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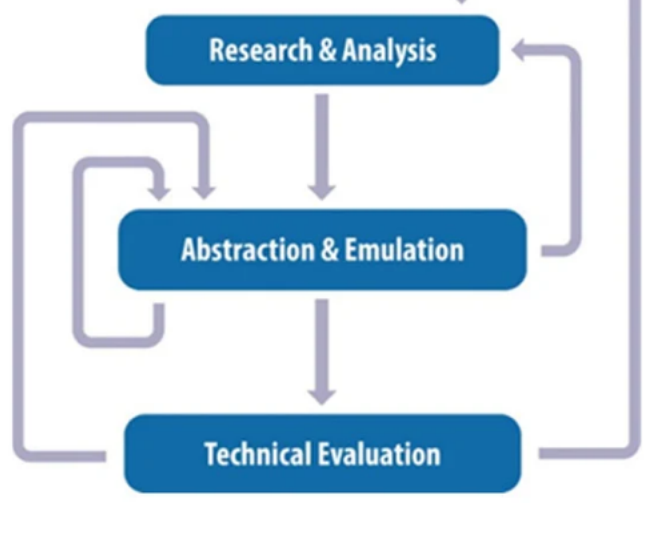
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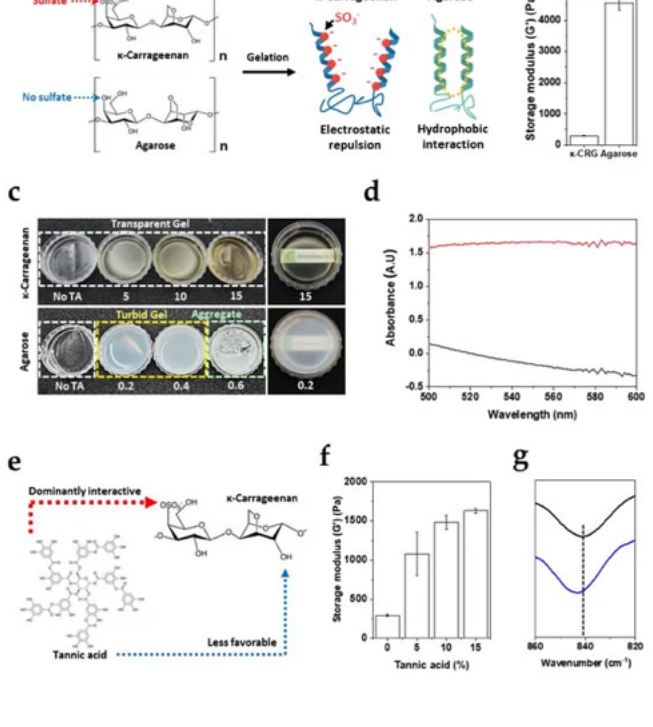
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Article Generative Design of 3D-Printed Biomimetic Interlocking Blocks Inspired by the Cellular 3D Puzzle Structure of the Walnut Shell by Alexandros Efsthathiadis et al. Biomimetics 2026, 11(4), 289; https://doi.org/10.3390/biomimetics11040289 Published: 21 April 2026



Article Adhesive x-Carrageenan Hydrogels by Polyphenol Intervention by Han-Yeol Yang et al. Biomimetics 2026, 11(4), 290; https://doi.org/10.3390/biomimetics11040290 Published: 21 April 2026



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by Sunde Wang, Yejun Zheng, Pu Wang and Zihao Cheng Biomimetics 2026, 11(6), 365; https://doi.org/10.3390/biomimetics11060365 (registering DOI) - 23 May 2026

Abstract To address the defects of the traditional egret swarm optimization algorithm (ESOA) in high-dimensional complex optimization problems, such as low optimization accuracy, weak ability to escape from local extrema, rapid decay of population diversity, and insufficient efficiency in the late convergence stage, an [...] Read more. (This article belongs to the Special Issue Advances in Biological and Bio-Inspired Algorithms: 2nd Edition)

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by Yuan Shu, Panpan Li, Yihan Wang and Yangyang Wei Biomimetics 2026, 11(6), 364; https://doi.org/10.3390/biomimetics11060364 - 22 May 2026

