MDPI Bioengineering睡眠医学领域文献精选

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睡眠医学与可穿戴健康监测的交叉领域正经历着前所未有的技术变革。从柔性传感器、边缘人工智能到新型矫治器设计，研究者们正在重新定义睡眠相关疾病的诊断、治疗与长期管理方式。本专题汇集了15篇发表于Bioengineering期刊的前沿研究，涵盖睡眠呼吸暂停的诊疗创新、可穿戴与无感监测技术、人工智能辅助诊断，以及心血管风险评估等方向，集中呈现了该领域从生物信号走向临床应用的最新探索。

1. From Biosignals to Bedside: A Review of Real-Time Edge Machine Learning for Wearable Health Monitoring

从生物信号到临床：关于可穿戴健康监测实时边缘机器学习的综述

https://www.mdpi.com/2306-5354/13/5/559

Oloko-Oba, M.; Esenogho, E.; Aruleba, K. From Biosignals to Bedside: A Review of Real-Time Edge Machine Learning for Wearable Health Monitoring. Bioengineering 2026, 13, 559. https://doi.org/10.3390/bioengineering13050559

2.Most Custom Oral Appliances for Obstructive Sleep Apnea Do Not Meet the Definition of Custom

大多数用于阻塞性睡眠呼吸暂停的定制口腔器械不符合定制的定义

https://www.mdpi.com/2306-5354/12/8/798

Liptak, L.A.; Mosca, E.; Sall, E.; Charkhandeh, S.; Kim, S.; Remmers, J.E. Most Custom Oral Appliances for Obstructive Sleep Apnea Do Not Meet the Definition of Custom. Bioengineering 2025, 12, 798. https://doi.org/10.3390/bioengineering12080798

3. Different Oral Appliance Designs Demonstrate Different Rates of Efficacy for the Treatment of Obstructive Sleep Apnea: A Review Article

不同口腔矫治器设计对治疗阻塞性睡眠呼吸暂停的疗效不同：综述文章

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4. Artificial Intelligence Models for the Automation of Standard Diagnostics in Sleep Medicine—A Systematic Review

用于睡眠医学标准诊断自动化的人工智能模型——系统综述

https://www.mdpi.com/2306-5354/11/3/206

Alattar, M.; Govind, A.; Mainali, S. Artificial Intelligence Models for the Automation of Standard Diagnostics in Sleep Medicine—A Systematic Review. Bioengineering 2024, 11, 206. https://doi.org/10.3390/bioengineering11030206

5. Design and Systematic Evaluation of a Multi-Layered Mattress System for Accurate, Unobtrusive Capacitive ECG Monitoring

用于准确、不显眼的电容性心电监测的多层床垫系统的设计和系统评估

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6. A Novel Multi-Modal Flexible Headband System for Sleep Monitoring

一种新型多模态柔性头带睡眠监测系统

https://www.mdpi.com/2306-5354/12/10/1103

Wang, Z.; Ding, Y.; Chen, H.; Chen, C.; Chen, W. A Novel Multi-Modal Flexible Headband System for Sleep Monitoring. Bioengineering 2025, 12, 1103. https://doi.org/10.3390/bioengineering12101103

7. Eliminating the Need for Anesthesia in Sleep Endoscopy: A Comparative Study of Traditional Nasopharyngoscope Design Versus NasoLens

消除睡眠内镜麻醉的需要：传统鼻咽镜设计与鼻透镜的比较研究

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8. AttenCRF-U: Joint Detection of Sleep-Disordered Breathing and Leg Movements in OSA Patients

阻塞性睡眠呼吸障碍患者睡眠呼吸和腿部运动的联合检测

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9. Detection of Sleep Posture via Humidity Fluctuation Analysis in a Sensor-Embedded Pillow

基于湿度波动分析的传感器枕头睡眠姿势检测

https://www.mdpi.com/2306-5354/12/5/480

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10. Event-Level Identification of Sleep Apnea Using FMCW Radar

FMCW雷达在事件级识别睡眠呼吸暂停

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11. An Explainable Fusion of ECG and SpO2-Based Models for Real-Time Sleep Apnea Detection

基于心电图和spo2的实时睡眠呼吸暂停检测模型的可解释融合

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12. An Effective and Interpretable Sleep Stage Classification Approach Using Multi-Domain Electroencephalogram and Electrooculogram Features

一种基于脑电图和眼电特征的有效且可解释的睡眠阶段分类方法

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13. Explainable Artificial Intelligence Models for Predicting Depression Based on Polysomnographic Phenotypes

基于多导睡眠图表型预测抑郁症的可解释人工智能模型

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14. Outlier Handling Strategy of Ensembled-Based Sequential Convolutional Neural Networks for Sleep Stage Classification

基于集成的序列卷积神经网络睡眠阶段分类异常点处理策略

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15. Remote Monitoring of Sympathovagal Imbalance During Sleep and Its Implications in Cardiovascular Risk Assessment: A Systematic Review

睡眠时交感迷走神经失衡的远程监测及其在心血管风险评估中的意义：一项系统综述

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Bioengineering期刊介绍

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