

# ETAD Lab - Fall 2021



(etad@Calit2)

# Calit2

UNIVERSITY of CALIFORNIA • IRVINE

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# Research Motivation

## The promising era of digital solutions:

- Sophisticated information systems hold tremendous potential for educating, influencing behaviors and promoting health.
- However, there is a long way to go to reach that incredible potential!

# Research Motivation

- **Digital solutions are often too artificial to achieve the proposed goals. Questions for technologists:**
  - How engaging and interactive is my solution?
  - Does my solution capture audience attention (exposure)?
  - Does my solution communicate
    - clearly & compellingly? Sensitive & persuasively?
  - Does my application adapt well to unique individuals?

# Goals

- **Apply state of the art technology to implement new applications and devices to engage users in**
  - Improved medical therapies.
  - Symptoms monitoring.
  - Healthier life style.



**"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"**

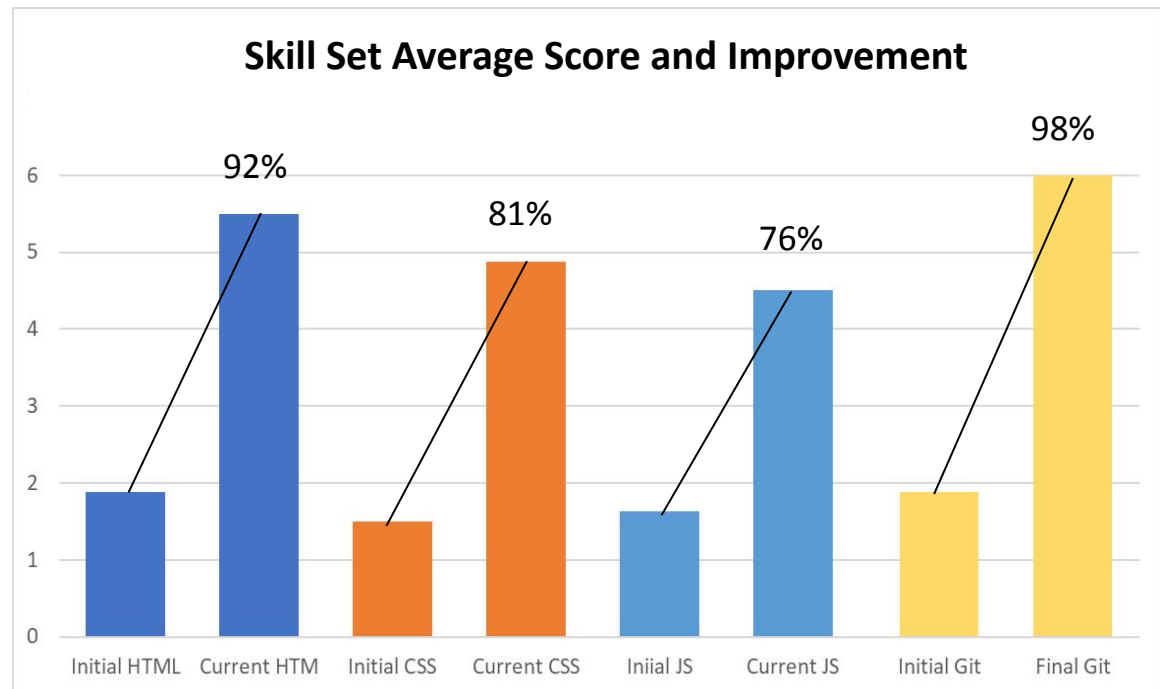
# Goals

- **Build a open-minded, dynamic and competitive interdisciplinary team including:**
  - UCI Students and Researchers
  - Technologist and Professionals
  - Public and private agencies
  - Industry

# Real-world projects-based training

## Results assessment of Capstone Project (140 undergrads 2019-2021)

- Increased engagement in the course activities.
- Increased feeling of responsibility.
- Boost employment opps.



