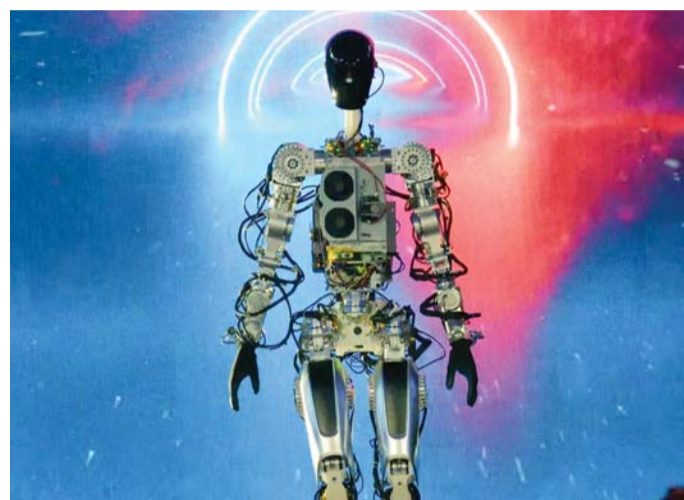


## #TECHNOLOGY

### Self-Driving Robot Can Run Indefinitely

The robots are also able to steer themselves, navigating with on-board sensors and tiny computing chips.



A new tiny, self-driving robot powered only by surrounding light or radio waves can run indefinitely on harvested power. Small mobile robots carrying sensors can perform tasks like catching gas leaks or tracking warehouse inventory. But moving robots demands a lot of energy and batteries, the typical power source, limit lifetime and raise environmental concerns.

Researchers have explored various alternatives: affixing sensors to insects, keeping charging mats nearby, or powering the robots with lasers. Each has drawbacks. Insects roam. Chargers limit range. Lasers can burn people's eyes.

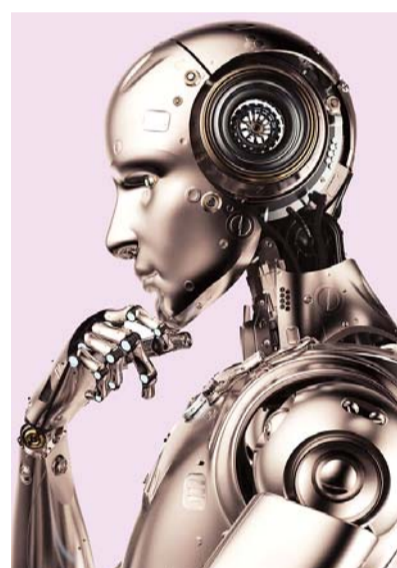
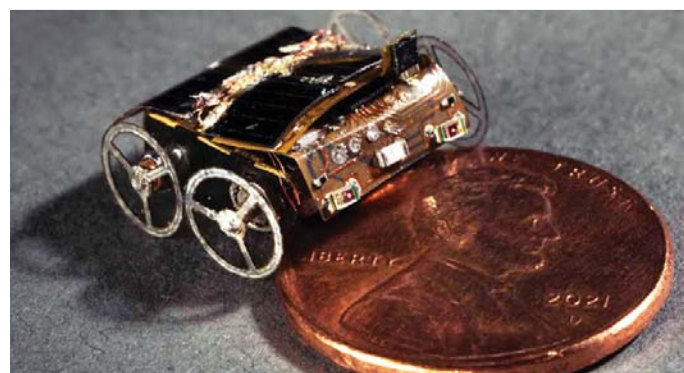
Researchers have now created MilliMobile, a self-driving robot that is about the size of a penny, weighs as much as a raisin, and can move about the length of a bus (90 feet, or 10 meters) in an hour even on a cloudy day.

The robot can drive on surfaces such as concrete or packed soil and carry nearly three times its own weight in equipment like a camera or sensors. It uses a light sensor to move automatically toward light sources.

"We took inspiration from 'intermittent computing,' which breaks complex programs into small steps, so a device with very limited power can work incrementally, as energy is available," says co-lead author Kyle Johnson, a doctoral student in the Paul G. Allen School of Computer Science & Engineering at the University of Washington.

With MilliMobile, we applied this concept to motion. We reduced the robot's size and weight so it takes only a small amount of energy to move. And, similar to an animal taking steps, our robot moves in discrete increments, using small pulses of energy to turn its wheels."

