

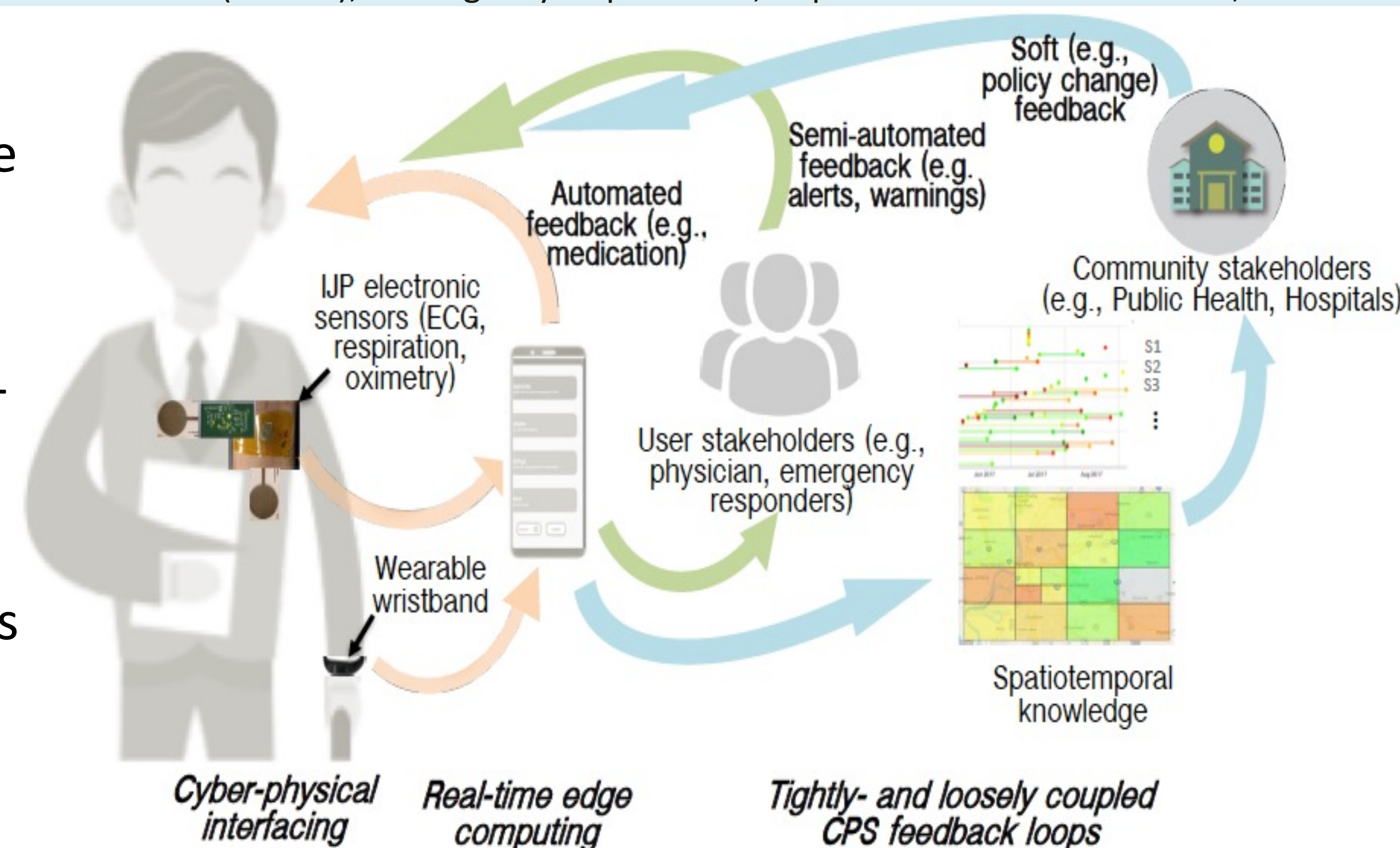
# CPS: Small: Inkjet Printed Flexible Electronic CPS with Context-aware Events of Interest Detection