# Research Activities – Projects

- **12 Active collaborative projects** (20+ undergrad students / quarter)
- **Research Fields**
  - Medical/Energy Informatics
  - Game Development
  - Product design and Prototyping



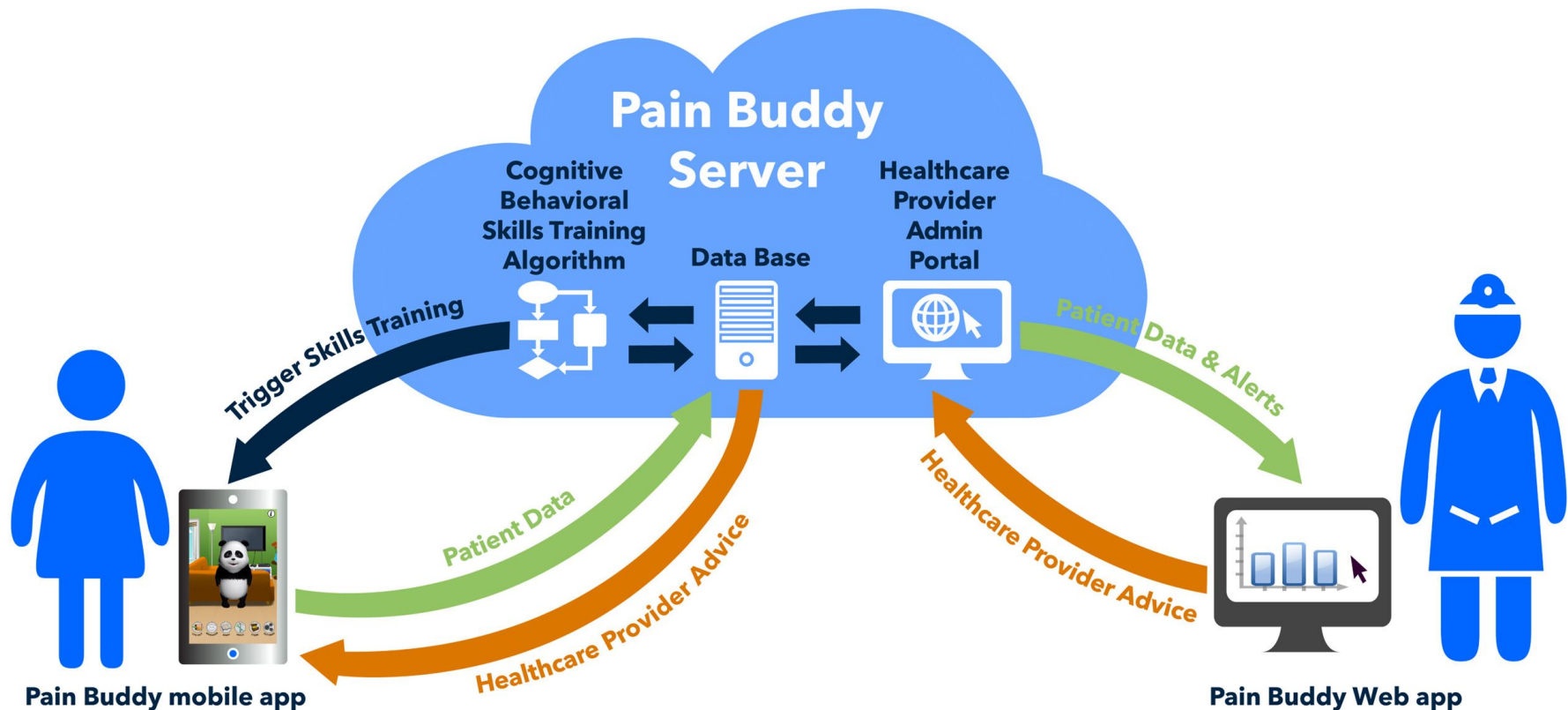
# Selected Projects – Pain Buddy

- **Background:** Children undergoing chemotherapy in high risk of chronic pain.
- **Goal:** To develop and evaluate a m-health app for pain reporting.
  - Real-time symptoms collection.
  - Decision-making support (families, physicians).
  - Cognitive and behavioral skills training.



