# CURRICULUM VITAE OF OVIA SESHADRI

Research Engineer, CoinDCX, Based in Chennai, India
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## EDUCATION

**Doctorate of Philosophy (PhD) in Computer Science** *July 2015 - May 2023*
*Indian Institute of Technology Delhi(IITD), New Delhi, India* CGPA: 8.25/10
Advised by Dr Vinay Ribeiro (IITB) and Dr Subodh Sharma (IITD)
Department of Computer Science and Engineering

**Thesis Summary -** *Securely Improving Performance in PoW Blockchains using Links and Anchors:* We reduce the trade-off between security and performance in PoW blockchains through our novel concepts of *Links* and *Anchors*. They are small, fast and frequent structures that can be incorporated on any new or existing PoW blockchains. They help reduce the confirmation time of their underlying blockchain while preserving its consistency security guarantees.

**M.S. Software Engineering** (5 year B.Tech. + M.S. Integrated course) *July 2008 - May 2013*
*VIT University, Vellore, India* CGPA: 9.16/10†
† Graduated in top 5% in a batch of 300+

## WORK EXPERIENCE

**CoinDCX, Bangalore + Remote, India** October 2022 - present
*Research Engineer*

- Diverse responsibilities ranging from Technical Explorations, Building Proof of Concepts, New Protocol Integration, Developer Support, Product research, BD, Community Relations and Product Marketing.
- Integrated MPC threshold signing algorithm for a new DeFi platform called OKTO
- Built a Web3 curriculum for the training of all engineers on blockchain and Web3.
- In charge of the technical documentation with respect to Okto. Wrote the whitepaper and litepaper for Okto.

**Aris Global Software Pvt. Ltd., Bangalore, India** July 2013 - June 2015
*Principal Software Engineer*

- Promoted to Principal Software Engineer from Senior Software Engineer from Dec 2014 based on performance in the project.
- Worked on Project "agHub" which is a DWH solution for safety systems. It is a data mart which efficiently stores safety data for reporting purposes.
- Was designated the role of data modeler and developed a dimensional model of the DWH. Involved in the development of ETL jobs to trafer data from RDBMS to DWH. Involved in lending support to reporting teams working on BO and COGNOS.
- Involved with customers on discussions related to requirement analysis and issue resolution. Provided support to the testing and QC team in understanding the project setup and project overview.

## NON-PROFIT INITIATIVES

- Director of **The Phoenix Guild Chennai Chapter**- a non-profit that aims to onboard the next billion diverse builders on Web3. Since Feb 2023, I have built a community of 700+ enthusiats in Tamil Nadu, India. Since July 2022, under this banner, I have delivered countless technical talks, and workshops, been invited to panels, and organized events in Web3.

URL- https://twitter.com/TPG_Chennai

## RESEARCH INTERESTS

Blockchain, Web3, Cryptography, ZK, Consensus

## RESEARCH PUBLICATIONS

- "Securely Improving Stability and Performance of PoW Blockchains using Anchors", **Ovia Seshadri**, Vinay J, Ribeiro and Shadab Zafar, COMSNETS 2022.
  *URL- https://ieeexplore.ieee.org/abstract/document/9668572*
- "Extended Analysis on Anchors", **Ovia Seshadri**, Vinay J, Ribeiro and Shadab Zafar, arxiv 2022.
  *URL- https://arxiv.org/submit/4366244/view*
- "Securely Boosting Chain Growth and Confirmation Speed in PoW Blockchains", **Ovia Seshadri**, Vinay J, Ribeiro and Aditya Kumar, IEEE Blockchain 2021.
  *URL - https://ieeexplore.ieee.org/abstract/document/9680576*

## PATENTS

- "Method in blockchain systems for fast stabilization and increased responsiveness using Anchors", Vinay J. Ribeiro and Ovia Seshadri,
  Patent submitted in India (2019) (Application Number - 201911004921)
  Patent submitted in USA (2021) (US20220108313A1; US17/428,304)
  International PCT (2019) - WO2020161530A1
  *URL - https://patents.google.com/patent/US20220108313A1*
- "Method in blockchain systems for fast stabilization and increased responsiveness using Links", Vinay J. Ribeiro and Ovia Seshadri,
  Patent submitted in India (2020) (Application Number - 201911023814)
  International PCT (2020) - WO2020254923A1
  *URL - https://patents.google.com/patent/WO2020254923A1*

