

What's possible?

Imagining the future of brain technologies

Technology is always changing. Some of the strange and exciting ideas on these cards are inspired by devices that already exist, while others may be in development or still in the realm of science fiction. Even if some cards are not realistic now, imagination can fuel the work of scientists, engineers, artists, and advocates to change the future. Your ideas today could be the technology of tomorrow.

COMING SOON



Based on current technology, and could be here in the near future.

FAR FUTURE



Some connection to ongoing research, but might take longer to arrive.

SCIENCE FICTION



Connected to real ideas, but way beyond current science.

Questions to Consider

New technologies often have pros and cons. They can affect different people in different ways—a device or service that you enjoy may have unintended consequences for someone else.

As you look through these cards, consider...

Who would most value or benefit from this technology and who might be harmed?

What kind of data about you does this technology collect and share with others?

How would this technology change our relationships with family, friends, and others in our community?

What would it take to manufacture, operate, and eventually dispose of this technology?

How would this technology interact with our bodies and the environment?

Would this technology need to be regulated in some way, and if so, by whom?

It's your turn to design a new brain technology!

Think about the problems you could solve or new opportunities you could create with your brain invention. What would it do? How would it connect to the brain? Who would use it?



**How would your invention benefit the world?
Are there any ways it might cause harm?**

**If your invention was in a sci-fi movie set 100
years in the future, how would it be used?**

You Design the Future!

Imagine a new brain-related invention

NAME OF YOUR INVENTION:

TECHNOLOGY

Smart Pills

Pills for boosting memory and attention
that could make you smarter



Adobe Stock

TECHNOLOGY

COMING SOON





Smart Pills

Pills for boosting memory and attention that could make you smarter

These pills were developed to treat brain disorders, but some people argue they could have other uses too.

Students claim the pills help them study. Workers with demanding jobs find it easier to focus and do their work safely. Older people wonder if they could slow the mind's aging.

QUESTIONS TO CONSIDER:

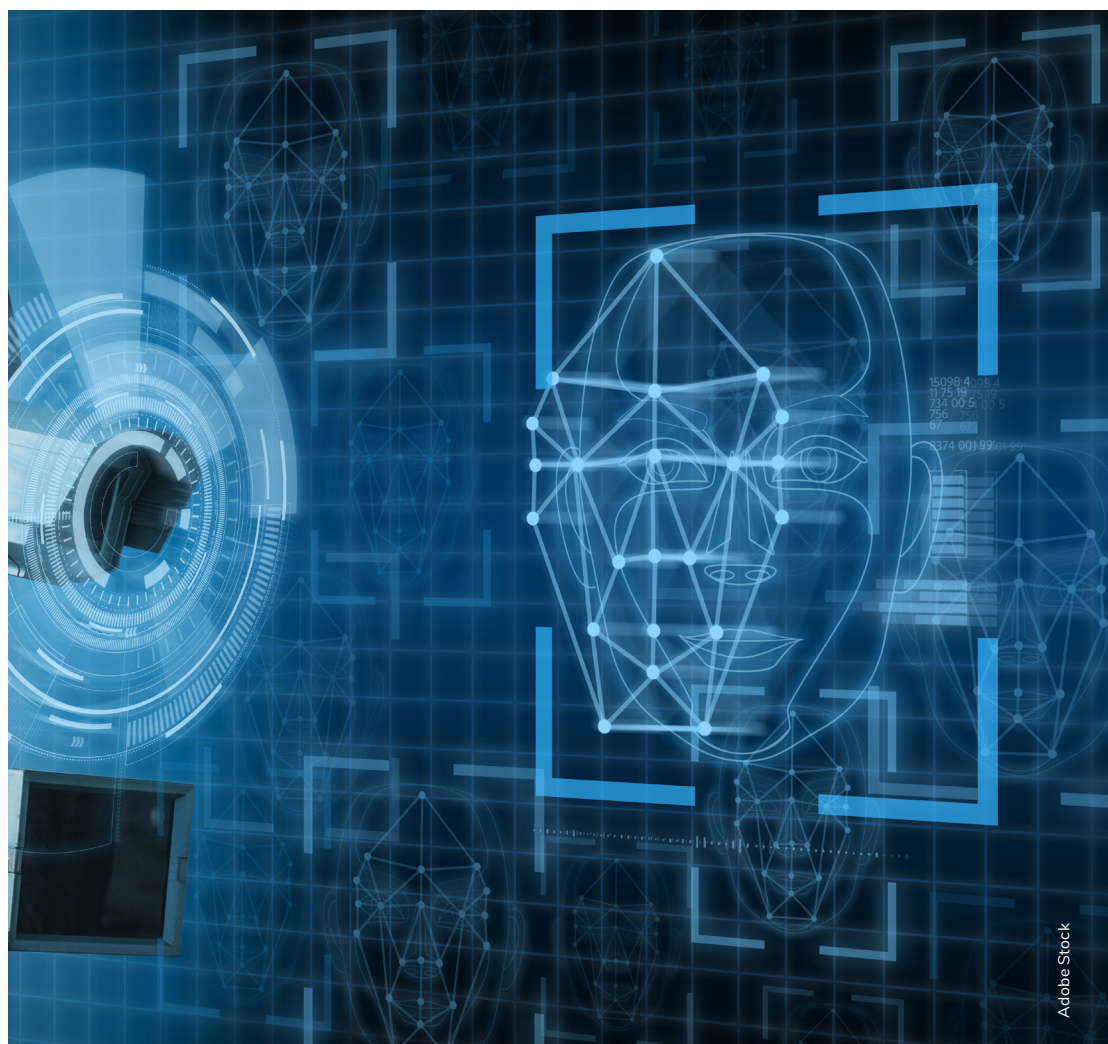
Would you use these pills?

