ETAD Lab - Fall 2021

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UCI CALIT2
Engaging Technology and Application Design
(etad@Calit2)

Calit2
University of California • Irvine

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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? Sensitively & 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.
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.

Skill Set Average Score and Improvement

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<thead>
<tr>
<th>Skill</th>
<th>Initial HTML</th>
<th>Current HTML</th>
<th>Initial CSS</th>
<th>Current CSS</th>
<th>Initial JS</th>
<th>Current JS</th>
<th>Initial Git</th>
<th>Final Git</th>
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<tbody>
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<td>81%</td>
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<td>98%</td>
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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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- **Pilot Study:** Twelve children between the ages of 8 and 18 participated.
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

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NIH National Institutes of Health

UCIrvine
Thank you!

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