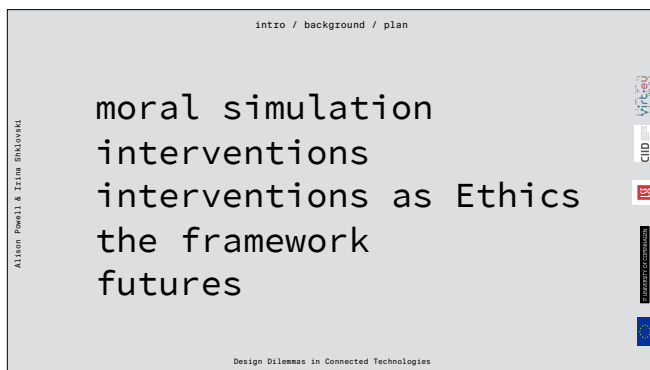


We are Irina and Alison, from ITU and LSE, researchers and professors



IRINA

Together we have been working on a project to try to understand and then address the gap between the Good intentions of new technology companies and the reality of countless stories of tech gone wrong. We called our project VIRT-EU which stands for Values and Ethics in Innovation for Responsible Technology in Europe. We focus specifically on the design of connected devices and for the last three years we have been working with IOT start-ups. Our goal is to develop tools and means to support developers in learning to think in terms of ethics as they develop new technologies.



Alison

Today, in this talk, we will introduce you to how we have begun to understand this gap and how we understand the potential of ethics to help creators of new technology to think critically about the products they put into the world. Why creators? Why We'll start with the worry - what is going on and why do we care? And then transition into the ethics - a way to frame, critique and address the worries. We'll get a little active and then wrap up with some time for Q+A.



[Read the dilemma out loud and explain] Imagine that... we are building a new technology... and it could do this... or this... how do we decide? We are now entering a bit of fiction, so feel free to also imagine yourself as a bit of a different person



Our company is developing an IoT-based technology, WearWell. With WearWell, our intention is to tap into the employee well-being market. We have defined employee well-being as mental and physical fitness of employees. We hope to market (and sell) WellWear to companies. If a company decides to buy our product, all of their employees would receive our state-of-the-art wearable device (an electronic bracelet) equipped with GPS technology, heart rate sensor, step counting, body temperature. We really worked hard on the range of functionalities of WearWell and the tracking capabilities. As a result, the WearWell bracelet is able to track employees in the workplace, including the restrooms. Our company is able to



You (the audience) are all part of the team that is building the new wearable device. You're a great mixture of technology developers, designers, researchers and project managers and we are so happy to have you to work on The WearWell!

We (Irina and Alison) are the communication managers for our company. We need to decide on a couple of things before we start pitching our product to companies.

First, how should we design WearWell in order to capture the clearest picture

moral simulation

Alison Powell & Irina Shulovskii

Goals:

- A device to support employee well-being as mental and physical fitness.
- Provide goal-setting capability and feedback based on personalized goal suggestions.
- Allow push notifications to/from management team based on unusual or problematic deviations from established goals and norms
- Ability to "snooze" reminders for helping to achieve established goals

Approach:

- Technical team reviews sensor suite and specs
- UX team develops available interface elements
- We will work with potential users to ensure relevant functionality

Device Sensors:

1. GPS
2. Heart-rate sensor
3. Step-count (accelerometer)
4. Temperature
5. Galvanic skin response

WearWell

Design Dilemmas in Connected Technologies

WIT-EDU CUID US

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Measuring impact:

- Up-take and feedback from employees
- The number of sick days employees take (reduction in the number of sick days would be evidence of positive impact)
- Keep track of the number of interactions between employees and managers
- Keep track of productivity levels (KPIs)

Security and privacy:

- Employees will have the option of turning off internal location tracking
- Employees will have an option of turning off tracking on weekends
- Managers and employees will have to confirm some more sensitive tracking options together

Other options:

1. other sensors?
2. data storage & management options?