How would you feel if your friends or family used them?

What if the pills were very expensive and not everyone could afford them?

Emotion Detection Cameras

Cameras with built-in facial recognition capabilities to read emotional states



Adobe Stock

TECHNOLOGY

COMING SOON





Emotion Detection Cameras

Cameras with built-in facial recognition capabilities to read emotional states

These cameras can detect facial expressions and predict how someone is feeling.

They might be placed in stores, on streets, or even embedded in glasses. Being able to instantly detect a person's emotions might help keep them safe, sell them useful products, or even improve their relationships.

QUESTIONS TO CONSIDER:

Would you use such a camera? For what purposes?

If your phone camera had this feature, so that Siri or Alexa could help you talk through your feelings, would you try it?

Super Prosthetic Limbs

Brain-interfacing prosthetic arms and legs that
are more powerful than human limbs



Adobe Stock

TECHNOLOGY

COMING SOON





Super Prosthetic Limbs

Brain-interfacing prosthetic arms and legs that are more powerful than human limbs

If someone loses an arm or leg from an injury, they could get one of these enhanced prosthetic limbs that connects directly to the brain.

Not only would such devices restore the abilities of a missing or damaged limb, they could provide even greater strength, speed, and agility.

QUESTIONS TO CONSIDER:

If you had one of these prosthetic limbs, what super things would you do?

Who should qualify to get these limbs? What if someone without injuries wanted one, such as an athlete or soldier?

Brain Game Controller

Play games or control your avatar in a virtual world using only your thoughts



TECHNOLOGY

COMING SOON





Brain Game Controller

Play games or control your avatar in a virtual world using only your thoughts

Looking for the latest edge to make you the top-rated player in your favorite video game?

This game controller moves at the speed of your thoughts, by wirelessly reading your brain signals. Not just for gaming, it could also be used to interact realistically in a virtual world.

QUESTIONS TO CONSIDER:

Would you use this game controller if your brain activity was recorded while you play?

What if it was also used to show you customized ads?

Who owns your brain data?

Mental Health Screening

Low-cost tool that can quickly identify
risk of mental illnesses



Adobe Stock

TECHNOLOGY

COMING SOON





Mental Health Screening

Low-cost tool that can quickly identify risk of mental illnesses

This rapid, low-cost test uses genetic and neurochemical markers to detect whether someone currently has or will develop a mental illness.

