CRII: CPS: Wearable Machine-Interface Architectures

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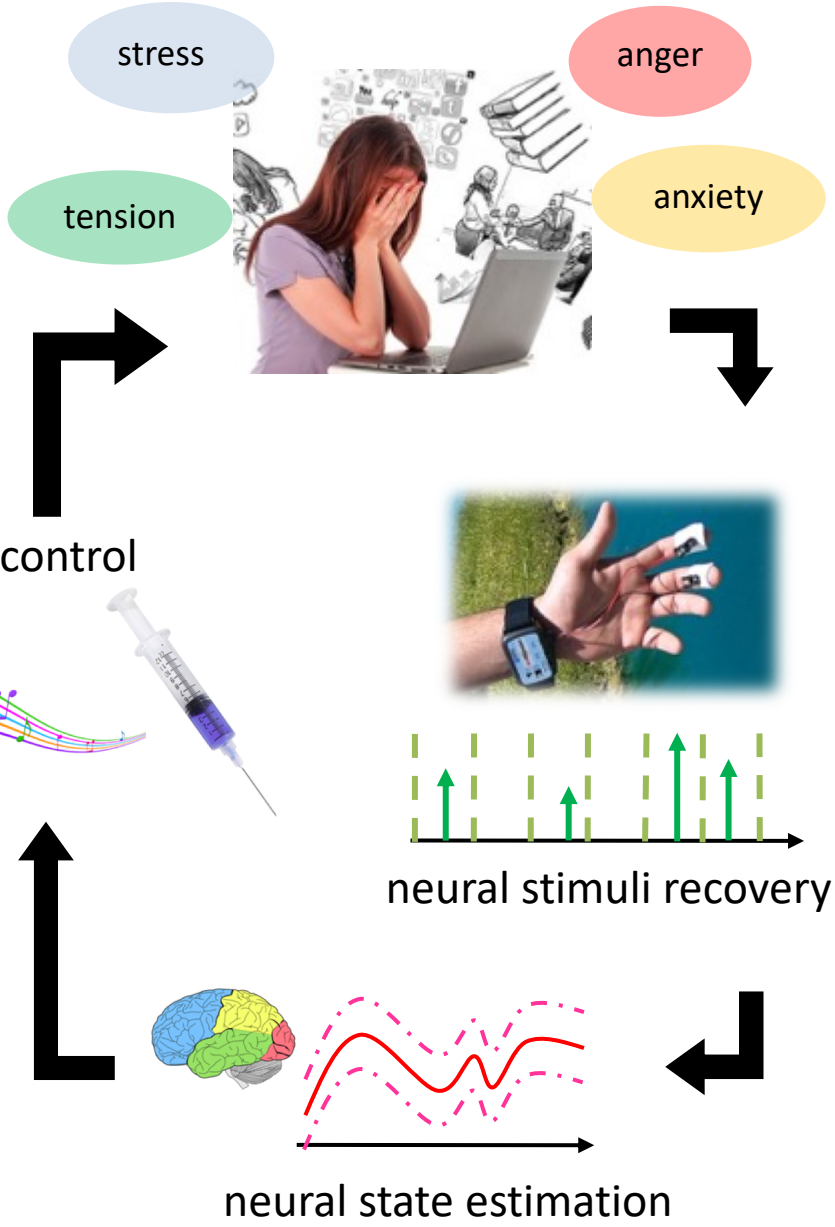
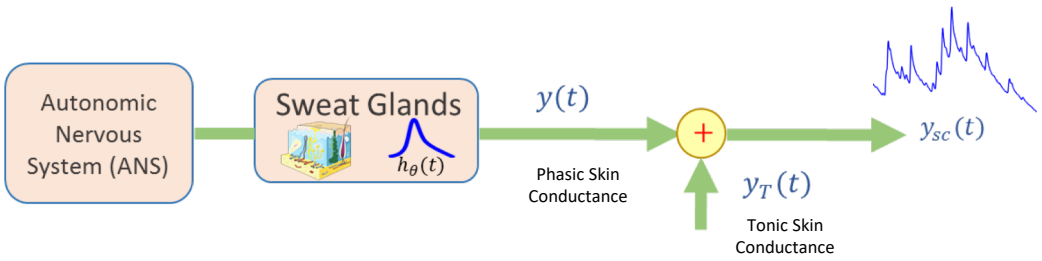
Description

Wearable devices to infer brain activity from peripheral physiological signals

Goals of This Project:

