Dr. Umesh Kumar

I am a doctorate researcher with experience in android, wireless security and authentication domain. Published research papers with IEEE and Springer. Exploring a research career and seeking to use my experience in the domain of Wireless Security, Research Scientist, Software Engineer.

https://scholar.google.co.in/citations?user=EhhxHUoAAAAJ&hl=en

Work experience

08/2010 - 04/2012 CHENNAI, INDIA

Assistant System Engineer
Tata Consultancy Services

I worked as Android Application Developer. I worked for Citi Bank Android Application and various restaurant applications.

- Developed and implemented new system/ application for Android.
- Coordinated with other teams to ensure system was integrated successfully.
- Conducted tests to ensure system was functioning properly.
- troubleshot application issues and resolved them in a timely manner.

04/2012 - PRESENT FARIDABAD, INDIA

Research Scholar/Assistant Professor
JC Bose University of Science and Technology YMCA

I have worked as a PhD research scholar here. Currently, I am working as an Assistant Professor for B.Tech and M.Tech students. I am also guiding M.Tech and PhD students for thesis/research papers writing.

- Developed a device fingerprint mechanism to authenticate a mobile device.
- Developed a mobile agent based framework for wireless authentication.
- Conducted a study for optimization of MapReduce framework for Bigdata processing using mobile agent.
- Analyzed and compared the mobile agent based approach and traditional client server based approach.
- Wrote research papers with reputed publishers like Springer and IEEE.

Education

03/2013 - 07/2020 FARIDABAD, INDIA

Wireless Security | PhD
JC Bose University of Science and Technology YMCA, Faridabad, Haryana, India

My PhD research was focused on Wireless Security domain. I have worked on:

- key distribution through fingerprint based authentication using mobile agent.
- mobile agent based framework for wireless authentication.
- device fingerprint based authentication.
- mobile agent based MapReduce framework for bigdata processing.

08/2008 - 08/2010 FARIDABD, INDIA

Computer Engineering | Master of Technology
JC Bose University of Science and Technology YMCA, Faridabad, Haryana, India

It Covered wide range of subtopics which includes a complete study of the software as well as hardware of the computer. It also includes 6 months of dissertation period.

07/2004 - 07/2007 SONEPAT, INDIA

Computer Engineering | Bachelor of Engineering
Deenbandhu Chhotu Ram University of Science and Technology, Murthal

It covered wide range of computer subjects like C, Data Structure, C++, DBMS, AI. This also included minor project.

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Skills

- CODING

C
C++
Java
Android
Java Script
SQL
XML

- RESEARCH

Research paper Writing

Publications

04/2018

Device Fingerprint and Mobile Agent based Authentication Technique in Wireless Networks

SERSC Australia/International Journal of Future Generation Communication and Networking

http://dx.doi.org/10.14257/ijfgcn.2018.11.3.04

Mobile agent technology is continuously evolving and generating lot of attention among researchers. This paper proposes a new authentication algorithm by using mobile agent technology. The proposed algorithm uses device signature based mechanism for authentication of the device on mobile agent based framework. Device features have been extracted for some specific values and from these features the device fingerprint is generated for the authentication. Research paper describes the device fingerprint extraction, registration and authentication algorithm. As the traffic on the internet is growing at a rapid rate, there is also the need of a technique to reduce the traffic on the internet. Comparison analysis of the proposed algorithm and comparison with the traditional client server based mechanism is done in terms of network traffic. The proposed algorithm reduces the traffic around the authenticator to a great extent as compared to the client server based mechanism. It can also be useful against various attacks in wireless networks, like man in the middle or fake access point etc.

02/2020

KDFBA: key distribution through fingerprint based authentication using Mobile agent

Springer/ Multimedia Tools and Applications

https://doi.org/10.1007/s11042-020-08614-1

As mobile networks and use of mobile devices are increasing at a rapid rate, need of securing both the device information and the network increasing

Publications

evermore. Authentication of the user is another important challenge as this need to be done remotely. Bio-cryptography is one of the robust solution, which uses existing cryptography techniques with user biometric information for encryption and authentication. Encryption process also involves key generation and distribution. Key Distribution Center (KDC) is the most common mode of key generation and key distribution. KDC is always been the most profitable and worthy target for the adversaries. When KDC is compromised the strongest security protocols, encryption protocols, firewalls etc. will be of no use and will backfire. This paper explains some of the currently existing approaches of key exchange and problems in existing approaches are identified. A new biometric based key exchange protocol (KDFBA) is proposed which makes use of the mobile agent for key exchange and biometric information for authentication. Proposed protocol is simulated on NS2 platform and is also compared with the existing approaches. Protocol is tested against some parameters like traffic generated, timing analysis and prevention against attacks like black hole attack. The simulation results prove that the proposed key exchange protocol reduces the traffic on the network considerably and also prevents attacks like black hole.

10/2017

Mobile Agent Based MapReduce Framework for Big Data Processing

Springer/Book Chapter

https://doi.org/10.1007/978-981-10-6620-7_37

This Paper gives the information regarding Big Data, MapReduce Framework, and Stragglers in MapReduce Network, their current situation, their impact, and scope in today's reality. Paper proceeds with information about MapReduce strategy for Big Data handling and the vicinity of stragglers in MapReduce Network. Further, the significance of mitigating straggler is talked about, alongside their effects. This paper also introduces the mobile agent technology for processing Big Data utilizing MapReduce system and its implementation results.

01/2018

MABFWA: Mobile Agent Based Framework for Wireless Authentication

IEEE

https://doi.org/10.1109/CONFLUENCE.2018.8442614

Authentication is the most important aspect of security in the wireless communication. Extensible Authentication Protocol (EAP) provides the framework for wireless authentication over which various other protocols like EAP TLS, EAP TTLS, EAP MD5 etc. can be executed. These all protocols run on client server mechanism. These mechanisms can

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have some problems in highly distributed systems. So a new mechanism which can support all these protocols in a distributed environment is needed. This paper provides the introduction about authentication, literature about authentication, problems associated with the current approaches and proposed new mobile agent based framework for wireless authentication over which protocols like MD5, TLS etc. can be executed.

Achievements

Qualified UGC NET and GATE.
Worked for various administrative responsibilities at University level.
Got the research publication award for publication in SCIe Journal.

Hobbies

Exploring distant lands

Getting lost in a good book

Capturing moments

Feeling the music

Strengths

Networking # Adaptable # Responsible

Social Media

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/UmeshKumar

References

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Dr. Ashutosh Dixit
JC Bose University of Science and Technology YMCA, Faridabad, Haryana, India
He is Professor in Computer Engineering Department. He is also serving as Dean Academics.

9810340200, SAPNAGAMBHIR@GMAIL.COM

Dr. Sapna Gambhir
JC Bose University of Science and Technology YMCA, Faridabad, Haryana, India
She is Associate Professor in Computer Engineering Department. She was also my PhD Guide.