WearWell

Design Dilemmas in Connected Technologies

WIT-EDU CUID US

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moral simulation

Alison Powell & Irina Shulovskii

the axis of options

A B C D

Track but store data locally on the device

Track but store data temporarily

Track but don't share with company. Share only with WearWell for A/B testing

Full data-sharing. Both with company and WearWell

Design Dilemmas in Connected Technologies

WIT-EDU CUID US

As you see, the far left side of the room has been designated as a very confident decision of A and the far right side of the room is for a confident decision B. Anywhere in between is not neutral, but shows that you're not so sure.


So everyone who can stand up, stand up, and move to your decision place. If you cannot stand up, but you can move your arms, you can raise a left or right hand.

Thank you! Can we hear from [randomly chosen you]? Why do you feel that way?

Alright, well, let's see what happens if we try to think through the decision

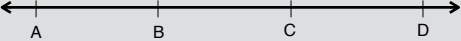
moral simulation

Alison Powell & Irina Shklovskii



Option A

Track but store data locally on the device
Company gets aggregate reports




Design Dilemmas in Connected Technologies

Wearable Computing
CIUD
US
EU

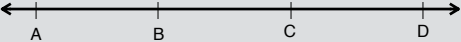
moral simulation

Alison Powell & Irina Shklovskii



Option B

Track but store data temporarily
Company gets aggregate reports




Design Dilemmas in Connected Technologies

Wearable Computing
CIUD
US
EU

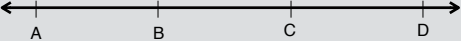
moral simulation

Alison Powell & Irina Shklovskii



Option C

Track but don't share with client company
Share only with WearWell for A/B testing
Company gets aggregate reports



Design Dilemmas in Connected Technologies

Wearable Computing
CIUD
US
EU

moral simulation

Option D

Full data-sharing with company, WearWell and any third-parties that are relevant

A B C D

Design Dilemmas in Connected Technologies

moral simulation

the axis of options

A B C D

Track but store data locally on the device

Track but store data temporarily

Track but don't share with company
Share only with WearWell for A/B testing

Full data-sharing
Both with company and WearWell

Design Dilemmas in Connected Technologies

moral simulation / intervention 1

Our Values

Wellbeing
Everyone at our company tries their best to keep each other's wellbeing in mind at all moments of the day.

Privacy
Privacy at our company is defined as the fact that we care deeply about each individual's right to a private life.

Design Dilemmas in Connected Technologies

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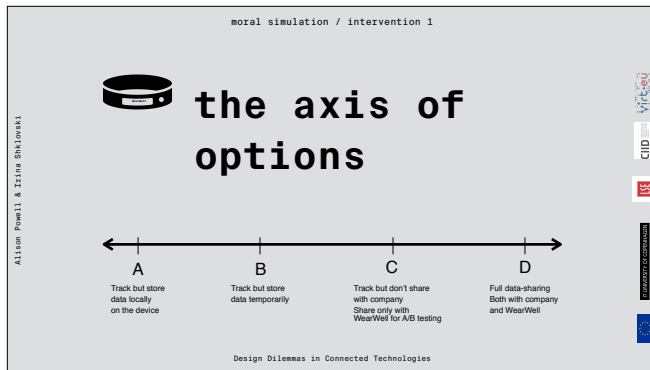
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What about privacy? Is it going to allow them to have a right to a private life? But in order to define wellbeing in the clearest way possible, and track how well the employees are doing over time, the device should really collect all of the data possible, otherwise it is showing an incomplete picture and we care about the Whole Self.