Abstract Bird feathers possess functions such as water resistance, thermal insulation, and air permeability, providing inspiration for the design of functional fabrics. Based on the functional differentiation of different feather regions and the structural constraints associated with these functions, this study selected down feathers, [...] Read more. (This article belongs to the Special Issue Bionics in Engineering Practice: Innovations and Applications)

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by MengCheng Lau and Nicolas Pottier Biomimetics 2026, 11(6), 363; https://doi.org/10.3390/biomimetics11060363 - 22 May 2026

Abstract Deploying modern deep learning-based vision systems on humanoid robots remains challenging due to limited onboard computational resources and legacy software constraints. This paper presents a modular vision system for practical object detection on resource-constrained humanoid platforms, based on the YOLOv9 framework. The proposed [...] Read more. (This article belongs to the Special Issue Bio-Inspired Intelligent Robot)

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by Zulfukar Aytac Kisman, Gokhan Demir, Hande Yuksel and Bilal Alatas Biomimetics 2026, 11(6), 362; https://doi.org/10.3390/biomimetics11060362 - 22 May 2026

Abstract Association rule mining is a fundamental data mining technique for uncovering latent relationships among variables in large-scale datasets. However, conventional approaches rely on single-metric filtering strategies, which are insufficient for capturing the inherent multi-criteria nature of rule quality. To address this limitation, this [...] Read more. (This article belongs to the Section Biological Optimisation and Management)

Open Access Article 52 pages, 10971 KB A Hybrid Metaheuristic for High-Dimensional Constrained Optimization: Applications to Logistics and UAV Path Planning

by Yarong Li and Chuandong Qin Biomimetics 2026, 11(6), 361; https://doi.org/10.3390/biomimetics11060361 - 22 May 2026

Abstract Inspired by the hovering, diving, and cooperative hunting behaviors of the pied kingfisher, the Pied Kingfisher Optimizer (PKO) has demonstrated competitive performance in optimization tasks. However, it exhibits several phase-specific limitations, including uneven population distribution caused by random initialization, insufficient use of historical [...] Read more. (This article belongs to the Section Biological Optimisation and Management)

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by Yumeng Yin, Jiabin Yang, Fengyi Yuan and Gang Chen Biomimetics 2026, 11(6), 360; https://doi.org/10.3390/biomimetics11060360 - 22 May 2026

Abstract To address the challenge that existing soft grippers have difficulty achieving fine manipulation comparable to the human fingers' "circular twisting" motion, this paper proposes a four-chamber spatial bending soft actuator based on the principle of virtual work. The actuator incorporates an internal cross-shaped [...] Read more. (This article belongs to the Special Issue Bio-Inspired Mechanical Design and Control: 2nd Edition)

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by Chuang Liu and Yang Chen Biomimetics 2026, 11(5), 359; https://doi.org/10.3390/biomimetics11050359 - 21 May 2026

Abstract Spiking neural networks (SNNs) have emerged as a promising paradigm for energy-efficient neuromorphic computing, particularly when processing asynchronous streams from dynamic vision sensors (DVSs). However, SNNs often suffer from limited representational capacity and suboptimal feature recalibration compared to their artificial counterparts. To [...] Read more. (This article belongs to the Special Issue Artificial Intelligence (AI) in Biomedical Engineering: 2nd Edition)

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by Ektoras Fousekis, Aristidis Arhakis, Konstantinos Arapostathis, Petros Mourouzis, Kosmas Tolidis and Dimitrios Dionysopoulos Biomimetics 2026, 11(5), 358; https://doi.org/10.3390/biomimetics11050358 - 21 May 2026

Abstract The aim of the study was to evaluate the immediate and aged shear bond strength (SBS) of a dual-cured and a light-cured universal adhesive to primary and permanent dentin. Twenty caries-free primary molars and twenty permanent third molars were selected and sectioned to [...] Read more. (This article belongs to the Special Issue Bio-Inspired Adhesive Interfaces for Next-Generation Biomedical and Wearable Technologies)

Open Access Communication 10 pages, 1788 KB Comparing Laboratory and Synchrotron X-Ray CT for Structural Analysis of PEEK Orthopedic Implants

by Melli Qi, Yanwei Zhao, Jinwen Chen, Shengtao Zhang, Jie Zhang and Xu Zhang Biomimetics 2026, 11(5), 357; https://doi.org/10.3390/biomimetics11050357 - 21 May 2026

