

# The Holodeck is my Oyster

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**Abstract.** This science fiction prototype titled ‘*The Holodeck is My Oyster*’ glimpses into a future where having a Holodeck in every home is the newly established norm. The prototype takes a closer look at three different inhabitants of the same, newly constructed apartment building located at the suburbs of a medium-sized city. Each inhabitant uses their Holodeck for similar, yet individual, purposes, which essentially is about to learn new things. In the prototype, the learning aspects and possibilities of a Holodeck as part of everyday life and their potential effects on working and school environments are discussed.

**Keywords:** Holodeck, Science Fiction Prototype (SFP), Learning, Education.

## 1 Introduction

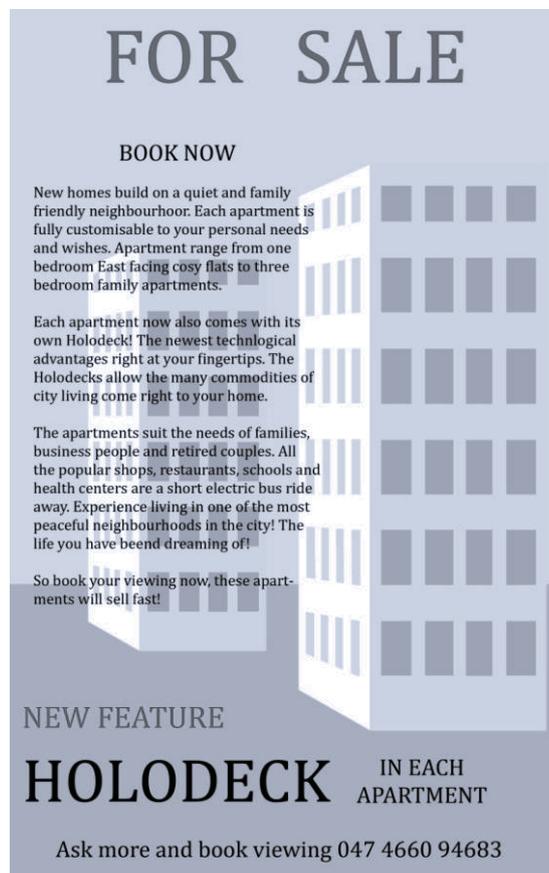
This Science Fiction Prototype (SFP) [1,2] titled ‘*The Holodeck is My Oyster*’ takes a look at a future where having a multi-purpose, holographic environment simulator space – a Holodeck – in each residential apartment is fast becoming the new norm in the society. The Holodeck allows people to access any space imaginable from the comfort of their home, and to customize their interiors in new ways. The need to build large houses that accommodate, for instance, a guest room, a gym, an art studio and a library would no longer exist, as all of these places can be simulated by the Holodeck whenever needed. Be it educational or recreational, for the elderly or for the young, a Holodeck can simulate any required environment.

The holographic training for soldiers [3] already used in the United States provides the inspiration for this fictive SFP as it delves deeper into the possible commercial educational applications of Holodeck technologies in the future. These educational applications would include, for example, content varying from physical exercise and skills, such as building or knitting, to more immaterial skills and knowledge on subjects, such as history and astrophysics. ‘*The Holodeck is My Oyster*’ describes a posi-

tive future scenario where everyone is able to benefit from the Holodeck technology in further developing their chosen individual skills.

The advanced holographic environment simulator technology, the Holodeck, was borrowed straight from the *Star Trek* universe. A Holodeck, as defined by *Star Trek* canon [4], is a device that re-creates environments using holographic technologies. People can use these simulated environments for entertainment, training and investigative purposes as seen in several *Star Trek* episodes [5,6]. In this SFP the focus is mainly to observe the educational features of the Holodeck -concept. The premise of the story is that a Holodeck is common knowledge to everyone, and it has recently become a commercial feature in new residential apartments. A Holodeck is an empty room in a house, to which the inhabitants can download content from the Holodeck user database which allows them to access an unlimited number of different learning environments.

