ARTIFICIAL INTELLIGENCE
### Beyond memorization: Text generators may plagiarize beyond 'copy and paste'
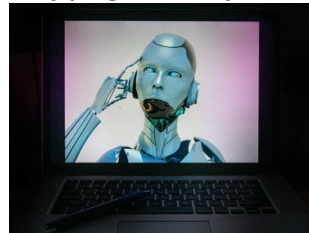
"The team found that the language models committed all three types of plagiarism, and that the larger the dataset and parameters used to train the model, the more often plagiarism occurred. They also noted that fine-tuned language models reduced verbatim plagiarism but increased instances of paraphrase and idea plagiarism. In addition, they identified instances of the language model exposing individuals' private information through all three forms of plagiarism."

Source: PSU (16 February 2023)

ARTIFICIAL INTELLIGENCE
Safe Multi-Agent Reinforcement Learning for Multi-Robot Control
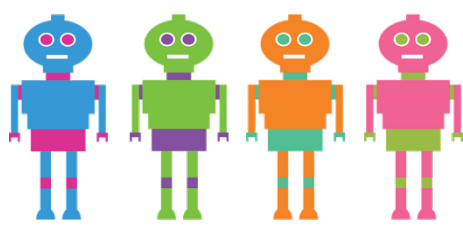
"A challenging problem in robotics is how to control multiple robots cooperatively and safely in real-world applications. Yet, developing multi-robot control methods from the perspective of safe multi-agent reinforcement learning (MARL) has merely been studied. To fill this gap, in this study, we investigate safe MARL for multi-robot control on cooperative tasks, in which each individual robot has to not only meet its own safety constraints while maximising their reward, but also consider those of others to guarantee safe team behaviours"

Source: SCIENCEDIRECT (16 March 2023)

BUILT ENVIRONMENT
### The Gallery: Rome's World Expo Bid Aims For Solar Utopia

"Rome has unveiled a bid to host the 2030 World Expo that would see every participating country contributing a solar farm to power the exhibition site and decarbonise surrounding neighbourhoods in the Italian capital."

Source: E&T (17 March 2023)

CAREERS
Eight Graphs That Explain Software Engineering Salaries in 2023
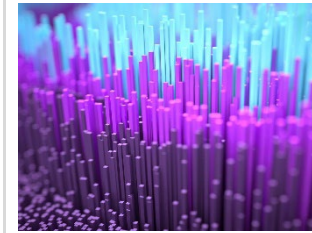

"Online job search firms Dice and Hired have released their annual reports on tech professional salaries, skills, and job markets, with a focus on software engineers.

The data are summarized in eight charts: Tech salaries jump, but don't keep up with inflation; What's the best-paying job in tech? What software engineering skills do employers want you to have?; What skills should software engineers learn right now?; Should your next tech career move be out of Silicon Valley?; Looking for a new job? These fields are a tech professional's best bet."

Source: IEEE (17 March 2023)

CONTRIBUTIONS OF WOMEN
Women's History Month
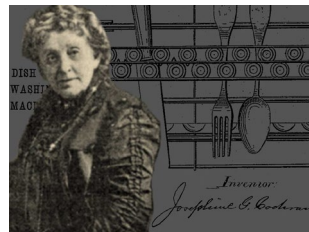
Acknowledging and honouring the contributions of women inventors and engineers

Source: IEEE (March 2023)

ELECTRONIC WASTE
Photovoltaic Electronic Waste In Brazil: Circular Economy Challenges, Potential And Obstacles

"Photovoltaic (PV) energy production is a promising and mature technology for producing renewable energy. By contrast, solar panel disposals can generate problems for waste management, given that the amount of PV solar energy e-waste is more significant than other types of e-waste, given that this waste contains abundant metals and toxic materials, and given that this energy is being increasingly used. Local solutions need to be discussed and evaluated so that the PV industry can provide sustainable renewable energy."

Source: SCIENCEDIRECT (15 March 2023)

MATERIALS
Building With Recycled Polycarbonate: The SaveEnergy Product Line


"Sustainability is much more than simply deciding for or against a specific product. It is a concept that must be integrated into the way we build and design architecture, as well as the intelligent use of existing buildings and their potential renovations. From a sustainability perspective, demolishing an old building is just as unsustainable as building a new one. Both use large amounts of embodied energy that can be avoided when all planning parties consider new ways of working and collaborate more closely."

