# From Ink to Algorithms: AI-Powered Processing and Cryptanalysis of Historical Ciphers⋆

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### Abstract

In this talk, we will delve into the history of ciphers and techniques of cryptanalysis with a specific focus on the territory of present-day Slovakia. Our historical analysis starts with the early modern period, focusing on the role of the Vienna Cipher Office within the Austro-Hungarian Empire. Through the study of authentic, encrypted correspondence — specifically between the Esterházy family and the Viennese court — we will demonstrate contemporary research tasks, methodological challenges, and the practical application of artificial intelligence for the processing and decipherment of historical ciphers. Subsequently, we will trace the evolution of ciphers and methods of cryptanalysis within the former Czechoslovakia up to the end of World War II. We will demonstrate the application of metaheuristic algorithms for the general decipherment of these historical ciphers.

## Acknowledgments

## Declaration on Generative AI

The author has not employed any Generative AI tools.

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