*'The Holodeck is My Oyster'* explores the lives of three people of different ages and backgrounds, living in the same apartment building (see **Virhe. Viitteen lähde ei löytynyt.**). They each use the Holodeck in their apartments to help with different learning challenges. In this SFP, society provides everyone with access to the basic Holodeck information programs for free, such as basic math and exercise programs. However, in order to access more varied content, people pay for each downloaded program. In terms of Holodeck capabilities, there are virtually no limits to how much people can download and this allows everyone to learn anything they want and change subjects as often as they want. The Holodeck customizes the content for each user, creating the optimum learning environment every time, without the need to ever leave one's home.



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**Fig. 1.** The Holodeck apartment building.

## **2 The Story**

### **2.1 Hector, 74**

“Computer, run program *Intermediate Cooking, lesson 5*,” Hector says loud and clear to the control panel located in the hallway of his new apartment. Hector and his wife, Elise, moved closer to the amenities of the city and their grandchildren only two months ago and Hector is still getting used to the new technologies of the apartment. He is not quite convinced about the automatic coffee maker that does not quite get the flavor of his morning Americano right, nor of the television that seems to have just too many other functions than just television programs built into it. At first, Hector had his doubts about the “magic, all-inclusive” room the real-estate agent had called “the Holodeck” too. Hector had also thought it had been a very costly and unneces-

sary gadget in a home for two retired people. But after their daughter had shown him how to download content for it, Hector had gotten increasingly more interested in the Holodeck's possibilities.

Hector was especially enthusiastic about the cooking programs, and today was a special day. Today was the day Hector had been preparing for over the last three weeks. It is his and Elise's 40th wedding anniversary and Hector has big plans for the night. Hector usually attends the general cooking classes where he prepares meals with five other retired men, *Cooking for Elderly Gentlemen* it was called, but for this special occasion he had downloaded a one-on-one lesson. As the green light turns on the control panel to indicate that the program has finished uploading, Hector steps into the chef's kitchen awaiting him on the other side of the door. "Good afternoon!" Hector greets the man dressed in a spotless white jacket standing behind the counter, sharpening a knife. "Ah! Hector! Today's the day, huh?" The man exclaims joyfully as he looks up at Hector and places the knife on the table next to five other sharp knives and a large pile of fresh vegetables. "Yes Alfred, indeed it is. We better get started so we can have everything ready before Elise gets home from visiting her sister," Hector answers, tying an apron around his waist. It has become an almost daily routine for Hector to spend an hour or two with Alfred, Hector's personal holographic head chef, learning various new recipes with which to surprise his wife.

Today Alfred is guiding Hector through the preparations for a four-course meal, including stuffed ravioli, salmon with wild rice, and poached peaches for dessert. Hector had suggested they would cook meatloaf with potatoes, a meal he and Elise had had on their first date, but luckily Alfred had managed to talk him out of that idea. Salmon did sound a lot better, after all. Hector has not tried cooking of this scale yet, but today is the special day that inspired him to start the holographic cooking lessons in the first place. Hector used to be an alright cook in his youth, but since having the children and years of hectic work, Hector and Elise both relied more and more on readymade meals straight from the grocery store.

After retiring, Hector struggled finding hobbies and often found himself just pacing around the house and bored while Elise went out for lunches with her friends or shopping with their daughter. Hector had tried swimming, reading club, scale model building and various other things but nothing really felt like his calling. Everything seemed like hobbies you do alone these days and that did not suit Hector. But then he and Elise had moved to this new apartment and Hector had slowly discovered the joys of the Holodeck. The cooking lessons with Alfred had really rekindled his interest in food, and although cooking was his passion now, Hector had also discovered the joys of woodworking class and tai chi for the elderly. However, he did not like the tai chi instructor. Hector took a mental note to ask his daughter the next time she was around if she could swap the tai chi instructor hologram with that of Alfred's, of whom Hector considered his best friend nowadays.

"Should I start on the vegetables again like always?" Hector asks with a smile on his face, grabbing a tomato from the table. "Or should we make the pasta dough first? Last time it took me three goes to get the consistency right," he laughs and tosses the tomato to Alfred, who catches it with a big smile on his face.