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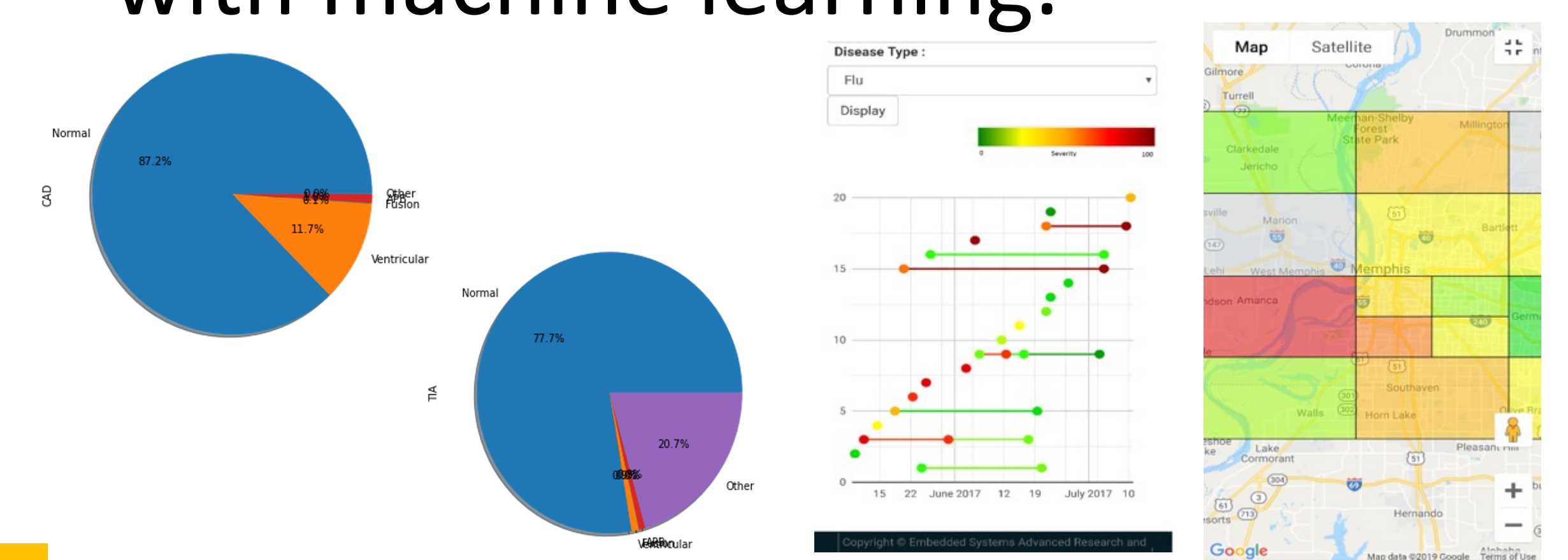
## CPS Challenges:

- How to utilize resilient and reliable cyber-physical interfacing, while being economically viable
- How to process large data automatically and reliably for real-time event monitoring at smart edge devices
- How to seamlessly integrate computation and physical domains along with meaningful interpretation of multimodal and multigrain data of scalable CPS