## SELECTED TALKS AND WORKSHOPS

- Invited to conduct technical sessions for Women Who Code Blockchain including seminars on Filecoin virtual machine, ZK Proofs - ZKSNARKS. I also conducted a 5-week hands-on Solidity boot camp for Women Who code Blockchain in June - July 2023. URL - Solidity Bootcamp, FVM Seminar, ZKSNARKS
- Invited by Hyperledger Foundation to be part of the speaker portfolio consisting of globally renowned women speakers and to deliver a technical talk for their Hyperledger India Women in Web3 conference in June 2023. URL - Hyperledger Women in Blockchain
- Invited to present a lecture for the speaker sessions of Unit Masters. Gave a talk titled "Arriving at a Consensus in a global distributed world" in December 2022. URL - Unit Masters Speaker Session
- Invited to present a talk "Securely improving the performance of PoW blockchains using anchors" at Workshop on Blockchains and Networking at ACM Sigmetrics 2022 in Mumbai in June 2022.
- Invited to present a talk "Mechanisms for improved security and performance of PoW Blockchains" at the National Research Evaluation Workshop of the Vishvesvaraya PhD scheme for electronics and IT by the Ministry of Electronics and Information Technology (MeitY), Government of India in Chandigarh in July 2019.

- Invited to present a talk on "Near real-time consensus using Hashgraph in IoT systems" at the 5th International Workshop on Cyber security in Kyushu University, Fukuoka, Japan in July 2017.

## INTERNSHIPS

- IBM IRL, Bangalore from July to October 2017, on project titled "Blockchain like Relational Database" under Dr Praveen Jayachandran. Details in Research project section.
- Aris global Pvt. Ltd., Bangalore from January to June 2013 on Project titled "AgCarbon - A platform of highly scalable and reusable components for Life Sciences Industry" under the guidance of Anish Anand.

## RECENT CONFERENCES AND WORKSHOPS

- Recognised as a scholar by the Ethereum Foundation and invited as a fully sponsored researcher to attend DevConnect Istanbul 2023.
- Invited to attend Starknet Sessions as a fully sponsored scholar at Tel Aviv, Israel in February 2023.
- Invited to chair the session on Blockchain and Privacy at Comsnets 2023 in January 2023 in Banglaore.
- Attended Deciper 2022 as a fully sponsored finalist for Algorand Pitch and scale competition in November 2022 in Dubai, UAE.
- Invited to attend IPFS camp by Protocol Labs as a fully sponsored scholar in Lisbon, Portugal in October 2022.
- Selected as fully Sponsored H.E.R . DAO scholar to participate in Algorand Greenhouse Developer Hackathon in Bali, Indonesia and Singapore in September 2022.
- Conducted the blockchain workshop as part of training for The Central Reserve Police Force (CRPF) on "Network Security and Cryptography" at IIT Delhi in April 2021.

## HACKATHON PROJECTS

- **Bet on Balls - Submitted at EthIndia 2023**
  *Won top ten finalist position among 478 submissions*
  ***Bounties**-Scroll*
  Bet on Balls is an on-chain sports betting marketplace. Specifically tailored for the vast cricket fanbase in India, Bet on Balls taps into the passion and fervour surrounding the sport. With traditional betting platforms often facing challenges related to trust and transparency, a Ben on Balls mitigates these concerns by recording bets on a secure and immutable blockchain. We use Oracle to fetch real-world data onchain. URL : Submitted Project EthGlobal Link

- **StarkForge - Submitted at EthIstanbul 2023**
  ***Bounties**- Arbitrum*
  A lending protocol on Starknet, seamlessly uniting Layer 1 and Layer 2 blockchain networks. Swift deposits, cross-border lending, collateralized loans
  URL : Submitted Project

- **DevMate - Submitted at EthOnline 2023**
  ***Bounties**- Scroll, Selected for top 50 project*
  DevMate revolutionizes the hackathon experience, providing a dynamic platform for hackers to

forge powerful collaborations. Upon joining, hackers craft detailed profiles, outlining their skills, interests, and aspirations. DevMate pairs them with like-minded individuals, forming formidable teams poised for success.
URL : Submitted Project

- **xNFT Launchpad - Submitted at EthOnline 2022**
  ***Bounties***- *Connext*
  This project is aimed at solving the problem of interoperability when it comes to NFTs. On a single click, you can deploy your NFTs into multiple chains of your choice.
  URL : Submitted Project