The team tested MilliMobile both indoors and outdoors, in environments such as parks, an indoor hydroponic farm, and an office. Even in very low light situations—for instance, powered only by the lights under a kitchen counter—the robots



are still able to inch along, though much slower. Running continuously, even at that pace, opens new abilities for a swarm of robots deployed in areas where other sensors have trouble generating nuanced data.

The robots are also able to steer themselves, navigating with on-board sensors and tiny computing chips. To demonstrate this, the team programmed the robots to use their on-board light sensors to move towards a light source.

"Internet of Things" sensors are usually fixed in specific locations," says co-lead author Zachary Enghardt, a doctoral student in the Allen School. "Our work crosses domains to create robotic sensors that can sample data at multiple points throughout a space to create a more detailed view of its environment."

Researchers have outfitted MilliMobile with light, temperature, and humidity sensors as well as with Bluetooth, letting it transmit data over 650 feet (200 meters).

Vicente Arroyos, a doctoral student in the Allen School, is a co-lead author of the study. Dennis Yin, who completed this work as an undergraduate in electrical and computer engineering, and Shwetak Patel, a professor in the Allen School and in electrical and computer engineering, are coauthors, and Vikram Iyer, assistant professor in the Allen School, is the study's senior author.



The time spent with the children peaks in our thirties and declines sharply as they find other interests. The fault does not lie with them. You start work - work to make more and more. Of course, you never realise the cost. Work will often force you to miss the moments you will never get back. That day when the child was participating in the school play or the elocution contest was important. That day when they hoped to be cheered for winning a race was a onetime chance. There is a devastatingly short window of time during which you are the child's entire world. Don't Blink! Time is exceedingly brief and swift. The 'Magic Years' will fly by if you let them. Be present at every moment feasible. Both of you will cherish them. Slow down and embrace the sweetness children bring to your life. Whatever you earn in those hours with them are of enormous value. The fifteen minutes you spend with children every day is imprinted in your and their mind for eternity. Just listen; ask questions and answer some; play the inane repetitious games with them. All they need is your presence and the moments to giggle together.



# So That is how your time was squandered!

## #TIME



Dr Goutam Sen  
CTVS Surgeon  
Traveller  
Story teller

What is it about time that makes it so nebulous and yet so paradoxically concrete at the same time? The other day I called up a school classmate. We try to keep in touch and are not too successful. So I asked him to have dinner with me. I had hoped that we could talk and reminisce. His reply was succinct. 'I have no spare time'. At first I felt hurt. My wife who was watching me smiled. 'Why don't you think of it in another way? You should be grateful to him. He has saved a lot of your precious time'.

This gem of a statement sent me on a roll. One of the commonest answers that we hear from people is that they 'have no time'. Not just for me but for many other people and occupations—both at work or for pleasure. The natural conclusion is therefore that we prioritise. The twenty four hours that we have is portioned out to various activities as well as rest periods. This will naturally vary from age to age.

Destiny has marked that unknown figure on our calendar. The time when our clock will run out is one of the mysteries of life. Even then, with the expectation that we will live a full life, we spend this precious commodity both frugally and lavishly depending on our likes and whims. The clocked hours may vary widely in perception depending on the activity. A small amount of time spent on mowing the front lawn may feel like hours while a few hours spent

with a beloved may be so fleeting and incomplete. There is a feeling about the invincibility of youth to the fragility of adulthood. From feeling that time was limitless—a non-factor—to feeling that time was depressingly limited—the only factor!—Sahil Bloom

**So how and with whom do we spend our time?**  
This unusual aspect of time has intrigued researchers for long and recently a study has come to the forefront. The American Time Use Survey and Our World in Data breaks down who we spend our time with over the course of our lives. Since it is American there may be some variation for India but in Westernised families it will

be similar. The composite graph with the entire points taken into consideration in different coloured lines becomes a bit busy. Once each is separated into individual characteristics it shows the merit of the study.

