

# AI News Digest

03/23/2026 - 03/29/2026

WEEKLY DIGEST: BIOLOGICAL & BIOMEDICAL SCIENCES

## Innovative Approaches Transform Protein Design and Monitoring

Recent advancements in biological and biomedical sciences highlight innovative methodologies in protein design and environmental monitoring. MIT's VibeGen model allows for the creation of proteins based on their dynamic behaviors, marking a shift from traditional static designs. Additionally, a collaborative effort has enhanced citizen science through automated fish monitoring, utilizing computer vision to track river herring migration. These developments showcase the intersection of technology and biology, paving the way for future research and applications.

### KEY FINDINGS

- ✓ MIT's VibeGen designs proteins based on dynamic behaviors.
- ✓ Automated fish monitoring system improves tracking of river herring migration.
- ✓ First atomic movie reveals mechanisms behind radiation damage.

### IMPLICATIONS

- Dynamic protein design could revolutionize drug development.
- Enhanced monitoring systems may lead to better conservation efforts.
- Understanding radiation damage mechanisms can inform safety protocols in various fields.

Key Metrics: \$320 million investment by the DOE in scientific research.; 217 projects funded by the DOE to advance technology development.

## 1. MIT engineers design proteins by their motion, not just their shape

**Category:** Research  
**Departments:** Biological Sciences, Computer Science, Metallurgical, Materials & Biomedical Engineering  
**Topics:** Generative AI, Protein Motion Design, AI Diffusion Techniques, Dynamic Protein Functionality

**Impact Score:** 26.0

### Rubric Scores

|                       |                                |                                  |
|-----------------------|--------------------------------|----------------------------------|
| Research Relevance: 5 | Educational Value: 4           | Innovation / Novelty: 5          |
| Practical Impact: 4   | Interdisciplinary Potential: 5 | Ethical / Policy Implications: 3 |

A recent study published in the journal *Matter* introduces VibeGen, a generative AI model developed by researchers at MIT, which enables the design of proteins based on desired dynamic behaviors rather than static structures. This approach addresses a critical gap in protein design by allowing scientists to specify how a protein should move, flex, or vibrate in response to environmental changes, thereby enhancing the understanding of protein functionality. The model utilizes AI diffusion techniques to iteratively refine amino acid sequences, ultimately generating proteins that can perform specific motions essential for their biological roles. This advancement represents a significant shift from traditional methods that primarily focused on predicting protein shapes, emphasizing the importance of motion in molecular mechanics.

<https://news.mit.edu/2026/mit-engineers-design-proteins-by-motion-not-just-shape-0326>

## 2. Augmenting citizen science with computer vision for fish monitoring

**Category:** Research  
**Departments:** Computer Science, Biological Sciences, Engineering Education & Leadership  
**Topics:** Computer Vision, Automated Fish Monitoring, Deep Learning Models, Citizen Science Enhancement

**Impact Score:** 26.0

### Rubric Scores

|                       |                                |                                  |
|-----------------------|--------------------------------|----------------------------------|
| Research Relevance: 5 | Educational Value: 4           | Innovation / Novelty: 5          |
| Practical Impact: 5   | Interdisciplinary Potential: 4 | Ethical / Policy Implications: 3 |

A collaborative research team from the Woodwell Climate Research Center, MIT, and Intuit developed an automated fish monitoring system using underwater video and computer vision to enhance traditional citizen science efforts in tracking river herring migrations. Their study, published in *Remote Sensing in Ecology and Conservation*, details an end-to-end pipeline for automated fish counting, which includes video collection, labeling, and model training. The researchers found that their deep learning models, trained on a diverse dataset, produced high-resolution fish counts consistent with traditional methods while also providing insights into migration behavior and environmental influences. This approach addresses the limitations of manual monitoring by offering a scalable and efficient solution for continuous fish population assessment.

<https://news.mit.edu/2026/augmenting-citizen-science-computer-vision-fish-monitoring-0325>

### 3. First ever atomic movie reveals hidden driver of radiation damage

**Category:** Research  
**Departments:** Physics, Biological Sciences, Electrical & Computer Engineering  
**Topics:** Science & Research, Electron-Transfer-Mediated Decay, Atomic Motion Visualization, Radiation Damage Mechanisms

**Impact Score:** 22.0

**Rubric Scores**

|                       |                                |                                  |
|-----------------------|--------------------------------|----------------------------------|
| Research Relevance: 4 | Educational Value: 3           | Innovation / Novelty: 5          |
| Practical Impact: 4   | Interdisciplinary Potential: 4 | Ethical / Policy Implications: 2 |

Researchers from the Molecular Physics Department and international collaborators have conducted a study on electron-transfer-mediated decay (ETMD), a radiation-driven process that leads to the breakdown of loosely bound atoms. Using a specialized reaction microscope, they created a real-time "movie" of atomic motion in a model system consisting of a neon atom and two krypton atoms, tracking the process for up to a picosecond before decay occurred. Their findings provide the most detailed view of ETMD to date, revealing a dynamic atomic reorganization that contributes to radiation damage in biological systems. This research enhances the understanding of radiation effects at the atomic level and may inform future protective strategies.

<https://www.sciencedaily.com/releases/2026/03/260324024251.htm>

### 4. This floating time crystal breaks Newton's third law of motion

**Category:** Research  
**Departments:** Physics, Biological Sciences, Computer Science, Electrical & Computer Engineering  
**Topics:** Science & Research, Nonreciprocal Interactions, Time Crystals, Biological Timing Systems

**Impact Score:** 22.0

**Rubric Scores**

|                       |                                |                                  |
|-----------------------|--------------------------------|----------------------------------|
| Research Relevance: 4 | Educational Value: 3           | Innovation / Novelty: 5          |
| Practical Impact: 4   | Interdisciplinary Potential: 4 | Ethical / Policy Implications: 2 |

Researchers at New York University have developed a new type of time crystal using sound waves to levitate tiny styrofoam beads, allowing them to interact in a nonreciprocal manner that defies Newton's Third Law of Motion. This system, which is compact and visible to the naked eye, demonstrates that larger particles exert a greater influence on smaller ones, leading to uneven interactions. The findings, published in *Physical Review Letters*, suggest potential applications in technology and may enhance understanding of biological timing systems like circadian rhythms. The research was supported by the National Science Foundation.

<https://www.sciencedaily.com/releases/2026/03/260322020258.htm>

## 5. DOE Announces \$320M Investment in Pioneering Scientific Research

**Category:** Research

**Departments:** Physics, Computer Science, Electrical & Computer Engineering, Biological Sciences, Mathematical Sciences

**Topics:** Science & Research, Fundamental Scientific Research, Technology Development, Physical Sciences, University-Industry Collaboration

**Impact Score:** 13.0

**Rubric Scores**

Research Relevance: 1

Educational Value: 1

Innovation / Novelty: 2

Practical Impact: 3

Interdisciplinary Potential: 4

Ethical / Policy Implications: 2

The U.S. Department of Energy (DOE) announced a \$320 million investment in fundamental scientific research and technology development during the Office of Science Advisory Committee meeting on March 27, 2026. This funding will support 217 projects from universities and industry, focusing on various disciplines within the physical sciences. The initiative aims to enhance scientific knowledge and technological advancements across multiple fields.

<https://www.hpcwire.com/off-the-wire/doe-announces-320m-investment-in-pioneering-scientific-research/>