Abstract Polyetheretherketone (PEEK) is widely employed in orthopedic applications due to its bone-mimetic mechanical properties and excellent biocompatibility, establishing it as a promising candidate for bone repair and regeneration. However, the investigation of structural integrity and microstructural features of PEEK implants has remained limited [...] Read more. (This article belongs to the Special Issue Advances in Biomaterials, Biocomposites and Biopolymers 2026)

Open Access Article 26 pages, 20141 KB Evaluation of the Biological Response to Coating 3D-Printed PLA Scaffolds with Coaxial Gelatin-Based Electrospun Fibers

by Cristian Enrique Torres-Salcido, Aida Gutiérrez-Alejandre, Jesús Ángel Arenas-Alatorre, Janeth Serrano-Bello, Vincenzo Guarino and Marco Antonio Alvarez-Perez Biomimetics 2026, 11(5), 356; https://doi.org/10.3390/biomimetics11050356 - 20 May 2026

Abstract Bone grafting remains limited, and the strategies to design even more structurally complex scaffolds—able to reproduce the hierarchical architecture of bone extracellular matrix—are rapidly growing. In this study, we report the fabrication of a hierarchically structured scaffold produced by layering poly(ϵ -caprolactone)/gelatin (PCL/Gt) or [...] Read more. (This article belongs to the Special Issue Advances in Biomaterials, Biocomposites and Biopolymers 2026)

Open Access Article 23 pages, 9952 KB A Bio-Inspired Lightweight Human Action Recognition Method Based on Human Keypoint Detection

by Weihao Huang, Mianting Wu, Weixiong Chen and Qiang Zhou Biomimetics 2026, 11(5), 355; https://doi.org/10.3390/biomimetics11050355 - 20 May 2026

Abstract Recognizing human actions from static images in complex industrial environments remains challenging due to insufficient feature representation and high computational complexity. This issue is critically important in power-grid safety monitoring, where improper worker postures (e.g., bending, climbing, falling) can lead to severe accidents [...] Read more. (This article belongs to the Special Issue Bionic Intelligent Robots)

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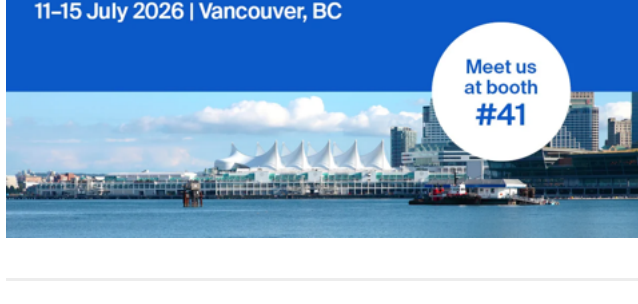
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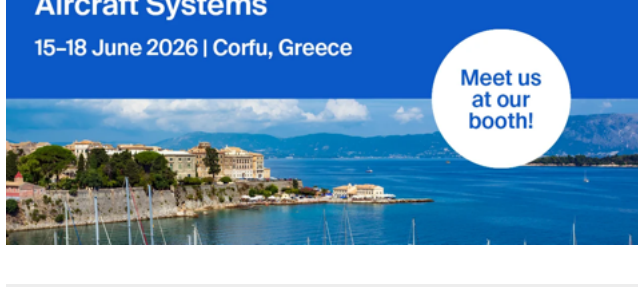
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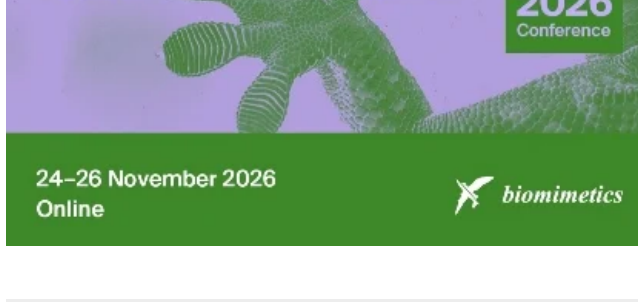
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