREASING BATTERY LIFE

Currently, the robot gets around 4-6 hours once the battery is charged

We want to understand this better

How much power is used when:

- the robot is idle?
- the robot is doing simple forward-backward motions?

#1: INCREASING BATTERY LIFE

#1: INCREASING BATTERY LIFE

Skills needed

- Experience in electronics preferred
- Some software dev experience would be useful

Work ahead

- Lot of experimental work with the robot
- Software changes to Robot Operating System (ROS)

PROBLEM #2: LOGGING SENSOR DATA

Robot’s sensors (like odometer) create lots and lots of data (multiple GBs per day)

Logging all of that data is not useful/feasible

How to log all the **interesting** data?

PROBLEM #2: LOGGING SENSOR DATA

How to know what is interesting?

- We ask the user for a list of queries they want to answer
- We then look at all the collected data, see what would been relevant to the queries
- Going forward, we only log such data

PROBLEM #2: LOGGING SENSOR DATA

Skills required

- Software development skills
- Basic statistics knowledge

Work ahead

- Collecting sensor data and input queries
- Analyzing data
- Building the logging system

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Projects
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http://www.cs.utexas.edu/~vijay/

I will be on leave until Fall 20 **arch Group.**

I am broadly interested in systems-ish stuff: operating systems and distributed systems. Most of the work I've done so far has been in file systems and storage.

I am interested in taking on new students (beginning Fall 2016). If you are interested in working with me, please check out my page for prospective students and send me an email. Make sure to apply to the PhD program by the deadline (December 7).

If you a student considering grad school or applying for grad school, these links may be useful (advice on contacting profs, getting letters of recommendation, etc.)