- **ZKYC - Prove legitimacy in secrecy - Submitted at Unfold 2022**
  ***Bounties****-NEAR, Solana, Covalent and Push*
  This project was submitted in Unfold2022- Build for Web3 Hackathon by CoinDCX in August 2022 at Bangalore. We provide an age verification Dapp for KYCs using zero-knowledge proofs. Verified proofs get a minted NFT. We deployed on Polygon, Solana. Used Filecoin/IPFS and Arcana for document storage. EPNS for notifications, Covalent for chain retreival.
  URL : https://devfolio.co/projects/zkyc-c6e5, GitHub repo

## HONORS AND AWARDS

- EthGlobal's EthIndia 2023 top ten Finalist from among 478 projects - Submitted Project
- Ethereum Foundation Devconnect 2023 Scholarship recipient.
- A Visvesvaraya PhD fellow from July 2015 to July 2020.
- Sponsored Student of the Indo-Japanese research collaboration by the Indian and Japanese governments.
- Qualified UGC-NET National level Exam for Computer Science and Applications in June 2015.
- Qualified All India Graduate Aptitude Test Engineering(GATE) for Computer Science and Information Technology conducted by MHRD in March 2013 and in March 2015.

## PEER REVIEWS

- Reviewer for Transactions on Management Information Systems(TMIS) and Conference on COMmunication Systems & NETworkS (COMSNETS) and International Conference on Distributed computing and Networking(ICDCN)

## RESEARCH PROJECTS

- **Anchors for stability, Security and performance of PoW Blockchains**
  Proof-of-work (PoW) consensus generates blocks at random time instants, and consequently, adds weight to the blockchain at these same instants. This unsteady increase in chain weight over time is the root cause of many security and performance problems in the form of forks. This work tries to prevent forks and reduce chances of selfish mining and double spend attacks in existing blockchain systems. This work has Indian and USA patents and an International PCT filing. It is published in COMSNETS 2022. An extended version is available on arxiv.
  Advisor: Dr Vinay Ribeiro, IIT Bombay

- **Links: Making PoW Blockchains robust via steady chain growth**
  A major short coming of PoW blockchains is their inability to scale to low confirmation times required for typical micro payments. The main reason for this is the unsteady growth in chain

weight. This work proposes a simple solution where chain growth is maintained in a steady manner and linear structure of the blockchain is maintained. We also lower confirmation times while maintaining security guarantees. Links are a better alternative to solutions that try to improve confirmation times by reducing block size and interval. This work has an Indian patent and has an International PCT filing. It is published in IEEE Blockchain 2021.
Advisor: Dr Vinay Ribeiro, IIT Bombay

- **Blockchain like Relational Database**
  This project was in collaboration with IBM IRL, Bangalore during July to October 2017. This project aimed to bring blockchain properties like immutability and decentralization into relational databases to make them more powerful for certain applications in supply chain management.
  Advisor: Dr Praveen Jayachandran, IBM IRL

- **Near real time consensus using Hashgraph in IoT systems**
  This project was a part of Indo-Japanese Research projects for communications in IoT Networks during January to July 2017. This project was part of "Work Package 3: Develop an application layer trusted framework" in a series of Indo-japanese collaborations. Here we built a prototype for a lightweight consensus protocol in IoT networks using Hashgarph with BFT consensus as opposed to the heavy PoW consensus.
  Advisors: Dr Subodh Sharma, IIT Delhi and Dr Kosuke Kaniko, Kyushu University, Japan

## GRADUATE TEACHING ASSISTANT

Networks and System Security [SIL765][Spring 2017, Spring 2018, Spring 2019]

Special Topics in High Speed Networks: Blockchain [COL867][Fall 2017]

Computer Networks [COL672][Fall 2016, Fall 2018]

Introduction to Database Systems [COL632][Spring 2016]

Special topics in DB systems: Data Mining [CSL868][Fall 2015]

## TECHNICAL SKILLS

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| **Computer Languages** | Solidity, JavaScript(full stack), Python, C++, SQL, Java |
| **Software & Tools** | LaTeX, MS Office |
| **Technologies** | Bitcoin, Ethereum |

## PERSONAL DETAILS


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|---|---|
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| **Twitter** | twitter.com/ovia_seshadri |
| **GitHub** | github.com/oviaseshadri |
| **Learning Blog** | learnwithovia |


## REFERENCES

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