



## Synopsis

- Smart Textiles are blind to consumers without sufficient knowledge in wearable technology. They may not understand and analyze the real-time vital signs.
- Consumers/athletes face challenges in:
  - Selecting, accessing, and sharing data from the products
  - Understanding the collected data from devices
  - Lack of knowledge in using real-time biometric data

## Research Objective

Develop and evaluate a framework for selecting and evaluating smart textiles and for conducting consumer research with the deployment of a large-scale application.

- Study user-oriented technology that reflects CSUN student-athletes' latent smart textile needs.
- Develop an application to extract vital data from body sensors embedded in the smart textile, then process the data for analysis and data visualization.
- Help users understand and maintain a healthy lifestyle.
- Analyze athletic students' performance and help athletic staff members on training decision-making, injury prevention and management.

## Research Approach

- Wear tests - evaluate functionality, usability, wearability, durability, maintainability and affordability in smart textiles.
- Use an agile approach for mobile application development through close involvement of stakeholders.
- Create an online survey using questions built from field observations, focus group discussions and in-person interviews.

## Research Results and Products

The team has developed a prototype cross-platform mobile application to retrieve data from smart watches and present the visualized data.

- Account Management
- Biometric data: Activity, Heart Rate, and Sleeping Data
- Performance Insights through data visualization
- Apple HealthKit and Google Health Connect integration

## Commercialization and/or Societal Impact Opportunities

- **Application:** Mobile application for smart wearable devices and web app for sport team coaches.
- **Key Values:** Easily access and share data collected by wearable tech.
- **Potential users:** Anyone with a smart wearable device.

## Team Names & Collaborators

### ARCS Students:

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### Faculty:

Dr. Wei Cao, Family and Consumer Sciences; Dr. Xunfei Jiang, Computer Science; Dr. Nhut Ho, Mechanical Engineering; Dr. Yi Cai, Family and Consumer Sciences

### Collaborators:

CSUN Athletics Department,  
Mr. Jim Gorman (CSUN Athletic Advocate)

## Citations

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