



## Performance Monitoring Cyber-Physical System for Emerging Fitness Spaces

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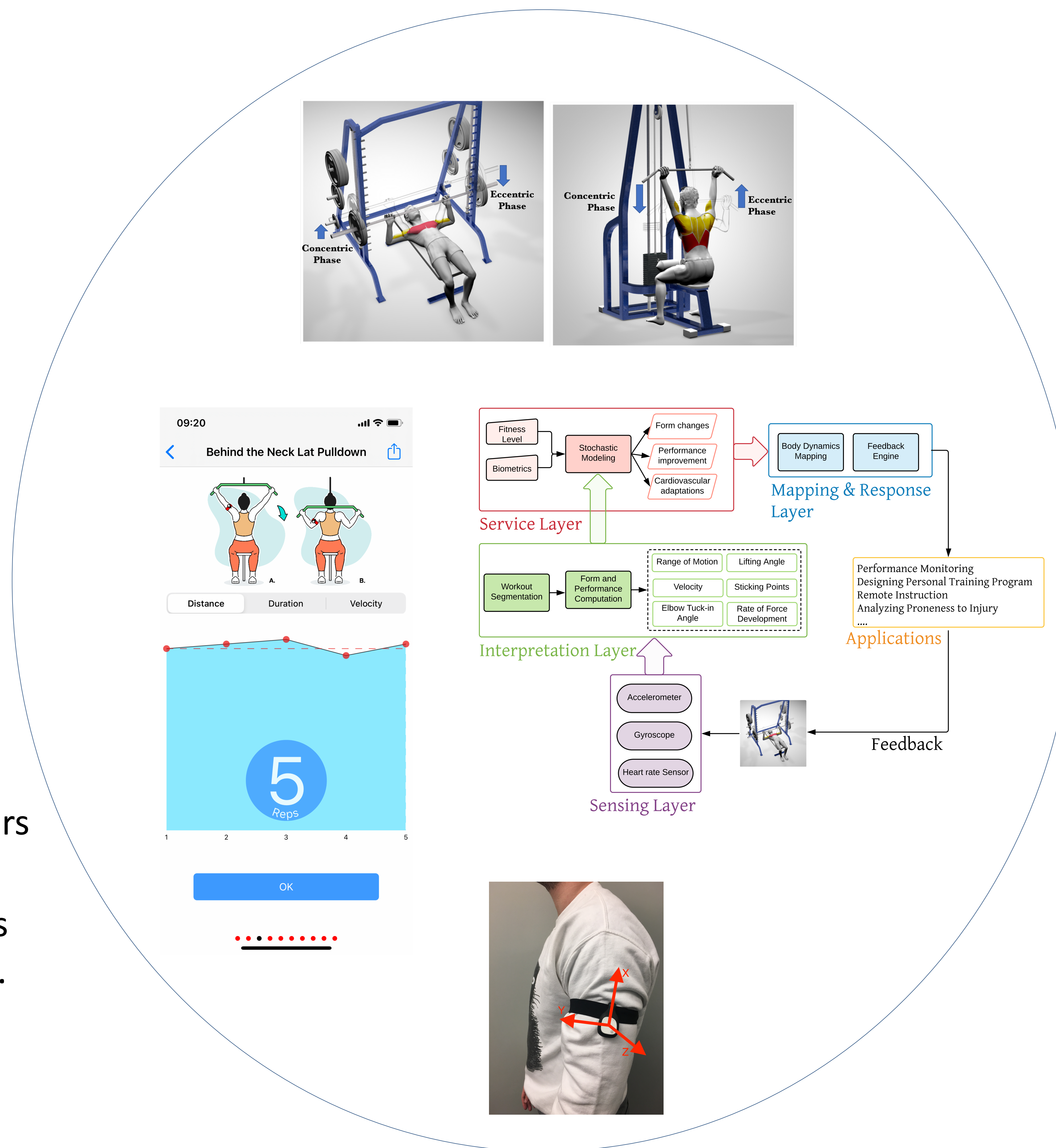
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### Challenge:

- Large number of variables involved in form, performance, and fatigue.
- No existing models to map the relationship of these variables to understand their role in overtraining.
- Lack of automated tools to measure form and performance have exposed users to more injuries.

### Solution:

- Enable mobile sensing supported biomechanics for sports, therapy, and rehabilitation.
- Design gamified feedback to allow users to visualize metrics in real-time.
- Develop data-driven stochastic models to predict performance and injury risk.



### Scientific Impact:

- Enable mobile sensing supported biomechanics for sports, therapy, and rehabilitation.
- Exploring methods to 'close the loop' by generating and providing meaningful feedback to users in real-time.
- Gain analytical insights that could be of value to the medical and athletic community.

### Broader Impact:

- Help users and trainers make informed decisions regarding their performance, form, limitations, and overall fitness.
- Physical activity is an important factor in post surgery rehabilitation. For e.g., breast cancer survivors.
- Allow doctors and therapists to monitor patients remotely. This can have tremendous impact on the cost of healthcare and make therapy sessions more affordable.