Now that you see this, you can move to a different decision or stay put

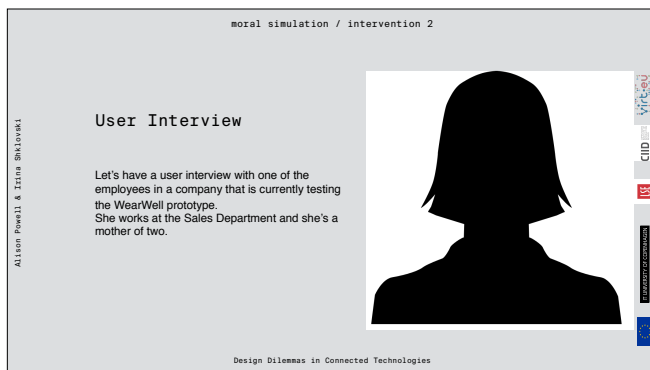


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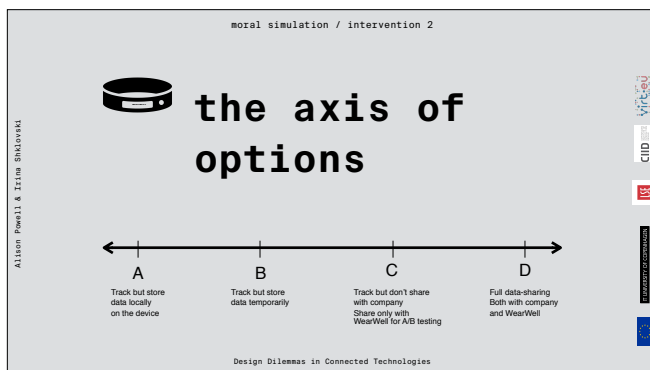
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Carolina, tell us about how WearWell is affecting your life these days?

I love WearWell, it's helped me keep a lot of mental clarity on difficult days. I'm also super excited about the new period-tracking feature - I've always had a lot of pain and mood shifts when I have my period which makes it hard to come to work on those days. I've shared my data with my line manager - finally he understands and lets me work from home when I need to. The meditation requirement goes up when I have my period but that's cool - I hear that studies show it helps.

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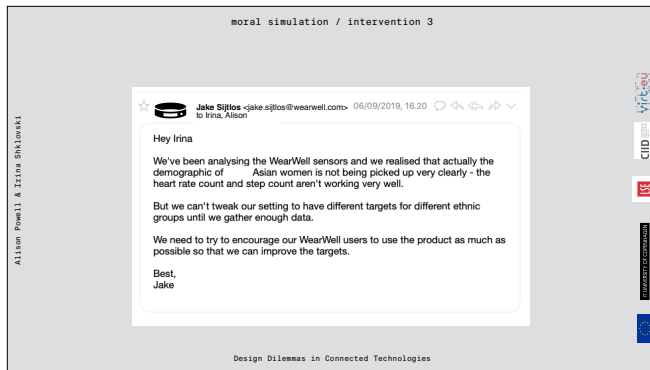


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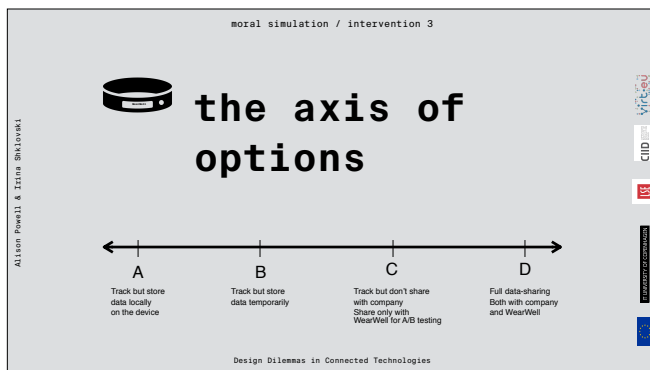
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We find out that the heart rate count and step count do not work very well for asian women.

{We think there might a problem. We don't know if the gap in the email was left intentionally or deleted out. Maybe they are referring to Black & Asian women?}

But currently we are unable to tweak our settings to have different targets for different ethnic groups but if we could gather more data we could make the wellbeing targets much better aligned to all of the different ethnic groups represented at our company. Unfortunately, it will take longer for under/

