Title (en)

METHOD AND APPARATUS FOR UTILITY-AWARE PRIVACY PRESERVING MAPPING THROUGH ADDITIVE NOISE

Title (de)

VERFAHREN UND VORRICHTUNG FÜR NUTZENBEWUSSTES DATENSCHUTZBEWAHRENDES MAPPING DURCH ADDITIVES RAUSCHEN

Title (fr)

PROCÉDÉ ET APPAREIL DE MAPPAGE DE PROTECTION DE LA VIE PRIVÉE SENSIBLE À L'UTILITÉ PAR L'INTERMÉDIAIRE D'UN BRUIT SUPPLÉMENTAIRE

Publication

EP 3036679 A1 20160629 (EN)

Application

EP 13812234 A 20131121

Priority

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Abstract (en)

[origin: WO2015026386A1] The present embodiments focus on the privacy-utility tradeoff encountered by a user who wishes to release some public data (denoted by X) to an analyst, that is correlated with his private data (denoted by S), in the hope of getting some utility. When noise is added as a privacy preserving mechanism, that is, Y=X+N, where Y is the actual released data to the analyst and N is noise, we show that adding Gaussian noise is optimal under l_2-norm distortion for continuous data X. We denote the mechanism of adding Gaussian noise that minimizes the worst-case information leakage by Gaussian mechanism. The parameters for Gaussian mechanism are determined based on the eigenvectors and eigenvalues of the covariance of X. We also develop a probabilistic privacy preserving mapping mechanism for discrete data X, wherein the random discrete noise follows a maximum-entropy distribution.

IPC 8 full level

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See references of WO 2015026386A1

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