Source: ARCHDAILY (20 March 2023)

PHYSICS
### Parallel Assembly of Arbitrary Defect-Free Atom Arrays with a Multitweezer Algorithm
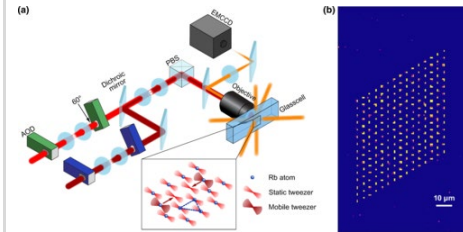
"In this paper, we propose and demonstrate a parallel rearrangement algorithm for defect-free atom array assembly with an adjustable degree of parallelism corresponding to a constraint on the maximum number of mobile tweezers. For a 225-atom target array and DOP=15, our parallel rearrangement algorithm significantly reduces the average number of moves to scale as the square root of the target array size. We use our algorithm to experimentally realize large-scale defect-free arrays with hundreds of atoms with a high success probability up to 33(1)% in a room-temperature environment. Future work involving a detailed fine tuning of the mobile tweezer trap depths and ramp speeds, bearing in mind their trade-offs against the total rearrangement time, can potentially yield a higher optimal DOP, thereby further increasing the rearrangement parallelism."

Source: APS (15 March 2023)

PROGRAMMING
### The Move to Memory-Safe Programming
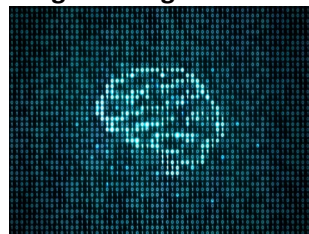
"Memory safety is a feature of programming languages that prevents certain types of memory-access bugs, such as out-of-bounds reads and writes, and use-after-free bugs. In an app that manages a list of to-do items, for example, an out-of-bounds read could involve accessing the non-existent sixth item in a list of five, while a use-after-free bug could involve accessing one of the items on an already deleted to-do list. These bugs could lead to accessing private data, corrupting data, or even executing code that isn't part of a program."

Source: IEEE (17 March 2023)

ROBOTICS
### This human-size robot now has 'eyes' that show people where it's going
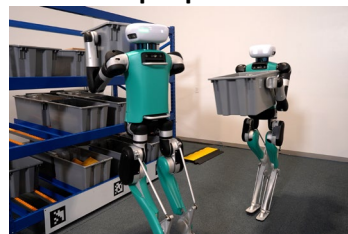
"Agility Robotics has taken the wraps off its next-gen bipedal bot, which comes with some noticeable upgrades — namely, a cylindrical head and two animated LED "eyes." In a press release, the company says it made the changes to its warehouse-friendly bot, called Digit, to improve "human robot interaction.""

Source: The Verge (21 March 2023)

SUSTAINABILITY
### Researchers Separate Cotton From Polyester in Blended Fabric
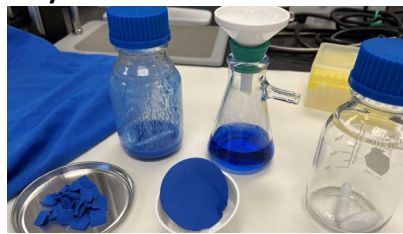
"In a new study, North Carolina State University researchers found they could separate blended cotton and polyester fabric using enzymes – nature's tools for speeding chemical reactions. Ultimately, they hope their findings will lead to a more efficient way to recycle the fabric's component materials, thereby reducing textile waste.."

Source: NCSU (20 March 2023)

WORK
Would you prefer a four-day working week?
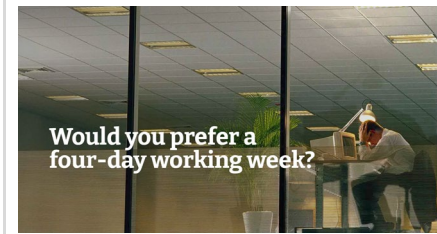
"The findings suggest that a four-day week significantly reduces stress and illness in the workforce and helps with worker retention."

Source: CAMBRIDGE (17 March 2023)