

Applications of Probabilistic Interpolation via Orthogonal Matrices

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Abstract : Mathematics and computer science are interested in methods of 2D curve interpolation and extrapolation using the set of key points (knots). A proposed method of Hurwitz- Radon Matrices (MHR) is such a method. This novel method is based on the family of Hurwitz-Radon (HR) matrices which possess columns composed of orthogonal vectors. Two-dimensional curve is interpolated via different functions as probability distribution functions: polynomial, sinus, cosine, tangent, cotangent, logarithm, exponent, arcsin, arccos, arctan, arcctg or power function, also inverse functions. It is shown how to build the orthogonal matrix operator and how to use it in a process of curve reconstruction.

Keywords : 2D data interpolation, hurwitz-radon matrices, MHR method, probabilistic modeling, curve extrapolation

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