It came to me as a surprise that time spent with our parents, siblings, and family peaks in childhood and declines sharply after age 20 years. As a person leaves home and gets caught up in one's own life, one often fails to recognise that the time remaining with family is so very limited. So the key takeaway points are that family time is finite and concentrated in the growing years. As one steps into faraway teaching institutions and careers the family time takes a sharp decline. It is frightening to think that the number of times you will see your

loved ones is restricted and depends solely on the effort made. Distance is not a major factor. Sometimes living abroad makes it easier to connect. People living nearby can easily procrastinate. Prioritise and cherish every moment. Call your parents or siblings this week for no reason other than just to chat. Feel the glow! With friends the situation is worse. Most of the time spent is with school and neighbourhood mates in the early years. It peaks quickly by the age of 18 years. Friends made later during adulthood are never given as much time because of preoccupation mostly with career. The numbers in the initial years are larger and become more selective in adulthood. So the need is to embrace the breadth but focus on the depth. Cherish and preserve

those who were with you in good and bad times. 'The darkest hour friends' are those that need to be retained for life. It is worth investing more time in such healthy and meaningful relationships. They are the ones that will last. The one or two friends are the ones you need to call, text or email from time to time even when they do not respond. You just simply say to them how much you appreciate them.

It should not be surprising to be told that the maximum time in our lives is spent with our partners. Except for the so called working hours we spend our living, eating, enjoying and sleeping hours with our partners. Even in these days of inconsistent relationships when partners can be changed the fact remains that the current partner is the one with whom you spend the maximum time. The person you have chosen to live with and confront life's ups and downs will have the largest impact on your happiness and fulfillment. Choosing a partner is probably the most important decision you will ever make in your life. In India where 'arranged' relationships still remain a major method of choosing a wife, the decision mak-

The time spent with the children peaks in our thirties and declines sharply as they find other interests. The fault does not lie with them. You start work - work to make more and more. Of course, you never realise the cost. Work will often force you to miss the moments you will never get back. That day when the child was participating in the school play or the elocution contest was important. That day when they hoped to be cheered for winning a race was a onetime chance. There is a devastatingly short window of time during which you are the child's entire world. Don't Blink! Time is exceedingly brief and swift. The 'Magic Years' will fly by if you let them.

The alone time in your life increases with age and more so when you have lost your life partner. In the younger days one fears the alone time. Boredom is frustrating. The older you get the value of time alone is better appreciated and cherished. Flex your boredom muscles regularly and learn to embrace solitude.

Be present at every moment feasible. Both of you will cherish them. Slow down and embrace the sweetness children bring to your life. Whatever you earn in those hours with them are of enormous value. The fifteen minutes you spend with children every day is imprinted in your and their mind for eternity. Just listen; ask questions and answer some; play the inane repetitious games with them. All they need is your presence and the moments to giggle together. In the traditional prime working hours from the age 20 to 60 years, one is focused at work but thereafter it declines sharply. Every hour of extra work, one is pulled away from your family and loved ones. Since a lot of time is spent at work it is important to choose the proper work compan-

ions. If there is the luxury of choice, make sure to choose work- and co-workers- that are found meaningful, enthusiastic and important. Co-workers create the energy in your life. There are critical questions that need to be answered. Do your co-workers push you to grow intellectually? Are you happy spending such an outsized amount of your life with these co-workers? If yes, life will be fulfilling.

All of humanity's problem stem from man's inability to sit quietly in a room alone - Blaise Pascal. The alone time in your life increases with age and more so when you have lost your life partner. In the younger days one fears the alone time. Boredom is frustrating. The older you get the value of time alone is better appreciated and cherished. Flex your boredom muscles regularly and learn to embrace solitude.

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## #TRAVEL

# Pet-friendly Airbnbs

Plan a journey that will etch fond memories for both you and your loyal companion

There is a growing trend where pets accompany their humans to any and all adventures, no matter how far from home, hence it's the perfect time for pet parents to embrace adventure with their furry companions in tow. Airbnb has witnessed a surge of almost 50% in nights booked with pets.

We've curated a selection of pet-friendly Airbnbs that cater to both two-legged and four-legged guests, promising a memorable way to celebrate this special day.

From charming cabins in scenic landscapes to trendy urban getaways, these accommodations offer comfort and joy for you and your canine sidekick.