Conditions covered by the test include schizophrenia, severe depression, bipolar disorder, and many others. The test has a 75% accuracy rate.

QUESTIONS TO CONSIDER:

Would you take this test? How would you feel about a friend or family member taking it?

What if your employer or school required you to take it?

What if the test was wrong?

Designer Brain Cells

A mix of human and animal brain cells used
to grow replacement brain tissue



Adobe Stock

TECHNOLOGY

FAR FUTURE





Designer Brain Cells

A mix of human and animal brain cells used to grow replacement brain tissue

Growing brain cells in the lab can help scientists study brain diseases—and potentially be used as new treatments.

Brain cells from animals and human donors could be used to repair the damaged parts of a patient's brain. But would the patient still be themselves?

QUESTIONS TO CONSIDER:

How would you feel about cells from an animal or another person being implanted in your brain?

Would you consider donating your brain cells if they could help someone?

Mood-Sensing Earbuds

Earbuds that “read” your brain waves
to customize a playlist of music and news



Adobe Stock

TECHNOLOGY

FAR FUTURE





Mood-Sensing Earbuds

Earbuds that “read” your brain waves to customize a playlist of music and news

Even when you're not sure what you want to listen to, these earbuds know!

As soon as you put them in your ears, the earbuds detect brain signals related to your mood and preferences. This data is transmitted to the company's server, where algorithms pick your ideal soundtrack.

QUESTIONS TO CONSIDER:

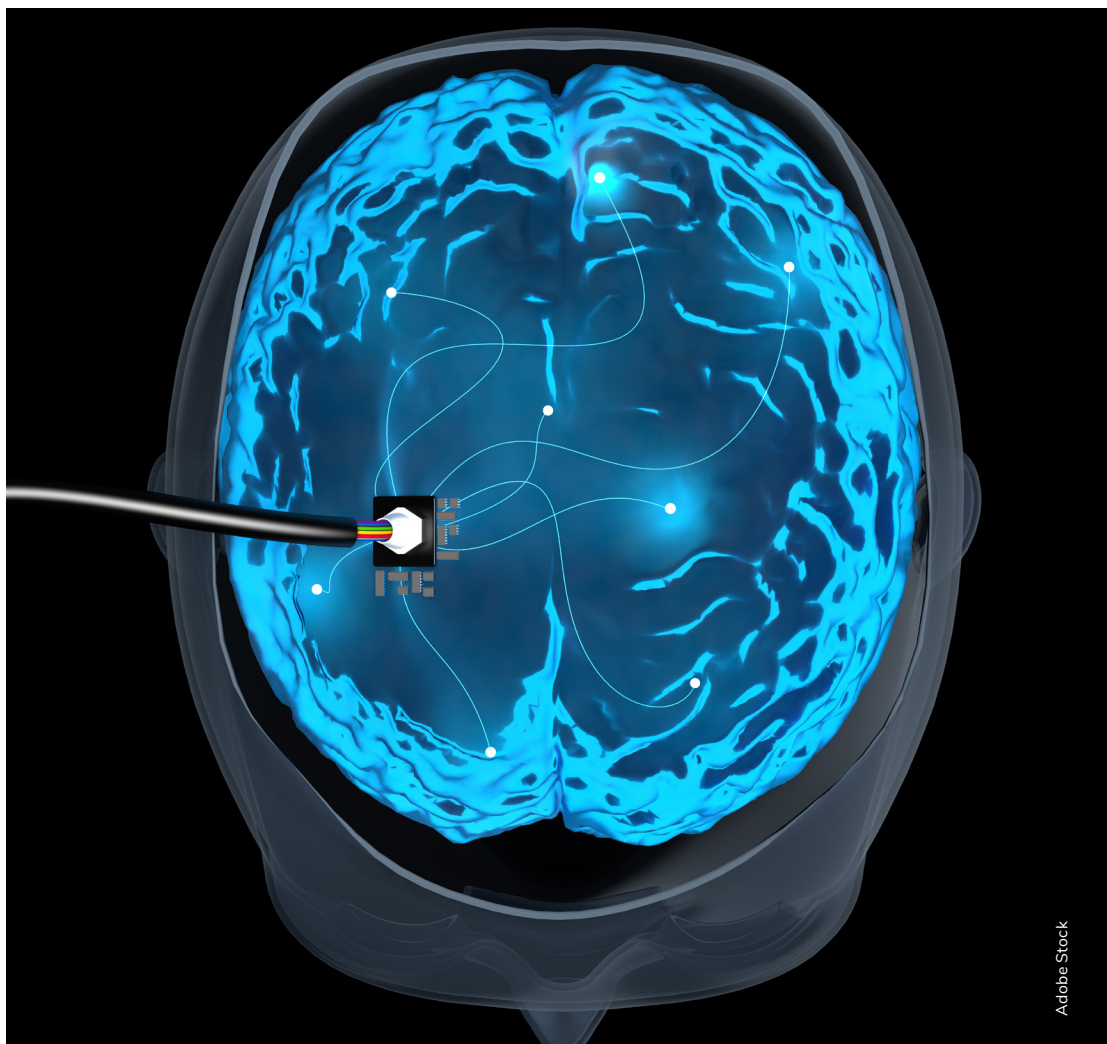
Would you like having devices that respond to your mood?