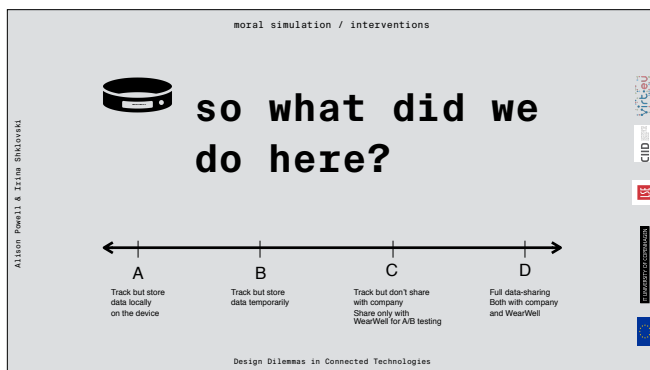


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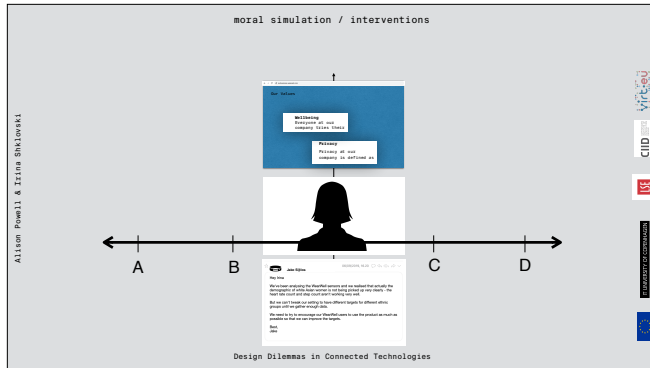


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So your last prompt is: reflect on those 3 intervention moments and if there was one that resonated with you, that changed how you thought about your decision, move towards that place on the Y axis
Thank you! Can someone tell us about why?



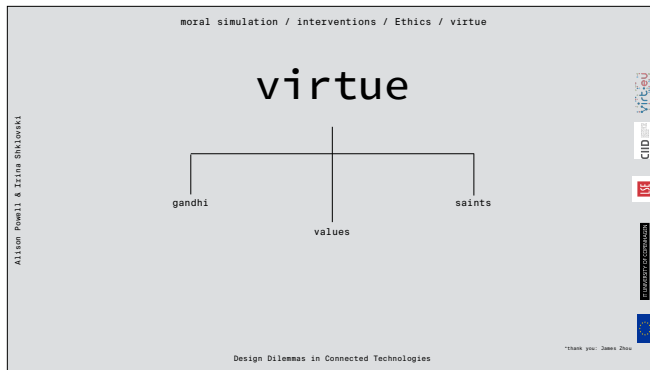
IRINA

The three main branches of ethics are utilitarian ethics, deontological ethics and virtue ethics.



What about privacy? Is it going to allow them to have a right to a private life? But in order to define wellbeing in the clearest way possible, and track how well the employees are doing over time, the device should really collect all of the data possible, otherwise it is showing an incomplete picture and we care about the Whole Self.

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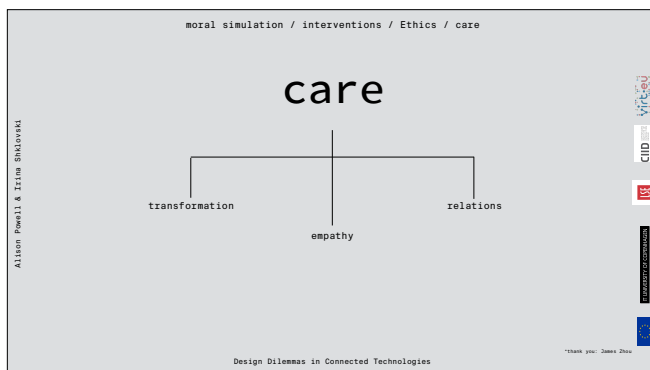
We should strive to become courageous, honest, generous, and compassionate. We should strive to have a good life. We must develop our moral character and demonstrate virtues in our decision making and behavior. This comes down to developing a kind of practical wisdom that allows people to determine how to make choices that will help them further develop as virtuous beings. A virtuous agent knows the correct way to act in various contexts while also desiring to act in such a way. In virtue ethics, we constantly strive to become better people by trying to align with a set of [communally-defined?] ethical values and ethical idols



