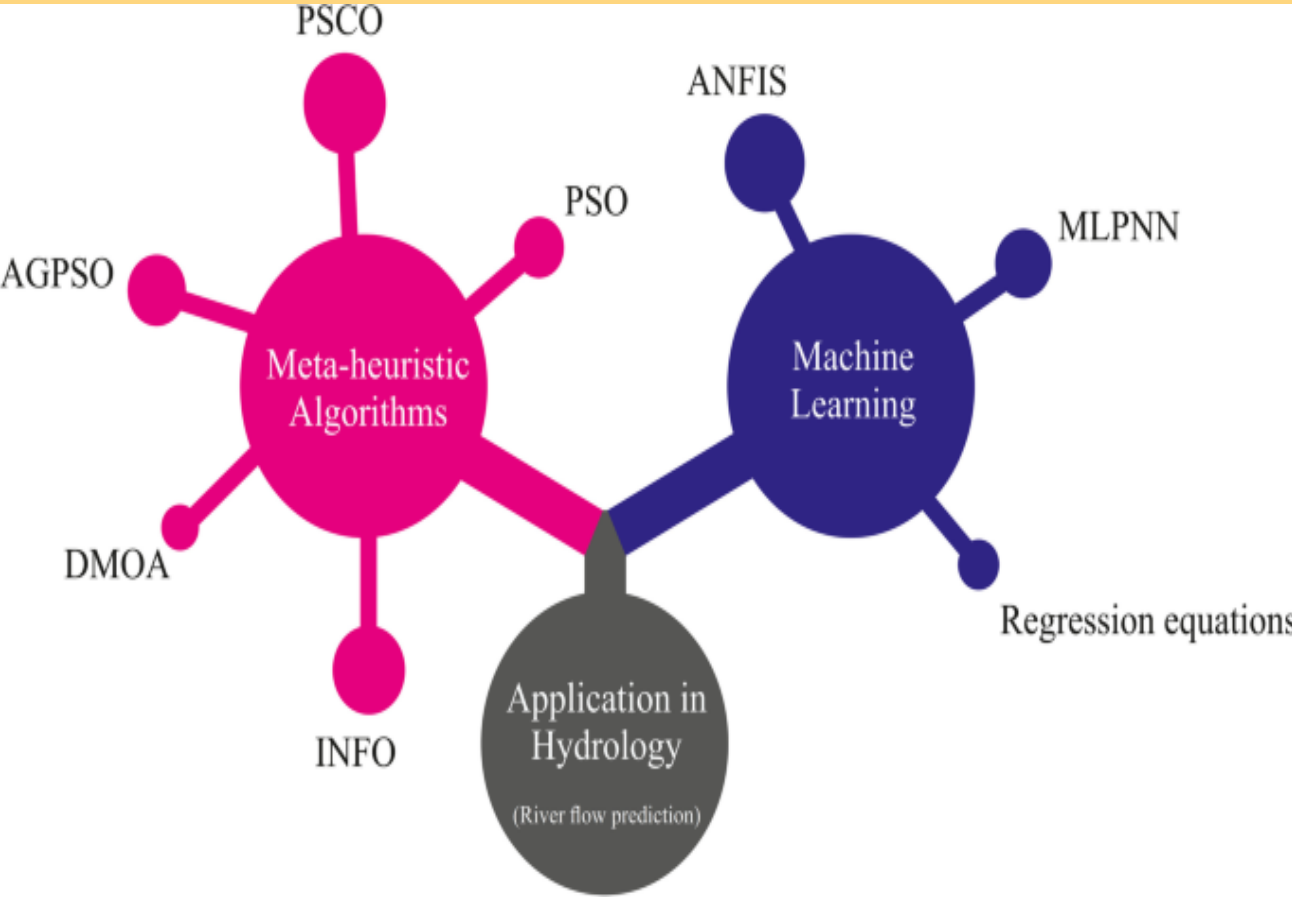


# Efficient Security Resource Allocation for Mobile Computing using Particle Swarm Optimization Technique compared over Bee Colony Optimization Technique with Improved Accuracy