What protections would you want for your brain data on the company's server?

Could this device be misused?

Brain Implant

A device that electrically stimulates the brain to restore or enhance its function

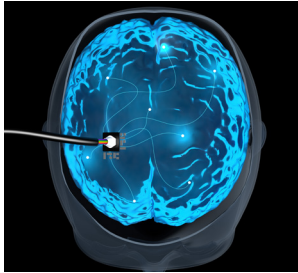


Adobe Stock

TECHNOLOGY

FAR FUTURE





Brain Implant

A device that electrically stimulates the brain to restore or enhance its function

Just like some heart problems are treated with a pacemaker, some neurological conditions can be treated with a brain implant.

Such implants could also be used to regulate emotions and mood, control impulses, or alter behavior. They might even give us new, enhanced abilities.

QUESTIONS TO CONSIDER:

How is a brain implant different from other medical devices? If you got one, would it change who you are?

Who decides when a brain implant is necessary?
Who defines "normal" functioning?

Bionic Eye

A visual prosthetic that can restore sight and potentially create superhuman vision



Adobe Stock

TECHNOLOGY

FAR FUTURE





Bionic Eye

A visual prosthetic that can restore sight and potentially create superhuman vision

The bionic eye uses a tiny camera to collect visual information and transmits it directly to a brain stimulator, enabling blind people to see.

Since it is not limited to the properties of the human eye, the bionic eye could also be used for night vision, thermal vision, or even X-ray vision.

QUESTIONS TO CONSIDER:

Who should have access to the bionic eye?

What might happen if the bionic eye software gets hacked, or if its hardware becomes obsolete?

Memory Eraser

Run this device across your forehead to erase
the last 24 hours of your memory



Shutterstock

TECHNOLOGY

SCIENCE FICTION





Memory Eraser

Run this device across your forehead to erase the last 24 hours of your memory

This portable device would safely remove all of your memories of the past day.

Memories help define our lives, but sometimes we just want to forget. Maybe something bad happened to you, or maybe you just heard a spoiler for the latest superhero movie. Either way, problem solved!

QUESTIONS TO CONSIDER:

