

## Principal Investigators



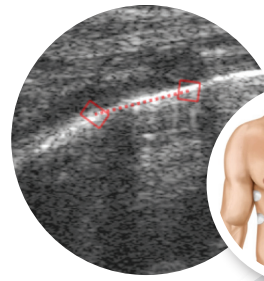
**Cheri Deng, PhD**  
Biomedical Engineering

## Collaborators

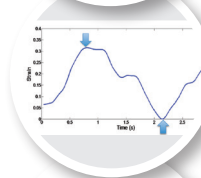


**Jonathan Rubin, MD, PhD**  
Radiology

**Kyle Gunnerson, MD**  
Emergency Medicine  
**Jamie Hamilton, PhD**  
CTO, Epsilon Imaging



"Speckle track" lung's surface using 2D ultrasound transducers



Calculate local lung strain/stiffness



>> Indicates hydration status  
>> Determines point of optimal ventilation

# Real-Time Ultrasound Lung Strain Measurement Device

Device to monitor fluid volume status and manage mechanical ventilation with sepsis patients

## Team

## Technology

## Competitive Advantage

## Commercialization Roadmap



**SPEED**

Real-time, minute-to-minute updates



**NON-INVASIVE**

Safe, bedside application using ultrasound technology



**MULTI-USE**

Monitor hydration + manage ventilation



**SPECIFICITY**

Quantitative evaluation of lung function



**EASY**

Requires little expertise to operate

### Potential Partners

Sonetics  
Epsilon Imaging  
GE Healthcare  
Pfizer

**Class II Device**  
510(k) premarket notification



**License Technology**

## PROJECT MILESTONES

Test tidal volume & FRC estimates of ventilated lung phantoms

**MONTH 1 - In-Vitro**

- Compare strain data from ultrasound/CT scans of ventilated phantoms
- Perform ultrasound scans on normal patient

**MONTH 2 - In-Vitro**

Test ultrasound scanner with ventilated phantoms

**MONTH 3 - In-Vitro & In-Vivo**

- Perform matched ultrasound/CT scans with ventilated phantoms
- Perform lung ultrasound scans on ventilated patients: 1 normal + 1 abnormal

**MONTH 4 - In-Vitro & In-Vivo**

Repeat Month 4 to demonstrate reproducibility and refine methodology

**MONTH 5 - In-Vitro & In-Vivo**

- Repeat Month 3 & 4 with ventilated phantoms, doubling experiments
- Repeat Month 5 with ventilated patients

**MONTH 6 - In-Vitro & In-Vivo**