# **Longitudinal Analysis of Stress Patterns Derived from Physiological Data During the Four Menstrual Phases**

Ira A. Fulton Schools of **Engineering Arizona State University** 

- fluctuations significant hormonal
- changes across the menstrual cycle.
- month period to identify stress patterns across the menstrual c



### **Participants**:

- 7 females aged 23–32 with regular menstrual cycles (23–40 days).
- hormone levels.

### **Time Range**:

cycle.

### **Data Collection**:

- hours/day.
- Continuous recording of HR and HRV data.

### **Data Processing and Analysis**:

- Raw data processed using **MATLAB** and **Python**.
- (**FFT**) analysis.
- across phases.
- Visualization created using **Matplotlib** and **Seaborn**.

## Tanima Dey | Aurel Coza School of Biological and Health Systems Engineering



I sincerely thank Dr. Aurel Coza for his invaluable mentorship and support throughout this project. I'm also grateful to the participants for contributing their data and to ASU's Biomedical Engineering Department for providing the resources and environment that made this research possible.