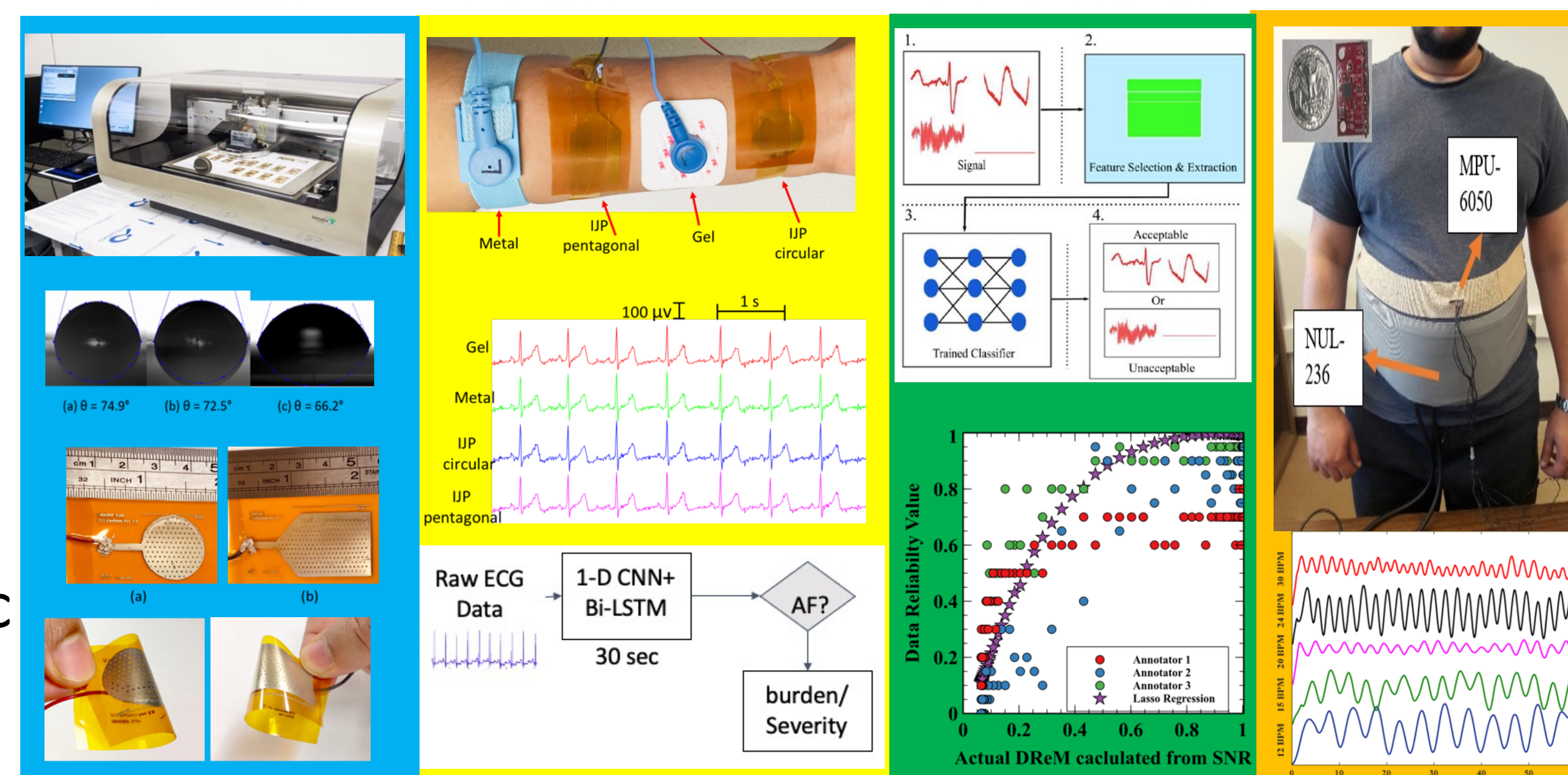
## Scientific Impact:

- Flexible IJP thin-film multilayer sensors for CPS interfaces.
- Real-time algorithm for **Data Reliability Metric (DReM)** computed from the statistics of streaming data itself.
- Context aware episode detection with machine learning.



## Proposed solutions:

- 1) To create foundational engineering process for CPS interface with thin-film flexible electronics with inkjet printing
- 2) To develop new algorithms for autonomous processing of sensor data to detect context-aware events of interest and data reliability metric
- 3) To deploy CPS practice components for a real-life pilot study to explore detection of cardiac episodes



## Broader Impact:

- Impacts will extend beyond wearables and medical devices to a host of systems that involve closed-loop feedbacks with sensors and automated data processing
- Developing ten 2-hr synchronous-asynchronous modules for a planned 2-week-long Online Summer Code Camp

Project portal: [http://myweb.ttu.edu/bmorshed/NSF\\_CPS.html](http://myweb.ttu.edu/bmorshed/NSF_CPS.html)

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