## 2.2 Mya, 31

Doorbell rings.

“Huh hh huh hhh,” Mya pants, riding a spinning bike. The old classics of Bon Jovi blasting in the room is keeping her on pace. A projection on the wall in front of her shows there’s only five miles left until she reaches today’s cycling distance goal. Mya can also see information about her heart rate, blood pressure, hydration level and workout progress over the last six months in the same projection. Otherwise, around the room it looks like she is cycling through picturesque countryside.

Doorbell rings again.

A flashing sign reading ‘Front Door – Delivery’ pops up on the wall in front of Mya. She glances over and grunts in disapproval. “Pause program,” Mya groans and jumps off her bike. The countryside view halts abruptly and a text ‘Spinning, level 3 – Paused’ appears on the wall. Mya grabs her exercise towel, exits the small room and heads for the front door.

A minute later she walks back and drops a small parcel on the living room table, unopened. She returns to the small room, the Holodeck, and the bike waiting inside. Mya is determined to reach today’s exercise goal. It is not in her nature to give up halfway once she has her mind set on something. “Computer, resume program,” she says and continues pedaling. The fields and rose bushes flash by. Bon Jovi’s ‘*This House is not for Sale*’ continues blasting around the room.

Later the same evening, Mya finds the parcel again from where she had left it earlier. She had already forgotten all about it. She rips the packaging open, revealing a tablet computer containing a bunch of forms for her to fill in, new brochures, and several sheets of sales statistics. Mya sighs, of course it would be more work. Mya has not had a quiet night for herself in weeks; the company is pushing more work on everyone. Mya suspects it is because of the big promotions coming up in a few weeks’ time. She walks back to the Holodeck control panel and exports the files to the program. She adds a comfy sofa to the downloading scene and once the green light lights up she enters the all too much work-like setting. All the files from the tablet are projected on the walls, numbers and data everywhere. Mya submerges herself into numerous sheets of sales rates, rearranging the pages around the room for a more coherent order. Sales pitches, statistics, and hours fly by. Mya is so deep in her thoughts, she does not remember when she fell asleep.

Alarm blares throughout the apartment. Mya jumps awake, all panicked at first, trying to figure out where she is. After a second, she realizes it is just her morning alarm, and scrambles for her phone, turning the noise off. She rubs her eyes and looks up at the files still open around the room. She had fallen asleep on the sofa while almost done reading the new apartment pitches, and now her back is feeling it. Mya realizes she needs to get ready for work, so she exports the files back to the tablet and shoves it in her bag before getting on with her morning routine.

Mya reads the rest of the paperwork and data while on the driverless shuttle to work. It is only a few blocks; they had relocated the office closer to the new apartment developments. The company had received strong sales figures from the new concept and Mya could not argue with the employee benefits it had brought along;

she was very happy in her new apartment. Each top employee had gotten a first pick of one of the apartment buildings the company had constructed in Harlow Park. Mya knew it was just the company's way of getting the employees to sell the rest of the apartments more efficiently, but after seeing the new fittings she could not resist the opportunity. She, just like all of her clients, could not resist the idea of having their very own Holodeck in the apartment. These were, after all, the first Holodeck inclusive apartments in this city.

The extra work she had received in the mail contained all the company's real estate agents' sales figures from the past year, including her own. She was very pleased with her results. The company always released the figures in order from best to worst sales, and Mya was very near the top. So near in fact, that it seemed the competition for promotion was between herself and Rick Stevens. Rick had never been Mya's favorite person, so she decided that as soon as she would get home that evening, she would download an extra sales training program just to secure herself that promotion.

After the workday Mya browses through the programs available on her Holodeck. She even removes some older exercise files to make sure she has enough memory space to download all the sales programs she needs. After a good hour of searching and downloading Mya feels confident she has a good mixture of courses to last her for a month. She has downloaded *Advanced Sales and Marketing, part 3* which did cost her a significant amount of the month's salary, but after the promotion it would no longer matter. Mya also found a couple of posture and speech lessons for a good price and even a free presentation skills course she had not seen before. Creating Holodeck content was a fast-growing industry, which meant the users could enjoy new programs every month and that was something Mya was sure to always tell her prospective clients looking for their first Holodeck-inclusive home.

