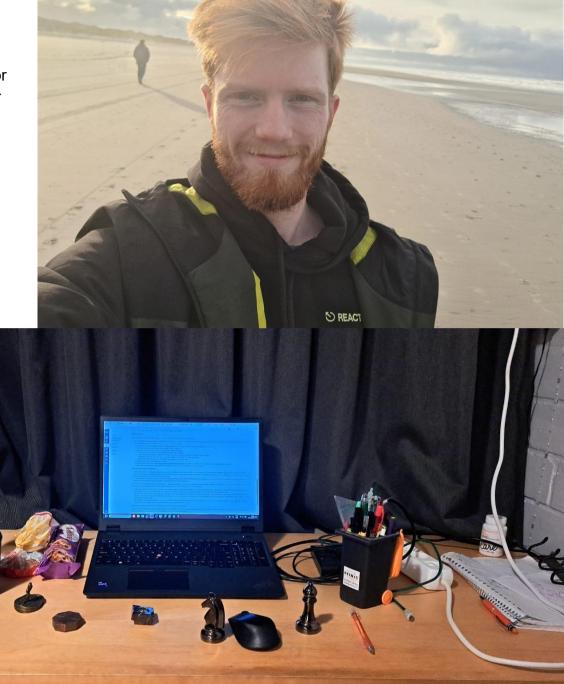Hey, I'm Sybe de Oude, 23 years young. For my bachelor I studied Technical Computer Science (TCS) here at the University of Twente. I like to play chess, table tennis, and to meet up with friends.

This is my usual workplace: Behind my desk, behind my laptop.
I added some attributes that could relate to tinkering. First of all, there are some snacks, a coffee cup, and a bottle of water to survive long tinkering sessions. At the right, I have a cool garbage bin shaped pencil box. At the far right there is a notebook to write down ideas. There are some brain-breaker puzzles that represent the strategic thinking and problem-solving required for tinkering. Next to that, these pieces also requires hands on thinking or simply trial and error to get to the solution. Lastly, on the left, there is a self-made top head made out of cardboard and fabric.

Realistically, I'm mostly 'tinkering' behind my laptop. That is, if you see tinkering as an attempt to repair or improve something. For instance, some time ago, I found out about an app called Tic-Tac-Chess. The game is played on a 3x3 board and the goal of this simple game is to get three in a row, while preventing your opponent from doing so.

Instead of circles and crosses, a knight, queen and rook are used, which can move along the 3x3 grid to free squares. I could not win from the hardest difficulty AI, and couldn't find any solution online. So, I recreated the game myself and attempted to solve it using my programming knowledge.

The above however, is not so much of a hands-on tinkering experience. The top head is a better example where some design and physical crafting is needed. Another physical example of 'tinkering' I have recently done is tightening my bicycle chain. This goes along with the definition of repairing something. Not a lot of creativity was needed for this though.

I have two items on my wish-list to expand my tinkering space. First of all, I would want more Lego, as playing with Lego is fun. Secondly, I would want a more extensive tool kit, so I can take on more projects with the correct tools, without having to leave my room.

The following definitions come from the Cambridge Dictionary:

To tinker means "to make small changes to something, especially in an attempt to repair or improve it"

I don't think this definition completely overlaps with the definition given in the course. Tinkering can also mean creating something new by trying out a new concept.

Trial and error is "a way of achieving an aim or solving a problem by trying a number of different methods and learning from the mistakes that you make"

Brainstorming is "an activity or business method in which a group of people meet to suggest a lot of new ideas for possible development". It can also be described as:
"to try to solve a problem or come up with new ideas".

Tinkering involves hands-on experimentation and iterative modification. It is about playing around with something to repair or improve it. But it's also possible to create something new through tinkering. The process of tinkering often involves trial and error as it is not always clear what the solution should be. Various solutions exist and by learning from mistakes and refining approaches a nice product can be made.

Brainstorming is about creating new ideas. This is often also required for tinkering.

ChatGPT-4o gave as definitions: "Tinkering is an informal, hands-on, and often unstructured process of experimenting with things to understand how they work or to make small improvements. It typically involves making incremental adjustments without a clear end goal in mind."

"Trial-and-error is a systematic or repetitive approach to problem-solving where multiple attempts are made to find a solution. If an attempt fails, adjustments are made, and a new attempt is made until success is achieved."

And lastly, "Brainstorming is a creative thinking process where individuals or groups generate a wide range of ideas to solve a problem or develop new concepts. It emphasizes free thinking, avoiding judgment, and encouraging diverse perspectives."

I-tech projects vary from health care robots to interactive led lights. Some technical hurdles could be the amount of interactivity with the system, through user engagement or adaptive feedback. A 'playful' approach such as gamification serves as an excellent approach to tackle such problems as this can increase the interest in the design. Factors such as sensor accuracy, latency, and performance do not allow for such a 'playful' approach in tackling them. While some tinkering with the settings might be helpful, these are mostly hurldes that require structured problem-solving.

For more tinkerspiration, you could visit a physical lab, such as the design lab that we have at the UT. Hackathons, Tech conferences can introduce you to the latest tech and inspire your inner tinkerer. Lastly, art and science exhibitions or museums (such as the dutch "de ontdekhoek") can provide cool ideas to play with.

Online resources could include Hackaday, various YouTube channels featuring DIY & Tech experiments (such as Stuff made here or Mark Rober), subReddits featuring Tech, and various research blogs. Personally, I enjoy watching some videos of the mentioned youtubers, but they have not yet convinced me to tinker around myself. As described earlier however, I have tinkered with programming a solution/optimal strategy for a game, when the internet did not provide me with one.

I don't think there are untinkerable domains. Every domain can use some sort of hands-on creative approach. I think that teaching children stuff through tinkering is one of the best use-cases of tinkering. But also adults can still greatly learn from this. Trying out things to attempt to make something work. Examples of this could incluse choosing which voice to choose for a healthcare robot. It's difficult to create and evaluate the impact of different voices. A domain like sports can benefit from tinkering through the tinkering with all the different sensors. Music benefits from tinkering as artists/producers try out new things in an attempt to create something beautiful. Smart environments and smart products benefit from tinkering as multiple designs and combinations are possible. Tinkering often relies on trial-and-error. This can be a limitation. For instance as solutions might work on a small scale, but fail when they are scaled up. In some fields, failure is not an option. Tinkering cannot always provide the necessary reliability or accountability.