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Notice for the PhD Viva Voce Examination

Ms Pramila (Registration Number: 2090247), PhD scholar at the School of Engineering and Technology, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Saturday, 01 June 2024 at 11.30 am in the Smart Room (Room No. 2109), Management Block, CHRIST (Deemed to be University), Pune- 412112.

Title of the Thesis	:	**Design and Development of Adaptive Authentication Model to Detect User Behavior Anomalies**
Discipline	:	**Computer Science and Engineering**
External Examiner (Outside Maharashtra)	:	**Dr Nilanjan Dey** Associate Professor Department of Computer Science and Engineering Techno India College of Technology Newtown, Chakpachuria - 700156 West Bengal
External Examiner (Within Maharashtra)	:	**Dr Premanand Pralhad Ghadekar** Professor Department of Information Technology Vishwakarma Institute of Technology Upper Inderanagar Bibwewadi, Pune - 411037 Maharashtra
Supervisor	:	**Dr Samiksha Shukla** Associate Professor (Former) Department of Computer Science and Engineering School of Engineering and Technology CHRIST (Deemed to be University) Bangalore Kengeri Campus Bengaluru – 560074 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Registrar

Place: Bengaluru
Date: 29 May 2024

ABSTRACT

The password-based authentication system has recently become more secure as the risk- based authentication system (RBA) is indentured. Recent research in the area has shown the significant use of 2 Factor Authentication (2FA) and Multi-Factor Authentication (MFA) in many commercial applications using Risk Based Authentication (RBA). The RBA system monitors the parameters extracted during the user login process, and based on the proposed model, the system raises a multi-factor authentication to the user. As the vulnerability has increased concerning passwords, fingerprints' easy access to any web application may result in a security flow; the reason can be the existing methodology of the RBA system and also the unavailability of the data of the users during the initial login process, which hinders the authentication system during the initial login process as there is no standard method to incorporate RBA in the authentication system.

Few researchers have proposed novel approaches to improve the authentication system. Still, to the best of our knowledge, no research has suggested methods to address the authentication system during the initial login process and also provide a robust way, a combination of ML and statistical approaches. Hence, a novel method is proposed for the RBA system during the initial login phase using a Hierarchical Sub-Feature Based Model -(HSFBM) for different user categories. The FAR is comparatively better in our proposed model against the standard model, with minimal re-authentication requests for the user.

Keywords: Risk-Based Authentication, Adaptive Authentication, Context- based Features, Machine Learning, Multi-Server Environment

Publications:

1. **Pramila, R. M., Misbahuddin, M., & Shukla, S. (2022).** A Survey on Adaptive Authentication Using Machine Learning Techniques. In Data Science and Security: Proceedings of IDSCS 2022 (pp. 317-335). Singapore: Springer Nature Singapore. https://link.springer.com/chapter/10.1007/978-981-19-2211-4_28
2. **Pramila, R. M., & Shukla, S. (2023, September).** An Architecture for Risk-Based Authentication System in a Multi-Server Environment. In 2023 IEEE International Conference on Public Key Infrastructure and its Applications (PKIA) (pp. 1-5). IEEE. https://ieeexplore.ieee.org/abstract/document/10262513
3. **Pramila, R. M., & Shukla, S.** "Risk-Based Authentication System using Hierarchical Sub-Feature Based Model -(HSFBM)". In the 7th GCMT Global Conference on Computing and Media Technology (GCMT-2023). https://gcmt.apu.edu.my/