Four weeks later, Mya is sitting on the bus again. She feels confident and had even had her work uniform dry-cleaned the day before. Today was the day they would announce the new promotions for the whole company. Her sales ratings had risen nicely during the month, and she thanked the Holodeck for that. In addition to the Holodeck training, she had also put in extra working hours, filed all the paperwork ahead of deadlines, and even bought the boss coffee a couple of times. Today she would get her long-awaited promotion, Mya was sure of it.

Late in the evening, the front door shuts and Mya drops her keys in the bowl on the side table. She hangs her coat in the closet and removes her shoes. She falls asleep on the living room sofa, crying.

The next day Mya is back on her feet, again downloading material from the Holodeck control panel. She has cleared out the posture lessons and marketing programs, and replaced them with one titled, *For A Better Tomorrow – Self-Help and Getting Over Disappointments*.

### 2.3 Daniel, 10

"Have you done your homework today?" Dad asks Daniel in a demanding tone.

"Who, me?... Yes." Daniel lies, not very convincingly.

“Right, well your mother and I have been talking and we had some money saved, so we got you something. We’re hoping it’s going to help out. You do understand why it is important to pass this year of school, don’t you?” dad looks at Daniel with a stern face.

“Yes dad. I want to pass, I don’t want to do summer school,” Daniel replies and looks down, ashamed.

“Now, come here, I’ll show you how to access the program on Holodeck so you can load it up after school on your own, okay?” Dad walks up to the Holodeck control panel in the hallway. Daniel follows quietly behind him.

“Here, it’s right here in the first menu. Just press here, and then say out loud ‘Run Program’. See it’s not hard. Now go on, go in. The Holodeck will do the rest for you.” Dad says, with an encouraging smile on his face. Daniel looks unsure, he’s only used the Holodeck together with his parents before, and it was only for a game or two. He knows, however, that Dad uses the Holodeck to help with his office work and mom sometimes runs the free exercise program that came pre-installed with it when they moved here.

Daniel walks through the door and enters a room that looks somewhat similar to his classroom in school. Only there is just one desk and a chair, and a strange man standing in the corner looking through some papers. Daniel freezes when the man looks up at him.

“Hello! You must be Daniel. My name is Dean, and I am your personal learning assistant. I have been looking at your recent school reports here, and I can see you could use some help with math, biology, history and maybe a little with your grammar too for a start. Is this correct?” the man, Dean, asks Daniel with a smile on his face. Daniel nods slowly. He is still feeling nervous.

“Relax! I am here to help, okay. No need to be ashamed or so tense! Let’s make learning fun!” Dean exclaims and gestures for Daniel to come take a seat by the desk. Daniel takes his seat. A few sheets of what appears to be math homework appears in front of him. A chair materializes for Dean next to him and he starts asking Daniel questions about the homework Daniel struggles with. It does not take long before the Holodeck starts to materialize the math equations in front of Daniel in thin air, making it easier for Daniel to visualize the problems and find solutions more easily than just on paper.

An hour and a half later Daniel emerges from the Holodeck. His dad is sitting by the kitchen table, looking concernedly at his tablet computer. Daniel can see a long sheet of negative numbers on the screen.

“Dad?” Daniel says quietly.

“Oh Dan! How was it?” Dad asks, moving his tablet aside and smiling at Daniel.

“I... I think I like it. Dean is cool. We did my math homework and Dean taught me about the discovery of America for my history presentation, and we actually went to see it! Well not really, but the Holodeck let me see what America looked like back then. Tomorrow Dean will show me some tricks for multiplication so I can ace that math test next week!” Daniel explains enthusiastically. He looks more excited about school subjects than his dad has ever seen.

“That sounds so great Dan! Hey you think you could show me America too?” Dad asks. His curiosity is peaked and he wants to offer Daniel all the support he can.

“Yeah dad! Let’s go now! It was so cool!” Daniel says excitedly and pulls his dad to the Holodeck by his sleeve.