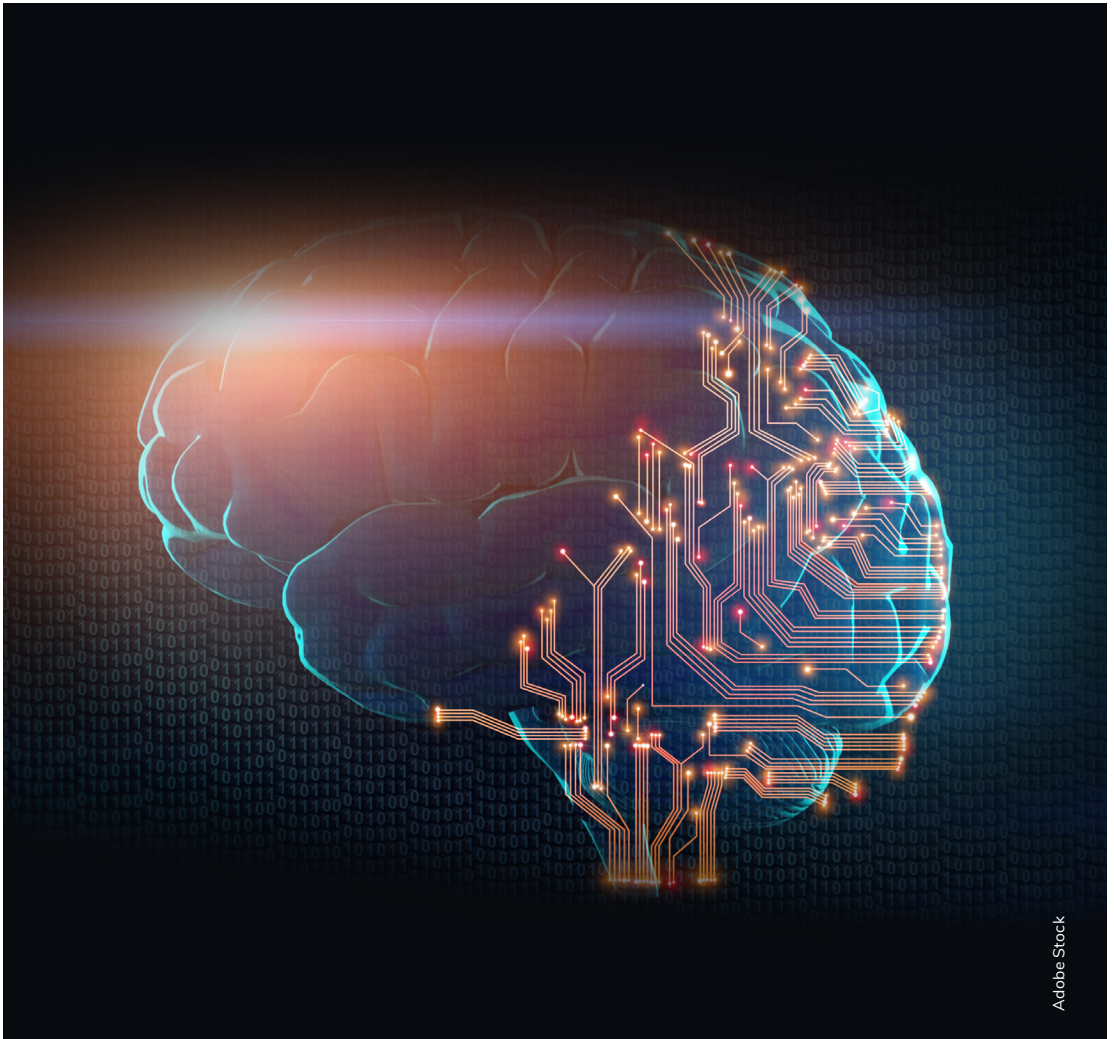
Can you think of a day you would like to forget?

How often would you use this device if you could?

What if your friends or family used this device all the time?

Digital Brain

A digital copy of your brain
simulated in a supercomputer



Adobe Stock

TECHNOLOGY

SCIENCE FICTION





Digital Brain

A digital copy of your brain
simulated in a supercomputer

Your brain is unique, but what if its trillions of connections could be copied to create a digital twin?

This simulated digital brain could serve as your “backup” in case of injury or disease. It might allow doctors to predict your future, in terms of risk for neurological or mental illness.

QUESTIONS TO CONSIDER:

If the digital brain is a copy of yours, is it conscious?
Alive?

Who should have access to your digital brain?

What should happen to the digital brain after you die?

Pocket Lie Scanner

Handheld device that scans a person's brain to reveal whether they are lying



Adobe Stock

TECHNOLOGY

SCIENCE FICTION





Pocket Lie Scanner

Handheld device that scans a person's brain to reveal whether they are lying

Sometimes you really need to know the truth.

This portable device could be used anywhere from courtrooms to classrooms—wherever there's a need to find out what really happened. Just ask the subject a yes/no question, scan their brain, and instantly learn whether their answer was a lie.

