

# Best of Last Week—synthetic chromosome, computerized Othello solved, alcohol and caffeine impact on sleeping

November 13 2023, by Bob Yirka

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(Left) The initial board position of  $8 \times 8$  Othello. (Right) A diagram of an optimal game record designated by our study. The game record is “F5D6C3D3 C4F4F6F3 E6E7D7C5 B6D8C6C7 D2B5A5A6 A7G5E3B4 C8G6G4C2 E8D1F7E2 G3H4F1E1 F2G1B1F8 G8B3H3B2 H5B7A3A4 A1A2C1H2 H1G2B8A8 G7H8H7H6”. The numbers in stones indicates the order of moves, and the colors of stones indicates the final result. Our study confirms that if a deviation from this record occurs at any point, our software, playing as the opponent, is guaranteed a draw or a win. Credit: *arXiv* (2023). DOI:

It was a good week for biological research as a team of geneticists in the U.K. completed construction of [a synthetic chromosome](#)—their work was part of an international project aimed at building the world's first synthetic yeast genome. Also, a team of environmentalists and coastal managers in China, working with a colleague from the University of Massachusetts, Amherst, found that zooplankton that live in both fresh and ocean water [can chew apart microplastics](#), breaking them down into even smaller and potentially more dangerous nanoplastics. And a combined team of paleontologists from the University of Kansas, in the U.S., and the Institute of Vertebrate Paleontology and Paleoanthropology, in China, found fossil specimens that they believe tell the tale of [the last primate to inhabit North America](#) before the arrival of humans.

In technology news, Hiroki Takizawa, a computer scientist with Japanese computer company Preferred Networks, Inc., announced that [he had "solved" the game of Othello](#), the 140-year-old board game. He computerized a game plan that he claims makes no mistakes between either player in a single game. And a small team of chemists at the University of Kansas created a tool that can [accurately detect AI text](#) when ChatGPT is told to write like a chemist. Also, a team at George Washington University working with the National Renewable Energy Laboratory found that when people buy electric vehicles, [they drive them less](#) than gasoline powered cars. And a team of engineers at the University of Southampton designed and built [an energy efficient transmitter](#) based on a CMOS chip and silicon photonics.

In other news, an international team of medical researchers found [a positive association](#) between *Toxoplasma gondii*, a cat-borne parasite,

and frailty in older adults. Also, a team of researchers from DRI, Colorado State University, and the Missouri University of Science and Technology [mapped the loss of groundwater storage](#) around the world using advanced machine-learning techniques. And finally, a team of medical researchers from the University of Washington and the University of California were surprised to find that drinking both caffeine and alcohol tend to briefly [cancel out the sleep-interfering effects of both](#).

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