Two weeks later, Daniel had been able to raise both his math and history grades and he enthusiastically takes part in every lesson. By the end of the term, he had managed to raise all his grades from almost failing to a good average. His dad feels grateful for the Holodeck being able to help his son get his interest back in schoolwork and encourage Daniel to learn more things in life. Dad and Daniel make journeys to historical locations together almost every week and Dad is even considering joining Daniel for some algebra lessons.

### 3 Reflection

This SFP ‘*The Holodeck is My Oyster*’ offers an insight into the lives of three ordinary people, each using the Holodeck technology available to them for their individual needs. Since people usually find their own ways of using different technologies and gadgets [7], each character in this SFP uses their own Holodeck in personal ways and for different needs. Hector is learning new skills for his own enjoyment and out of his own will, Mya is pushing herself to do more in order to gain a promotion in work, and Daniel, who struggles with classroom-type learning, finds alternative learning methods in a secure, nonjudgmental environment works for him. Each of the characters live a different lifestyle, and act as examples of how people of different ages might use the Holodeck technology. The story snippets may serve as a positive boost for the development of Holodeck technology to be reality, since it has great potential to benefit the lives of many.

The Holodeck technology is able to provide each user with the perfect learning environment for their personal needs. On the advanced levels, learning physics directly from Albert Einstein and painting from Pablo Picasso would be an everyday reality. Holodeck technology provides the users with an infinite amount of personal training and learning programs and it allows people to try out various hobbies, making it easy to find the perfect match for everyone. With the personal holographic teacher always available to keep the user motivated, the Holodeck allows people to reach their goals efficiently. Some areas of expertise in the working world would require users to complete specific Holodeck courses, so the technology is present in everyday life also

outside of the home. Holodeck applications would be beneficial to school learning since the students can gain access to extra material on the subjects that interest them or get additional help on the subjects they struggle with.

The Holodeck program automatically calculates the most efficient learning environment for each user and for each task on hand. The most common way to use different Holodeck programs would be alone, but it is also possible to attend courses with other people. The Holodeck can simulate other people attending the course as virtual avatars, creating a more social learning setting. The Holodeck can also create environments where the main user can entertain visitors, for example, a garden setting without the need to actually be outside or have a backyard. This kind of multi-functioning space that allows each user to experience anything can be considered a must have of the future lifestyle.

In the beginning of the commercializing of the Holodeck, the technology would have only been available for the rich. The technology is unlikely to cause major gaps in the education of the people, since it has always been the case that the rich have easier access to anything, be it places, things or knowledge. As the technology has become more common, it can be accessed by everyone in libraries and schools, and in homes that are equipped with a Holodeck room. Even though the Holodeck offers the option to take part in group activities, there would be people who choose otherwise and learn things on their own. This has the potential to lead to isolation and loneliness. The Holodeck would, however, detect this and as it is designed to offer the best environment for everyone, it would create ways to connect people with each other or create Virtual Avatars to interact with the lonely people.

For many cases, one could argue that simply Virtual Reality (VR) applications [8] could reach the same level of educational benefits as the Holodeck described in the SFP. However, the Holodeck offers a lot more than VR, simply with the ability to touch and interact with objects generated by the Holodeck. There is also no need for big headsets or other wearable gear when using the Holodeck, everything one needs is created by the Holodeck application. The Holodeck has all the characteristics of a Virtual Learning Environment [9] with no limits to location or distance, it offers both individual and group activities, and each environment is designed for efficient learn-

ing. This type of integrated learning environment allows for a freedom to learn whatever, whenever and in the most efficient way.

There will likely be downsides to this type of freedom, however. When people can learn whatever they want, there is bound to be those who educate themselves to cause harm to others. As the Holodeck has been firstly created for military use [3] it would be very likely that some form of surveillance on how common people use the application would be in place. This would prevent people downloading programs that when used together can teach you something harmful, for example, learning computer coding can lead to hacking in some circumstances. The content that is made public would also be carefully monitored and frequently updated based on user preferences and feedback provided by the system.

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