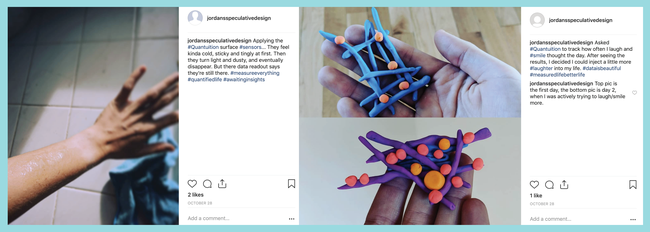
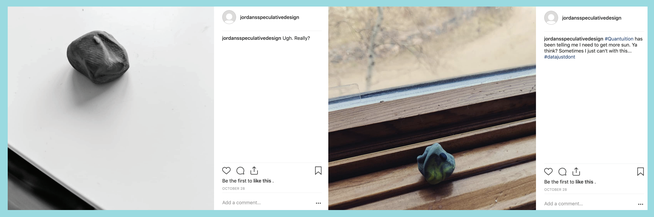
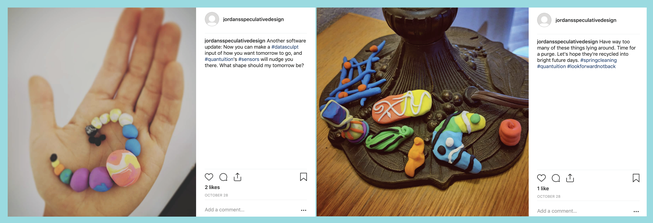
Quantuition: How Will We Represent Biometric Data In The Future?







In a future where we track everything, how will data representations dictate how we relate to ourselves and the world?

This project explores the relationship between personal biometric data and the meaning we find in it. I designed a speculative self-tracking system, Quantuition, that collects data from body-based nanosensors. The system renders that data into 3D data sculptures. Presented in the form of an Instagram feed, this speculation highlights how data-design influences the process of individual and social sense-making. We often ascribe power and authority to data representations — while simultaneously overlooking the hidden decisions embedded in those representations about what to measure, analyze, emphasize and display.

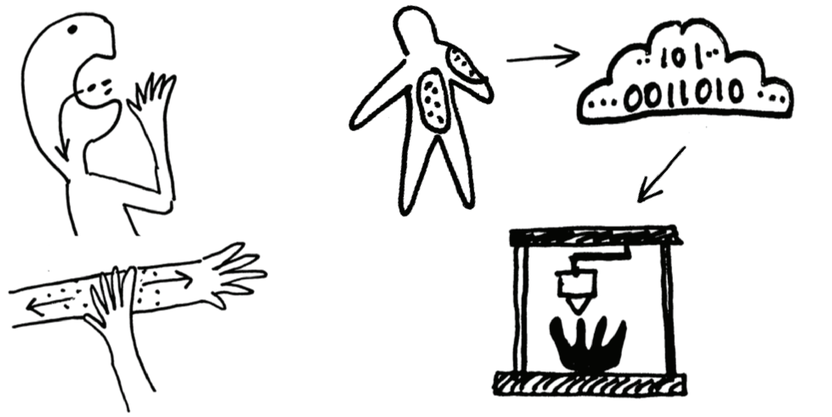
When self-tracking becomes pervasive, are we ruled by data or do we rule it?

In the near future, personal sensors track everything: how fast our hair is growing, the amount of dust we inhale, how many tears we cry. As we become aware of these myriad personal data points, they could overwhelm us. How do we draw meaning from this data? How do our interpretations of this data influence our actions, and what are the implications of these new feedback loops?

Quantuition: Whimsical data sculptures invite reflection & engagement

Quantuition anticipates the availability of spreadable surface and ingestible internal nanosensors that can gather personal and ecological data. Each night, Quantuition's on- and in-body nanosensors beam the massive amounts of data they've collected into the cloud, where software synthesizes it and algorithmically generates 3D shape files. Each morning, we can check our in-home 3D printers to find a personalized data sculpture representing the previous day. The sculptures Quantuition generates are intentionally cryptic: Users must investigate their meaning.The speculative sculptures presented here, crafted out of clay, are inspired by real-world data physicalizations [1][2][3][6].

How it Works



Initial application: The user swallows Quantuition's nanosensors and spreads them on her skin.

Regular use: Nanosensors transmit data to cloud servers, which render them as shape files for a home 3D-printer.

Why an Instagram feed? Interpretting data through social storytelling

The quantified self movement is conflated with the stories we tell ourselves and other people. A social media feed format (even if in the future, Instagram might not exist) allowed me to explore the journey a person takes as she integrates Quantuition into her life. As she makes sense of the data sculptures, sheprojects their meanings through digital social interactions.

Interact with the Instagram feed: **jordansspeculativedesign**

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Design Techniques

* Speculative design
* Autobiographical design
* Cultural probes
* Data physicalization

Exploratory research: Cultural probes to interrogate values in activity tracking

To interrogate self-tracking and physical exercise, I crafted cultural probes and deployed them with 3 participants. Probe activities included: *drawing maps and graphs, collecting objects, communicating with non-verbal sounds,* and *sculpting* ***tactile graphics.*** Participants said they enjoyed sculpting because it encouraged them to engage with experiences that don't typically invite reflection. The results of this probe task directly inspired my speculative design process.

Tactile graphics varied in form and meaning. Left: P1 created a scene with fallen leaves and a pond. Middle: P2 conveyed the emotional state of a walk using relative lumpiness of yellow dots. Right: P3 created the "flow state" of running using stark lines.

Provocations for Tangible Data Futures

What new interpersonal interactions does data physicalization uncover?

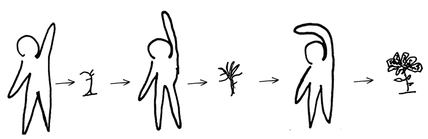
With data sculptures, insights can be externalized and exported. Our user can eat her own data sculpture, but she can also give it to someone else, using data sculptures to blur the boundaries between the self and others.

What positive and negative feedback loops are present in a hyper-quantified future?

Our Quantuition user experiences the positive influences of examining her life through a data lens by using the sculptures to track and increase her daily laughter. But self-tracking can also be demotivating: Lackluster, uninspiring data sculptures drive her deeper into a depressive episode.

How will emerging technology shape the relationship between data representations and actions?

Quantuition can physically impose behavior changes indirectly and directly through edible data sculptures infused with supplements or medications. Who should dictate the specifications of these edible sculptures, the user or the software?



Where does the user's control – and free will – begin and end?

With the latest software update, Quantuition's data sculptures can now be used as inputs, directing a aspirational futures. In this scenario, does the user have more or less power over her future actions than she did before she began using Quantuition?

Acknowledgements

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References

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