Praveensankar Manimaran

PhD Research Fellow

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Bio

Praveensankar Manimaran is a PhD Research Fellow at the University of Oslo, Norway working on Verifiable Credentials (VCs) and Blockchain Technologies.

Praveen is passionate about Web3 and strongly believes in the need for decentralization on the Internet. Praveen believes that technologies such as Verifiable Credentials and Blockchain will be a cornerstone in the future of Web3.

Education

Ph.D. - Informatics, University of Oslo

- Research in Verifiable Credentials and Blockchain Technologies
- Designed research projects, identified important problems including privacy issues in VCs revocation, developed novel solutions, implemented prototypes to showcase the feasibility and published the research findings.
- Worked as a Teaching Assistant for the following courses: IN5020-Distributed Systems (2022, 2023), IN5420-Distributed Blockchain Technologies (2022, 2023)
- Installed and maintained Norway's EBSI pilot node
- Supervisors: Roman Vitenberg, Leander Jehl
- Collaborators: Thiago Garrett, Mayank Raikwar, Arlindo F. Conceição

M.Tech. - Computer Science and Engineering,

National Institute of Technology Puducherry

• CGPA: 9.82, Gold Medalist

B.E. - Computer Science and Engineering, PSG College of Technology

2018 Jul – 2020 Jun Karaikal, India

2020 Oct - 2024 Oct

Oslo, Norway

2012 Jul - 2016 May

Publications

Prevoke: Privacy-Preserving Configurable Method for Revoking Verifiable

Credentials, 2024 IEEE International Conference on Blockchain (Blockchain).

- Prevoke keeps track of the revocation status of VCs using a Bloom Filter, and a Merkle Tree Accumulator (MTAcc). These data structures are stored in a DLT using a Smart Contract and updated during revocation of VCs.
- Prevoke proposes a novel two-phase verification technique which enables efficient and fast verification of almost all valid VCs. Only revoked VCs and handful of valid VCs go through expensive verification.

2024 Oct

praveema@ifi.uio.no 1/2

Identity Management Systems, ACM Computing Surveys (Under Review)

- Provides a generic model to analyse the architecture of IMSs
- Using the generic model, analyze a) IOTA Id, b) Indy, and c) eIDAS.
- Discusses the differences between these IMSs using a novel taxonomy

Addressing traceability of revocation status of Verifiable Credentials,

(Work in Progress)

• Utilises Zero-Knowlege Proofs to address traceability problem

Projects

Prevoke, Proof of Concept implementation □

- **Components**: 1) Issuer, 2) Holder, 3) Verifier, 4) Smart Contract, 5) Golang and Smart Contract interactions, and 6) mock VC data model based on W3C Specifications.
- Workflows: 1) issuance, 2) revocation, 3) VP construction and sharing, and 4) VP verification
- Languages: Golang, Solidity

Professional Experience

Software Engineer, Accolite Software India Pvt Ltd ☑

2016 Jul - 2017 Mar

• Worked on web development using technologies associated with .NET frameworks and angularjs.

Skills			
Verifiable Credentials	● ● ● ● Blocke	chain • •	•••
Research	• • • • • Golan	ıg • •	• • •
Privacy	• • • • •		

References

Dr. Roman Vitenberg, *Professor*, University of Oslo, Norway romanvi@ifi.uio.no

Dr. Leander Nikolaus Jehl, Associate Professor, University of Stavanger, Norway leander.jehl@uis.no

Dr. Thiago Garrett, Postdoctoral Fellow, University of Oslo, Norway thiagoga@ifi.uio.no

Dr. Mayank Raikwar, Postdoctoral Fellow, University of Oslo, Norway mayankr@ifi.uio.no

praveema@ifi.uio.no 2 / 2