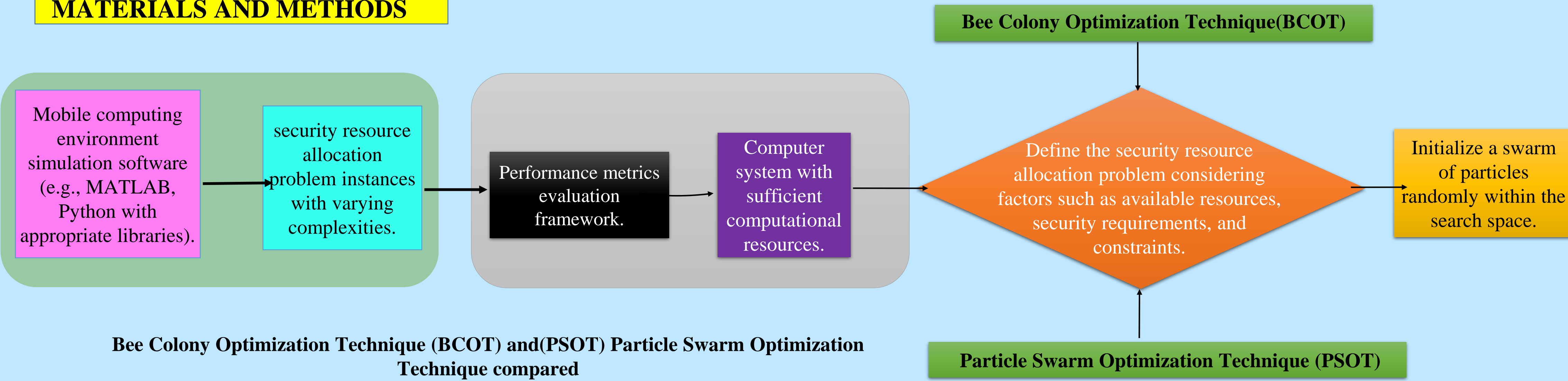
## INTRODUCTION

- Aim of study is to allocate resources effectively in Cloud computing which is a potential platform transforming the health sector by allowing clinicians to monitor patients in real-time using sensor technologies.
- Cloud computing offers distributed database, networking, storage, data analysis, and Internet of Things (IoT) services to various stakeholders, enabling them to be more flexible, the associate editor coordinating the review of this manuscript and approving it for publication was Nitin Gupta.
- Faster and financially benefiting from cheap operating, main tenancy, and service costs The cloud distributes storage and processing among servers and edge devices that provide self-services, enabling end users and stakeholders to receive ubiquitous and timely responses The cloud infrastructure is divided into three categories.
- Private, public, and hybrid services, depending on the service being provided and the requirements of the customers The remote cloud configuration is for an organization host in data within its own data centre, where the organization is responsible for managing all cloud resources owned.
- Since that infrastructure owns its private resources with limited organization-owned transactions, it provides enhanced security compared to public and hybrid cloud infrastructures. Albeit using a private cloud solution offers organization.
- Term Security and control over their servers, it does necessitate a considerably higher level of IT experience than utilizing a public cloud. The public cloud setup is available to all externally registered companies over the internet, with the option to use the resources on a pay-per-use basis.