QUESTIONS TO CONSIDER:

How would you use this device if you had one?

Should its use be restricted to certain people or situations?

How would life be different if everyone had access to this?

Darren

he/him

School counselor concerned about the rise of mental health problems in his students



AGE: 35

OCCUPATION: School counselor

INTERESTS: Adolescent development, playing tennis, photography

PEOPLE

PEOPLE



Darren
School counselor

Darren has been a high school counselor for the past five years, and in that time he has noticed more students suffering from anxiety, depression, and other mental health issues.

He worries about whether his students are getting the proper diagnosis and treatment they need. Serving a school of 800 teens, he can only do so much.

HOPES FOR THE FUTURE:

Darren wishes every student could have access to the mental health care they need to thrive.

Sarah

she/her

Military veteran suffering from PTSD and a serious leg injury sustained during service



AGE: 39

OCCUPATION: Retired U.S. Marine

INTERESTS: Paralympic sports, watercolor painting, country music

PEOPLE

PEOPLE



Sarah

Retired U.S. Marine

Sarah was wounded during her military service, leaving her with a paralyzed leg and severe post-traumatic stress disorder.

She experiences flashbacks and vivid nightmares, and she has become increasingly distant from her family. Sarah is proud to have served her country, but now it feels like she's being left behind as the world moves on.

HOPES FOR THE FUTURE:

Sarah wishes she could feel like herself again and regain the use of her injured leg.

Kim

she/her

Mother of a 6-year-old child
with a rare neurological disease



Adobe Stock

AGE: 31

OCCUPATION: Accountant

INTERESTS: Medical research, yoga, crossword puzzles

PEOPLE

PEOPLE



Kim
Accountant

Kim and her husband have spent the past six years in and out of hospitals with their young son, who suffers from a rare neurological disease.

Since the cause of the disease is unknown, the best they can do is manage his symptoms and try to provide relief for the pain he experiences. It's not easy, but Kim would do anything for him.

HOPES FOR THE FUTURE:

Kim desperately hopes that a treatment will be found for her son's disease so that he can live a healthy and independent life.

Jacquie

she/her

Experienced lawyer who believes
in the importance of achieving justice



Adobe Stock

AGE: 42

OCCUPATION: Lawyer

INTERESTS: Social justice, traveling, playing golf

PEOPLE

PEOPLE



Jacquie

Lawyer

Jacquie grew up in a loving family that instilled in her the values of compassion and service to others.

When she was in high school, her cousin was arrested and sentenced to 16 years in prison for a crime he did not commit. This inspired Jacquie to become a lawyer and fight for others like him.

HOPES FOR THE FUTURE:

Jacquie believes the criminal justice system must become more equitable and rigorous in how it proves someone guilty.

Adriana

she/her

High school junior hoping to get a scholarship to a good college



Adobe Stock

AGE: 16

OCCUPATION: Student

INTERESTS: Varsity swimming, debate team, drama club

PEOPLE

PEOPLE



Adriana

Student

Adriana is a busy high school junior. She gets up early for swim practice, stays after school for drama club rehearsals, and preps for debate team at night along with her homework.

Though she has always been a good student, Adriana notices her grades starting to slip, but she needs good grades to get a college scholarship.

HOPES FOR THE FUTURE:

Adriana is excited to be the first person in her family to attend college—if she can afford it.

Malik

he/him

Middle school student and aspiring
future video game designer



Adobe Stock

AGE: 13

OCCUPATION: Student

INTERESTS: Video games, science fiction movies, playing drums

PEOPLE

PEOPLE



Malik

Student

Malik is an eighth grader and avid gamer. He's excited to take his first programming class this year and get closer to his dream of becoming a video game designer.

When he's not gaming, Malik likes to watch sci-fi movies and play drums in the band he started last year with his friends, *The Mind Benders*.

HOPES FOR THE FUTURE:

Malik can't wait to see what new technology the future brings—and he wants to be involved in creating it!