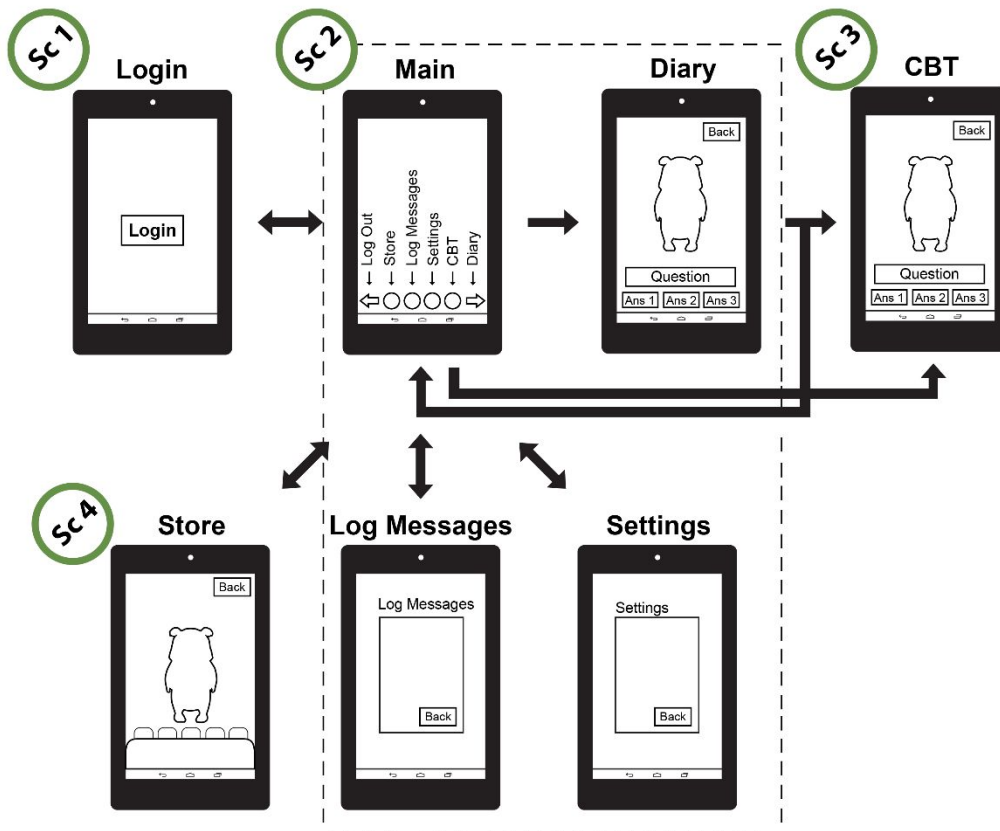
# Selected Projects – Pain Buddy

- **Methodology:** An animated avatar-based tablet application, server and web portal.