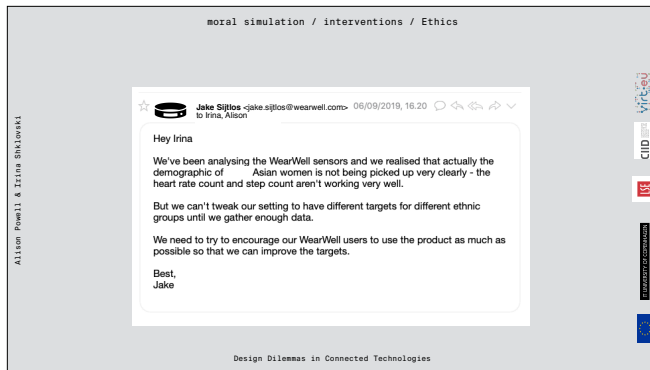
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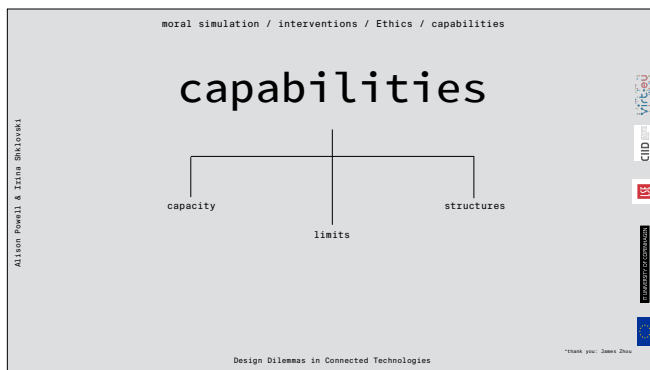
This school of thought pays attention to the value conflicts and contradictions, offering a way to deal with failures that does not entail merely accepting vast amounts of personal guilt. Care ethics recognises that relationships are central to being human because they enable individuals to face uncertainties of the future - together is better than alone. So, care ethics focuses on our responsibilities and obligations to others. One of the main tenets of this approach is that it places the emphasis on an engaged, active agent who acknowledges that she is entangled in a broad web of relationships and is aware that she requires the constant negotiation of disparate and often conflicting demands and obligations. Consequently,



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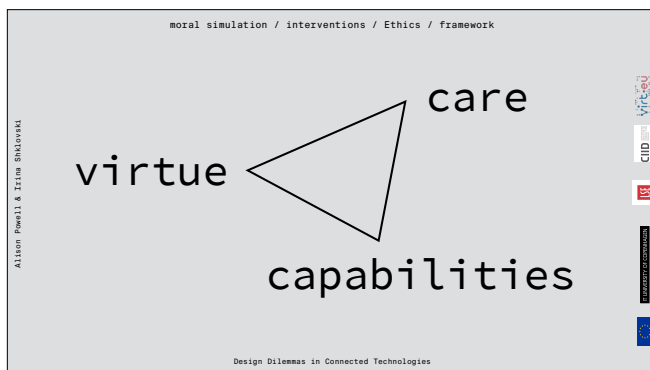
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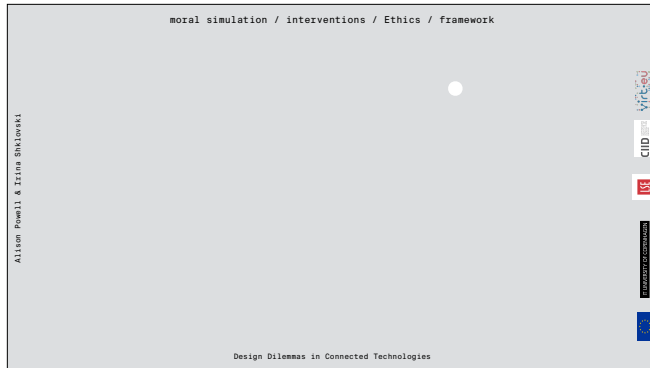
The capabilities approach recognises that personal principles may be compromised in order to cope with structural constraints. As such, it promotes the idea that ethical thinking is also a capability in itself and not a given for individuals – or intrinsic to some. Instead, it can be trained as a capability [skill], but it can also be constrained. Consequently, it recognises that individuals are not equal in their power to make ethically consequential decisions or voice their concerns in the process.

