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Decentralized Attribution of Generative Models

-Background Growing applications of generative models have led to new threats such as malicious personation and digital copyright infringement. One solution to these threats is model attribution, i.e., the identification of user-end models where the contents under question are generated from. Existing studies showed empirical feasibility of attribution through a centralized classifier trained on all user-end models. However, this approach is not scalable in reality as the number of models continues to grow. Invention Description Researchers at Arizona State University have developed a decentralized attribution scheme that uses a set of binary linear classifiers associated with each user-end model. Each classifier is parameterized by a user-specific key and distinguishes its associated model distribution from the authentic data distribution. For correct attribution, one-hot classification outcomes are expected for generated content, and a zero vector for authentic data. To achieve correct attribution, sufficient conditions of the user-specific keys are determined which guarantee an attributability lower bound. The resultant conditions are used to algorithmically compute the keys, which are data-compliant and orthogonal. Potential Applications • Combating malicious personation and deepfakes • Tracing of machine-generated content back to its source model • Detection of copyright infringement • Computer forensics Related Publication: Decentralized Attribution of Generative ModelsFaculty Homepage of Professor YZ YangFaculty Homepage of Professor Max Yi Ren