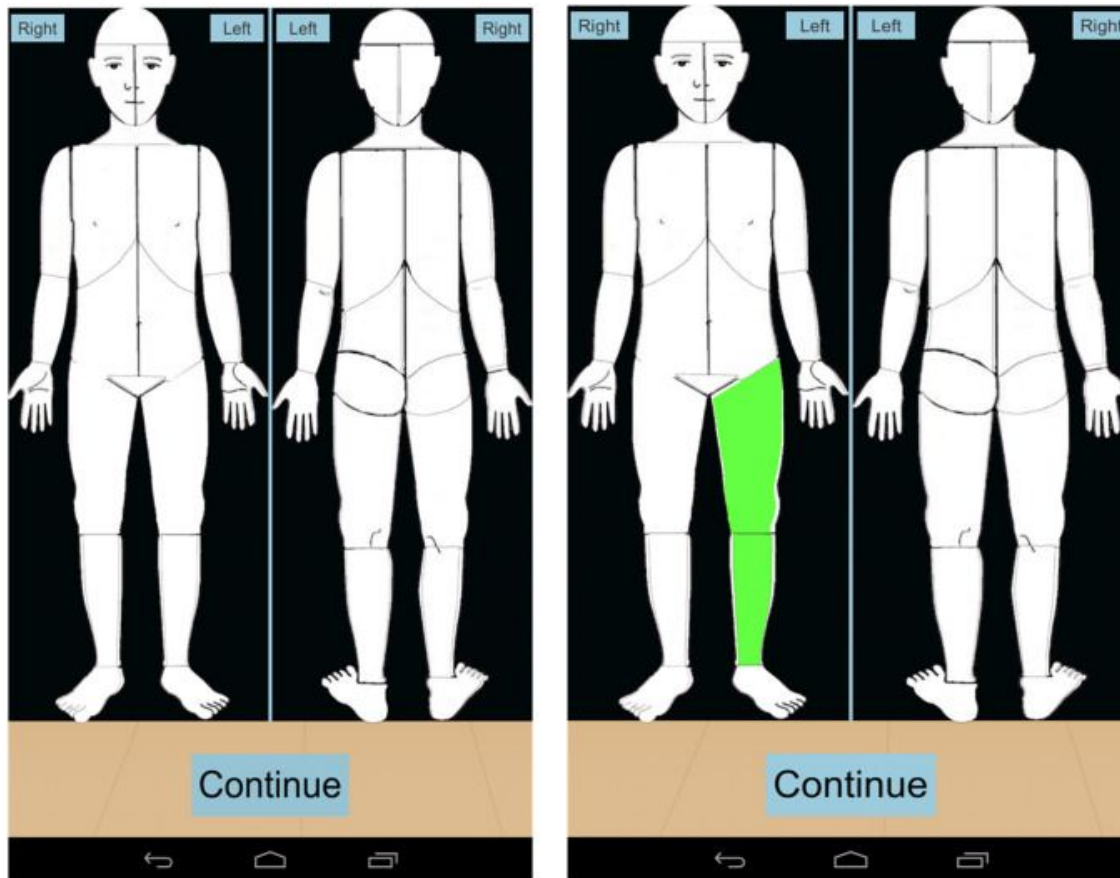
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# Selected Projects – Pain Buddy

- **Pilot Study:** Twelve children between the ages of 8 and 18 participated



**UC Irvine Health**  
School of Medicine



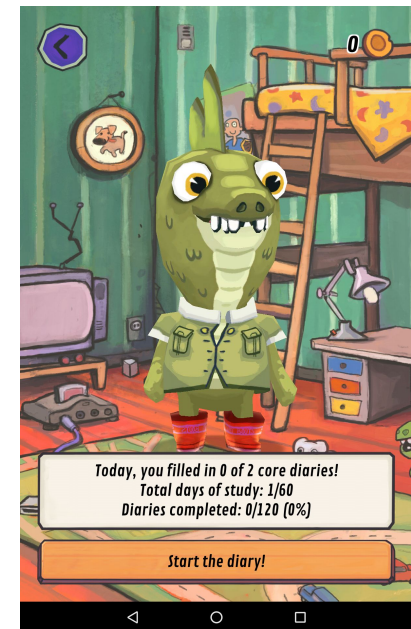
# Selected Projects – Pain Buddy

- **Results:**

- Children were highly satisfied with the program.
- Symptom trigger alerts to outside providers were largely related to clinically significant pain.
- Less use of analgesics, and more non-pharmacological pain management strategies.

- **Future work:**

- Developing a new version of Pain Buddy
- Conduct a clinical trial with 210 patients.