Technology developers are in a curious position of both having to make decisions within the constraints of their contexts and having to acknowledge



Alison

and when thinking through capabilities we realise that in fact we can only care about So much, that which is within our capacity to act



So actually these 4 options: data, storage and design came from the 3 theories

IRINA

At first we focused on virtue ethics but we quickly realized that the relentless focus on the individual and their internal ideals ignores the structural pressures and constraints placed on the developers we studied.

So we're adding in the capabilities approach and care ethics.

The capabilities approach augments the internally oriented focus of virtue



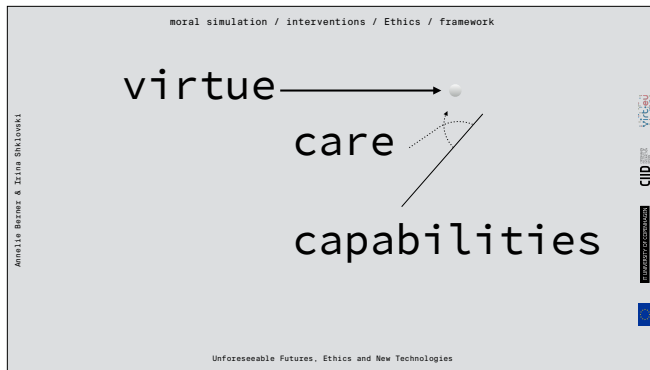
ANNELIE

so if in virtue we are trying to strive towards goodness (our lovely blue ball of goodness)



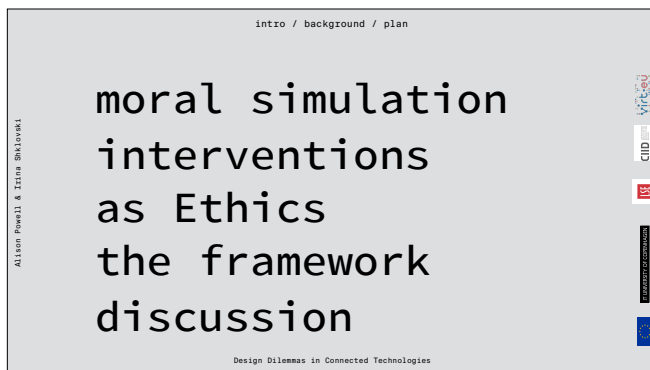
IRINA

when we think through with care ethics we find that the route towards that goodness is actually a bit more complicated



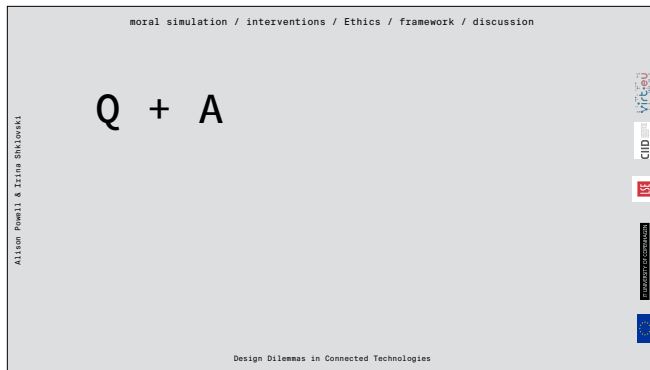
ANNELIE

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So today we thought through a decision from the point of view of the tech creators, when using different ethical theories as intervention points for new questionings, we positioned the tech-ethics worries, discussed how ethics could help us foresee unforeseeable impacts of what new technology could do

That was a lot to process. We hope you learned something new. Anyone have a reflection or question?



As a starting point to identifying an “opportunity”, challenge, or possible point of intervention



This talk and exercises all come from the VIRTEU project, which is coming to websites near you in December of this year. Tickets are free :) Please stay in touch!