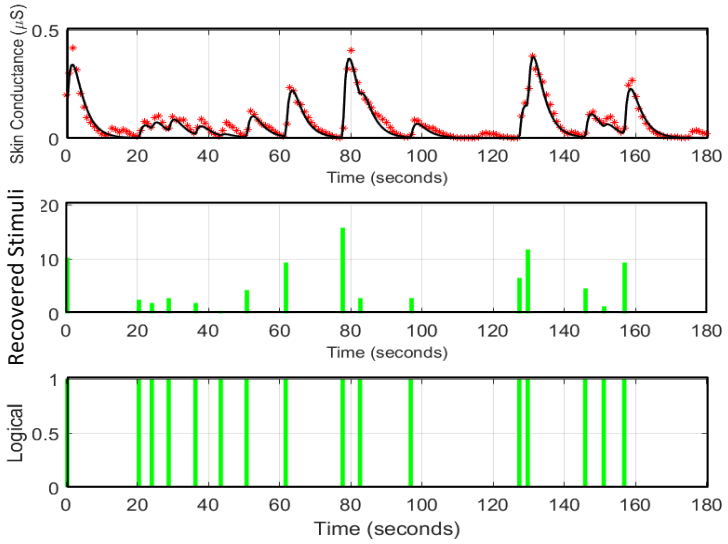
- Infer the neural stimuli underlying pulsatile physiological signals (e.g. skin conductance, blood cortisol levels)
- Estimate an unobserved neural state from inferred neural stimuli
- Apply control to maintain the neural state within a desired range

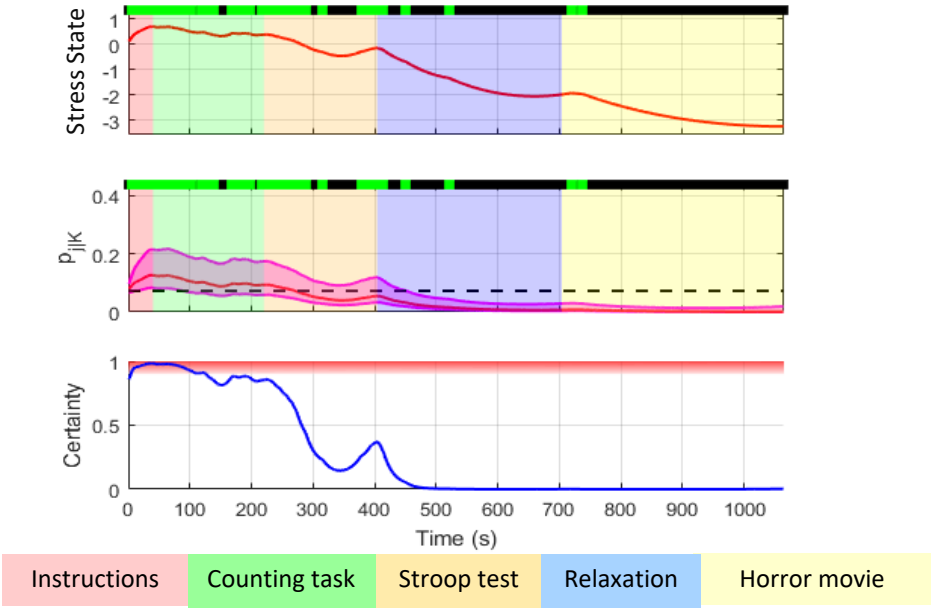




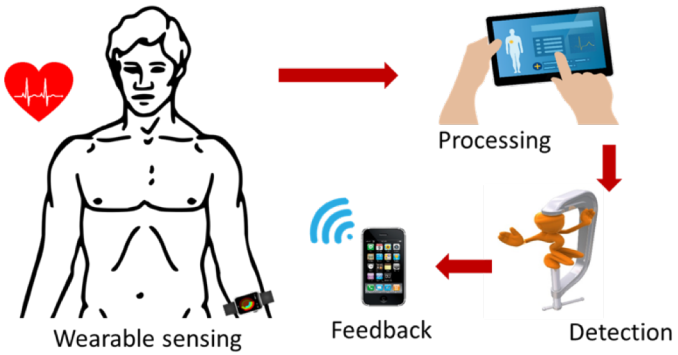
Findings

- Deconvolution of synthetic and experimental skin conductance data
- Stress state estimation using recovered neural stimuli





Future Directions – Integrated wearable sensing with feedback



Societal Impact