Prepare to seize the leash, pack essentials and journey to any of these pet-friendly Airbnbs in India that will undoubtedly etch fond memories for both you and your loyal companion:

### Ashvini by Staymaster in Nerul

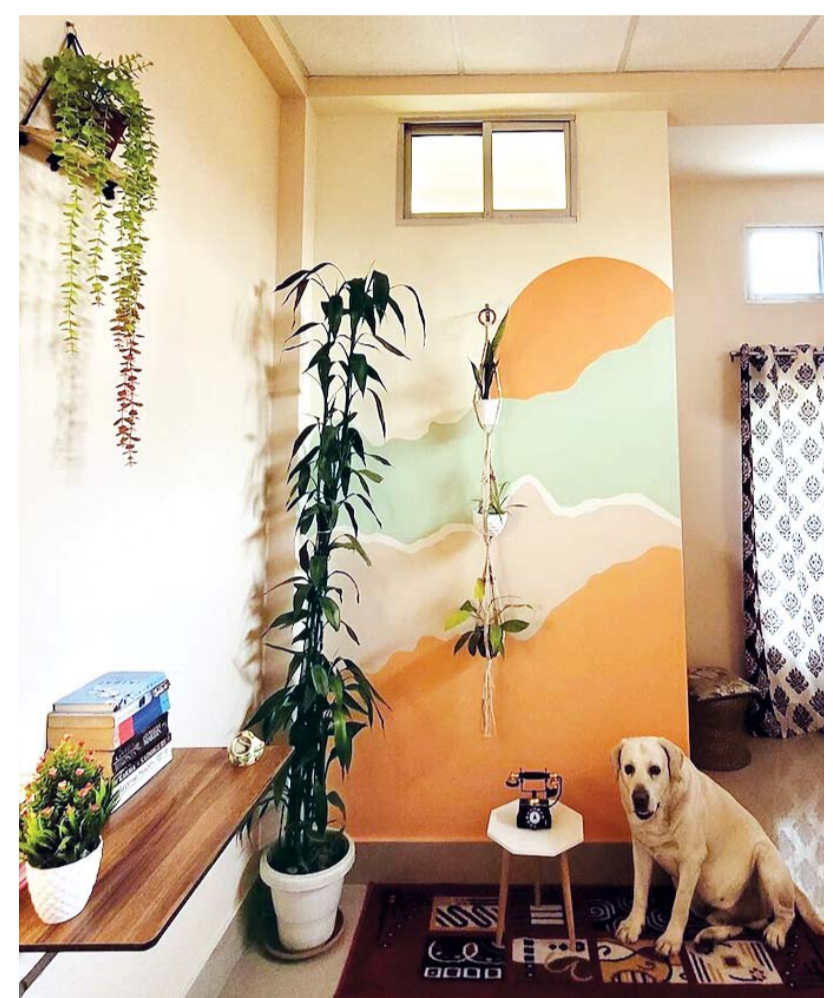
**Goa**  
Tucked away behind the unassuming Coco Beach, a few miles from the popular North Goa beach hotspots of Candolim and Calangute, Niyama by Staymaster is a multi-award-winning boutique collection of four open-air, eco-conscious villas surrounded by luxuriant jungle-style gardens and lush greenery.

Mirroring the authentic energy and heritage of Goa, this labour of love is home to private plunge jet pools, spas, gourmet chef services and a unique freerom swimming pool—making it the perfect base for a relaxing getaway in the tropics with your pets.

### The Owl's Nest in Dharamshala

**Himachal Pradesh**  
Set in a forested neighbourhood of Dharamshala, The Owl's Nest is a chic luxury cottage set on a 1-acre organic farm. Ideally suited for small nuclear families or groups of friends travelling together, the Airbnb is a reader's and bird-watcher's paradise.

The charming cottage boasts of minimalist interiors, plenty of natural light and beautifully landscaped gardens. With a single cottage on the entire farm, guests and their pets can experience absolute exclusivity.



### A magnificent treehouse with a valley view in Tandri

**Himachal Pradesh**  
If you've always wanted to explore the mountains with your pet in tow, book a stay in this tree house hidden in Tandri, away from the rush of tourists.

The property is the ideal location to unwind in a magnificent tree home. With speedy wifi, you can work uninterrupted when you're not enjoying the spectacular valley and mountain views from the cosy bedroom with your pet by your side.

### Casa Lontano New Delhi

This charming, serene and cosy farm stay amid the sounds of nature is perfect if you want to escape the hustle of city life with your furry companion. Situated at about an hour's drive from anywhere in Delhi and a short drive from Gurgaon, the property comes

