Special Issue

Privacy-Preserving Deep Learning Techniques for Audio Data: Challenges and Advances

Message from the Guest Editors

Dear Colleagues, The rapid growth of deep learning in audio processing—spanning speech recognition, speaker verification, emotion detection, and biometric authentication—offers vast potential but also raises critical privacy and ethical concerns. Audio data often carry sensitive personal information, necessitating secure, privacy-preserving AI solutions. This Special Issue invites contributions on privacy-preserving deep learning for audio, focusing on balancing advanced AI capabilities with user data protection. Topics include federated learning, differential privacy, secure computation, adversarial defense, explainable AI, and compliance with regulations like GDPR. We welcome original research and reviews addressing privacy risks, real-world applications, and frameworks that enhance trust in AI-powered audio systems. Our goal is to showcase cutting-edge methods and promote dialogue on building secure, ethical, and high-performing audio AI technologies.

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