3D Body modeling and fit optimization for absorbent products

Background

A global leader in consumer health and personal care innovation is seeking innovative methods and technologies to improve the fit of absorbent products, such as diapers and menstrual pads, to the human body, particularly in the crotch area. Achieving a better fit can significantly enhance comfort and efficacy.

Currently, there are numerous options available, making it challenging for users to determine the right size and absorbency level. It is also difficult for customers to assess proper fit, know when to change, and understand how to wear the product correctly.

Existing industry practices primarily rely on generalized fit charts and manual measurements. While these methods provide a baseline understanding of sizing, they fail to account for the dynamic and complex shapes of the human body during movement, particularly in the pelvic region.

What we're looking for

We are looking for research, technologies, or methodologies that can accurately model and predict the fit of absorbent products to the human body. This includes understanding the longitudinal anatomy of the pelvis region and using advanced tools such as 3D scanning, graphical neural networks, and anthropometric data to measure and predict how products conform to the body. The goal is to develop tools or methods to guide consumers in selecting the most suitable absorbent product for their needs, simplifying the process and ensuring optimal choices from an assortment of options.

Solutions of interest include:

- Research on body models and fit to body studies

- Underwear fit analysis and methodologies

- Longitudinal anatomy studies focused on the pelvis region

- Use of CT (computed tomography) or MRI (magnetic resonance imaging) body data in fit prediction

- Tools and methods for predicting fit of articles to nude bodies, including 3D scanning
- Graphical neural networks applied to body fit studies
- Anthropometrics and body measurement data relevant to product fit
- Tools that help consumers know which product will fit their body best
- Methods for communicating how products fit on the body
- Intuitive fast ways for consumers to measure their body dimensions

Our nice-to-have's are:

- Ability to assess fit and measure the gap between the product and the body
- Helps consumers understand product fit, measure their body intuitively, and make informed decisions

What's out of scope:

- Solutions that do not leverage advanced imaging, sensors, or modeling technologies
- General fit solutions not specific to the crotch area of absorbent products
- Common clothing fit charts or related common industry information on underwear fit
- Generic size charts that do not provide personalized fit recommendations

Acceptable technology readiness levels (TRL): Levels 3-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

Capstone project
Material transfer
Licensing
Co-development
Sponsored research
Supply/purchase

Benefits:
Sponsored Research
Funding appropriate to proposal.

Please contact the University of South Florida Technology Transfer office representative for submission – Karla Schramm at kschramm@usf.edu