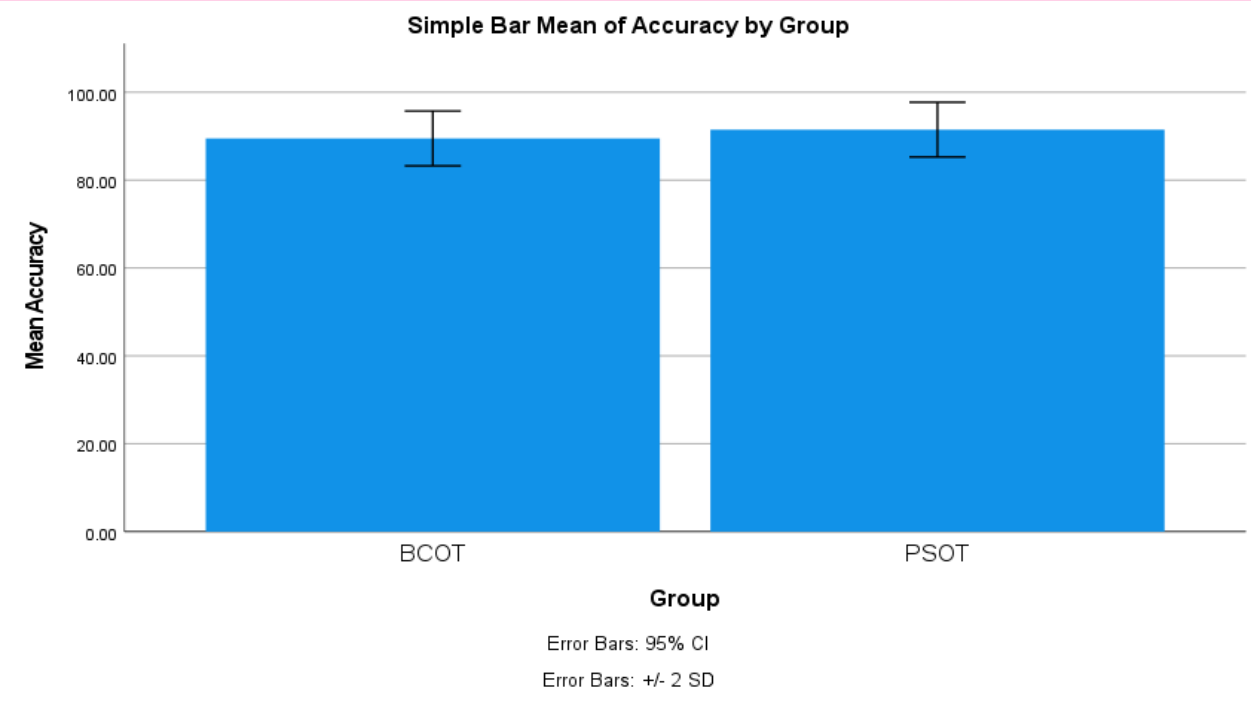
Security Resource Allocation for Mobile

## MATERIALS AND METHODS



Bee Colony Optimization Technique (BCOT) and(PSOT) Particle Swarm Optimization Technique compared

## RESULTS



SPSS Comparison of BCOT vs PSOT

- The graph illustrates the comparison of BCOT and PSOT Algorithm.
- The results of the Independent Sample T test showed a significance value of 0.052 ( $p<0.05$ ), underscoring the statistical significance of the performance difference between Novel Bee Colony Optimization Technique (BCOT) and(PSOT) Particle Swarm Optimization Technique compared.

Names	Group	N	Mean	Std. Deviation	Std. Error Mean
Accuracy	PSOT	20	91.5000	3.12039	.69774
	BCOT	20	89.5000	3.12039	.69774

SPSS Comparison of BCOT vs PSOT

Sample	Accuracy of BCOTalgorithm	Accuracy of PSOTalgorithm
1	84.5%	87.3%
2	83.7%	88.1%
3	82.9%	86.5%
4	85.2%	89.6%
Mean	89.5000	91.5000

Accuracy of BCOT and PSOT algorithm

## DISCUSSION AND CONCLUSION

- The discussion on efficient security resource allocation for mobile computing using Particle Swarm Optimization (PSO) compared to Bee Colony Optimization (BCO) techniques with improved accuracy involves a comprehensive review of literature, methodologies, and experimental results.
- Both PSO and BCO are nature-inspired optimization algorithms commonly applied in resource allocation problems. PSO mimics the social behaviour of bird flocking or fish schooling, while BCO models the foraging behaviour of honeybees.
- The analysis should cover the evolution and advancements of both techniques, starting from their introduction to the latest enhancements and optimizations, spanning from their inception to 2024. This involves examining the foundational studies, algorithm refinements, and practical applications in mobile computing security Algorithmic efficiency: Evaluate the computational complexity, convergence speed, and scalability of PSO and BCO in mobile computing environments.
- Cloud computing has the potential to facilitate the health care system by providing clinicians and other healthcare professionals with ubiquitous access to patient monitoring and other medical classified records for decision-making. Nonetheless, Security is one of the main obstacles that must be conquered to convince healthcare systems to adopt the cloud-based paradigm. In this study, we explored the data sanitization and restoration processes to generate the keys.
- A thorough statistical analysis was conducted to compare the efficiency of security resource allocation for mobile computing using the Particle Swarm Optimization (PSO) technique against the Bee Colony Optimization (BCO) technique, both enhanced for improved accuracy. Metrics such as execution time, resource utilization, and security.

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