

ASSEMBLY REQUIRED

January 2025

THE WATER COOLER



PEPM was in attendance at the IPPE expo in Atlanta this week!

The team had a great time at IPPE meeting customers and friends.

We will be reaching out soon!

This month, the PEPM Group has commenced structural and mechanical engineering services for two data center projects in the US. PEPM will provide structural engineering analysis using STAAD Pro and mechanical engineering analysis using CAESAR II.



The PEPM Group successfully completed 30% 3D modeling of a thermal oxidizer system project this month. PEPM's design team delivered the 30% modeling in CADWorx on time and supported the customer's highly demanding schedule.

The PEPM Group conducted 3D scan services in two processing facilities last week, providing detailed and high-resolution facility information including equipment, buildings, mechanical, and electrical layout and dimensions.



WE ARE HIRING!

For a long-term fulfilling career, a caring, encouraging, and respectful working place, contact PEPM. Apply today at www.pepmgroup.com/careers

- Lead or Senior Structural Engineer (Tulsa, OK) - 5+ years of experience. PE required.
- Drafting Designer (Fayetteville, AR) - 4+ years experience, Associate's Degree in Drafting required
- Business Development Manager (Tulsa, OK) - 5+ years experience, Associate's or Bachelor's Degree preferred
- Accounting Assistant (Tulsa, OK) - 2+ years experience, Associate's or Bachelor's Degree required



'EMBODIED ENERGY' POWERS MODULAR WORM, JELLYFISH ROBOTS

In the same way that terrestrial life evolved from ocean swimmers to land walkers, soft robots are progressing, too, thanks to recent Cornell University research in battery development and design.

A modular worm robot and jellyfish demonstrate the benefits of "embodied energy" - an approach that incorporates power sources into the body of a machine, to reduce its weight and cost.

The worm and jellyfish are direct descendants of an aqueous soft robot, inspired by a lionfish and unveiled in 2019, that could store energy and power its applications via a circulating hydraulic fluid -- i.e., "robot blood." Similar blood sustains the new species, but with an improved design for greater battery capacity and power density.

"The jellyfish has much more capacity for its weight, so the duration it can travel is even longer than the fish," said Rob Shepherd, professor of mechanical and aerospace engineering, who led both projects.

"The worm is the first version we've done above ground. When it's underwater, you get buoyantly supported, so you don't need a skeleton. It doesn't need to be rigid."

The key innovation of the worm robot was its compartmentalized design. The worm's body is a series of interconnected pods, each containing a motor and tendon actuator so the worm can compress and expand its shape, as well as a stack of anolyte pouches immersed in catholyte.

Original Article: 'Embodied energy' powers modular worm, jellyfish robots AI: [Science Daily](http://ScienceDaily)

WE WANT YOUR FEEDBACK!

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To ensure a great newsletter, let us know what you think! Your ideas and stories can make this newsletter a truly engaging experience. Send your suggestions to yzhang@pepmgroup.com. Your feedback is greatly appreciated and valued!

GET PROPOSAL Have questions about MEP, CSA, industrial refrigeration, process design, architectural, or project management? Contact PEPM Group at yzhang@pepmgroup.com, admin@pepmgroup.com, (918) 895-6766, or visit www.pepmgroup.com.



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IN THE KNOW...

January, which is the first month in the Julian and Gregorian calendar, is named after Janus, and was added to the calendar around 713 BC.

2007 Apple CEO Steve Jobs announces the iPhone

1987 Astronomers at the University of California see 1st sight of birth of a galaxy

1959 USSR's Luna 1 (Mechta) becomes the 1st spacecraft to leave Earth's gravity

1922 Insulin first used on humans to treat diabetes

1896 German physicist Wilhelm Röntgen announces his discovery of x-rays

1883 The first electric lighting system employing overhead wires, built by Thomas Edison, begins service at Roselle, New Jersey

1838 First public demonstration of telegraph messages sent using dots and dashes at Speedwell Ironworks in Morristown, New Jersey by Samuel Morse and Alfred Vail

1714 Typewriter patented by Englishman Henry Mill

1610 Galileo discovers the first three moons of Jupiter: Io, Europa, and Ganymede

Original Article: OnThisDay: www.OnThisDay.com