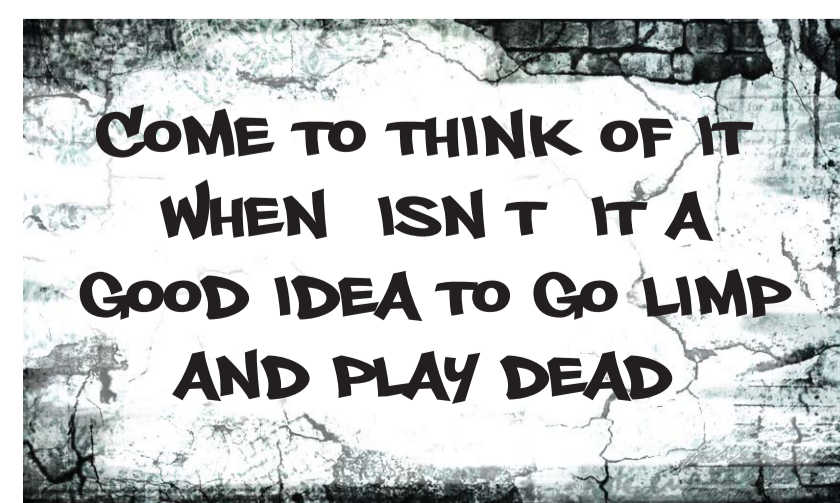
with a swimming pool and two well-appointed large bedrooms with spacious ensuite bathrooms. A small and cosy living room with an open kitchen completes the space.

### Villa Akasa in Varkala

**Kerala**  
Villa Akasa is a quiet guesthouse nestled within the natural beauty of Varkala. Just a few minutes away from a beautiful, secluded beach, Villa Akasa is surrounded by coconut trees and a village that has been barely touched by tourist development. This part of Kerala is geographically unique as it is the only place in the state where the cliffs touch the Arabian Sea. The aqua-green water contrasts with the bright red of the cliffs making it the perfect place to swim and watch the sun go down. Villa Akasa is ideal for travellers to relax, unwind and enjoy under the stewardship of Shama, the host, and her capable team led by Yakko the Labrador.



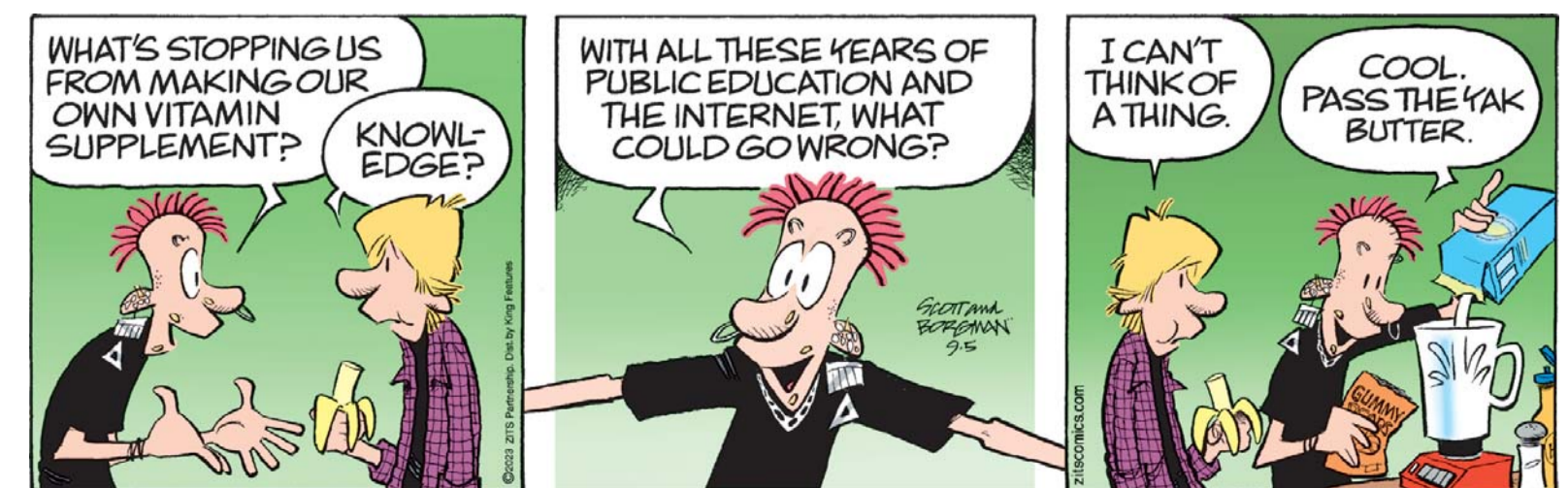
## THE WALL



## BABY BLUES



## ZITS



By Rick Kirkman & Jerry Scott

By Jerry Scott & Jim Borgman