Kris

they/them

Surgeon frustrated by the lack of options
for patients with brain damage



AGE: 35

OCCUPATION: Neurosurgeon

INTERESTS: Medical research, hiking, playing the piano

PEOPLE

PEOPLE



Kris

Neurosurgeon

Kris recently finished their residency training to become a neurosurgeon, specializing in traumatic brain injuries.

While they truly enjoy this work, Kris is frustrated by the lack of progress in treatment for severe brain damage. The worst part of the job is breaking the news to families when there's nothing more to be done.

HOPES FOR THE FUTURE:

Kris hopes for new treatments to improve the survival and recovery of patients with traumatic brain injuries.

Jack

he/him

Controversial podcast host who
enjoys creating a stir



Adobe Stock

AGE: 47

OCCUPATION: Podcast host

INTERESTS: Politics, technology, conspiracy theories

PEOPLE

PEOPLE



Jack

Podcast host

Jack hosts a podcast dedicated to uncovering the “truth” about current issues, from medical treatments to UFOs. Critics have accused him of spreading misinformation, but he views this as free publicity.

Distrustful of authority, Jack hates it when people tell him what to do. He just wants to think for himself.

HOPES FOR THE FUTURE:

Jack wants to protect himself and his audience from any dangerous new technologies or medical advances.

Lisa

she/her

Caregiver for her elderly mother
with Alzheimer's disease



Adobe Stock

AGE: 52

OCCUPATION: Real estate agent

INTERESTS: Landscaping, watching reality TV, cooking

PEOPLE

PEOPLE



Lisa

Real estate agent

Lisa has watched her mother decline, becoming increasingly forgetful and confused. Some days, Lisa's mother doesn't even recognize her now.

Trying to keep her mother safe and happy is exhausting. But Alzheimer's disease runs in the family, so Lisa is acutely aware that she could someday be in her mother's shoes.

HOPES FOR THE FUTURE:

Lisa wishes she could restore her mother's memories—and avoid the same fate for herself.

Ricky

he/him

Computer hacker with little concern
for laws or ethics



Adobe Stock

AGE: 24

OCCUPATION: Hacker

INTERESTS: Coding, video games, competitive ping-pong

PEOPLE

PEOPLE



Ricky Hacker

Ricky has always loved computers, so he decided to turn his tech skills into a lucrative career—even if it's a bit morally questionable.

So far, Ricky has mostly done small hacking jobs with minimal payouts, but he's eager to take on some bigger challenges. He loves trying out new tools and pushing the limits of technology.

HOPES FOR THE FUTURE:

Ricky wants to become a top hacker and land some big jobs—without getting caught.

Edith

she/her

Elderly retired professor who misses
her more youthful days



AGE: 92

OCCUPATION: Retired

INTERESTS: Book clubs, listening to the radio, nature documentaries

PEOPLE



Edith

Retired

Edith had a vibrant career as a university professor, but her life has slowed down in retirement. She misses the busy campus and stimulating conversations with colleagues and students.

Despite her poor eyesight, hearing loss, and arthritic hands, Edith still has a very active mind and just wishes her body could keep up.

HOPES FOR THE FUTURE:

Edith hopes to continue living independently and enjoy her remaining years.

Robert

he/him

Military general leading secret operations
to test experimental technologies



AGE: 56

OCCUPATION: Military general

INTERESTS: Military technology, singing in his church choir, chess

PEOPLE

PEOPLE



Robert
Military general

Robert leads a specialized military unit that tests new technologies to protect soldiers in dangerous situations.

He is especially interested in ways to enhance the physical and mental performance of those who serve under him. Robert believes that such technologies will ultimately make the world a safer place.

HOPES FOR THE FUTURE:

Robert hopes the government will invest in more powerful new ways to strengthen its troops.

You!

DESCRIBE YOURSELF:

Think about yourself, your friends, and your family. What do you like to do?

How do brain technologies help you now, or how might they help you in the future?

How might they create harm or challenges?

PEOPLE

You!



Adobe Stock

Think about yourself, your friends, and your family. What do you like to do?

How do brain technologies help you now, or how might they help you in the future?

How might they create harm or challenges?

HOPES FOR THE FUTURE:

What is one thing you hope for in the future?