USER INTERACTIVE AND SMART ADAPTIVE AUTHENTIFICATION FOR WEB-BASED APPLICATIONS

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Degree of Master of Science

Department of Computer Science and Engineering

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The abstract

Authentication is a way to verify identification of users. Authentication plays a crucial part in safeguarding the data. Currently, nearly any form of data is saved on the Internet, which makes security concerns of the private data extremely vital. Initially, single factor authentication was employed to safeguard data and identify identity. Because of the rising security vulnerabilities in single factor authentication, two/multi factor authentication was created. The multi-factor authentication has an unfavorable influence on user experience. The additional authentication layer impacts the user friendliness/user experience of a given application, and the user must spend more time in the extra authentication step to confirm the identity. Adaptive authentication was built to overcome this problem. daptive Authentication determines the optimal authentication method for a user dependent on context parameters such as behavioral traits, location, network, and certain other user features. This technology has the capacity of modifying the standard authentication (i.e. username/password) technique and directing it in a more secure and user-friendly direction. Existing work will be analyzed in this research, and a better adaptive authentication mechanism will be created and deployed. Adaptable Auth is a novel adaptive authentication design. This research offers a revolutionary adaptive authentication technique which seeks to erase the bad user experience of the existing multi factor authentication systems. Adaptive authentication accumulates information about each user and prevents fraudulent attempts by checking them against the generated profiles. This technique will boost the usability, user-friendliness by adding multi-factor authentication only when its essential utilizing a risk based adaptive approach. Furthermore, the solution maintains security by authenticating the genuine user via jointly assessing the attributes, behavior, device and network relevant information. Separate machine learning models will be deployed to identify the user based on user behavior and circumstance. This research presents a novel technique to enhancing the overall performance of the authentication process. The authentication mechanisms will be selected depending on the user's risk profile. This enhances the authentication process's user experience.

***Key words*:** Adaptive authentication, Machine learning Mouse and keystroke dynamics

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Abbreviation	Description
KNN	K-Nearest Neighbor
SVM	Support Vector Machine