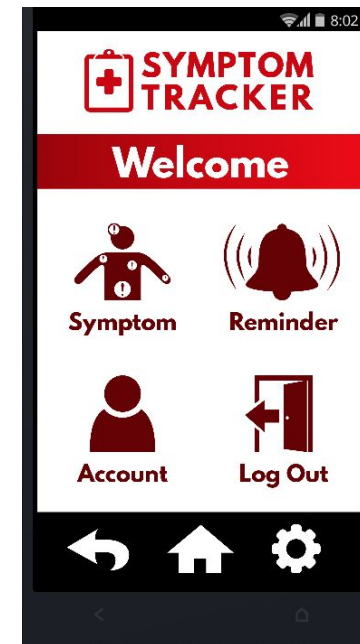
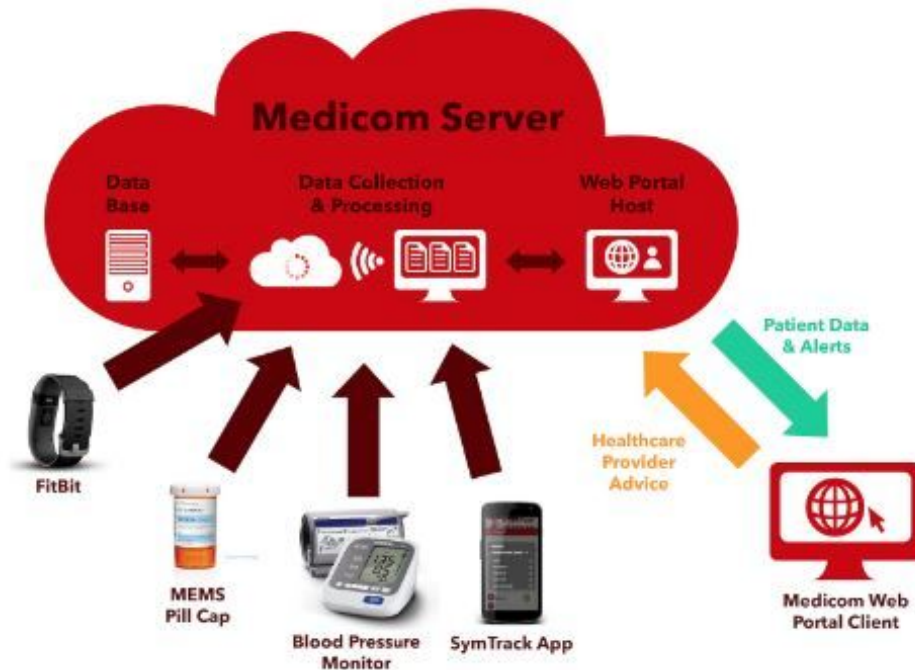


# Selected Projects – Medicom

- **Background:**
  - Most efforts to improve adherence focus on unintentional nonadherence. Intentional nonadherence (choosing not to take medications) due to negative beliefs are mostly unaddressed.
  - Hispanic/Latinos with hypertension and diabetes experience high rates of complications, nonadherence/medication underuse, and very negative beliefs about medications.
- **Goal:** To develop and evaluate a m-health app to explore treatment options through direct experience with medications.
  - Real-time symptoms collection.
  - Activity tracking
  - Medication intake monitoring.

# Selected Projects – Medicom

- **Methodology:** Implementation of a symptom track app, a monitoring platform and a web portal for data visualization.





# Selected Projects – Medicom

- **Pilot Study:** Tested a web-based activity to help Latino patients (N=190) identify and prioritize important concerns about their medications to discuss with their provider.
- **Results:**
  - Curiosity to experiment with treatment options (33% of patients)
  - Barriers to adherence rarely discussed (29% patients with non-adherence talked about it)
- **Future work: Clinical Trial 2020-2024**
  - Total of 190 patients.
  - 120 patients will have individualized medication experience monitoring
- 



National Institutes  
of Health

# Thank you!

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