# Sumeet Bajaj, PhD

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**Senior Software Engineer (Web2/Web3) • Blockchain Developer • PhD – Decentralized PHR Systems**

## Profile

I am a Senior Software Engineer with over 9 years of experience building enterprise-scale Web2/Web3 applications using Angular, React, Node.js, AWS, and distributed architectures across Citi, PwC, and Siemens.

During my PhD in Information Technology, I transitioned into Web3 engineering by designing a **blockchain-enabled Personal Health Record (PHR) Vault**, integrating Solidity smart contracts, IPFS-based decentralized storage, and zero-trust access control.

My career uniquely combines:
- Strong Web2 foundations (React/Angular/TypeScript/Node.js/AWS)
- Practical enterprise engineering experience
- Advanced Web3 research in decentralized identity, smart contracts, and patient-controlled health data

I bring the rare ability to bridge **Web2 production engineering** with **Web3 decentralized system design**, enabling real-world blockchain adoption at scale.

## Key Skills

**Programming Languages:** Java, JavaScript (ES6), TypeScript, Solidity, C++
**Front-End Development:** React, Next.js, Redux, NgRx, RxJS, D3.js, Bootstrap, SASS, SCSS, Tailwind
**Blockchain & Web3**: Ethereum, Solidity, Smart Contracts, DeFi, IPFS, Hardhat, Truffle
**Databases:** SQL, MySQL, MongoDB
**DevOps & Testing:** Docker, Kubernetes, Jenkins, Terraform, Jest, Cypress, Enzyme, Bitbucket, Git, Jira, Confluence
**Back-End Development:** Node.js, Express.js
**Cloud Platforms:** AWS (Lambda, EC2, S3, RDS), Azure (Azure Functions, App Services, Cosmos DB)
**Security & Authentication:** OAuth2, JWT, OpenID Connect, Zero Trust Security

## Experience

**Senior Software Engineer, Citigroup, Irving, TX (12/2018 - Current)**

Developed client-facing applications like **CD-Renewal, Security Center, Remediation Tracker** using React, Redux, TypeScript, and Node.js.
Strengthened distributed systems, security engineering, and digital asset integrations—skills foundational to later **Web3** and **decentralized** architecture work.
Collaborated with cybersecurity teams to enforce secure design standards, ensuring all components aligned with enterprise **Zero-Trust** models.
Built back-end components in Node.js for data processing and API services.
Ensured **ADA compliance** using NVDA for accessibility testing.
Implemented end-to-end **automation testing** with **Cypress** for application reliability.
Designed and implemented customized data visualization graphs using **D3.js** and **Highcharts**.
Followed Test-Driven Development (TDD) with Jest, Enzyme, Jasmine, and Karma, achieving 80% test coverage.
**Environment:** Node.js, Git, React 18, Redux, Next.js, TypeScript, Jest, Jasmine, Karma, Cypress, Enzyme, Jenkins, Jira.

**Software Engineer PricewaterhouseCoopers, PwC, Boston, MA (06/2018 – 12/2018)**
Developed a testing-based auditing application for **iADAPT**, utilizing React, Redux, and Node.js.
Designed secure enterprise workflows that strengthened my foundation for later work in **decentralized** identity and access-control models.
Developed mobile applications using **React** for risk assessment and reconciliation modules.

Leveraged **Azure Cloud Services** for serverless functions, app services, and Cosmos DB to enable a scalable cloud-based architecture.
**Environment:** Azure (Azure Functions, App Services, Cosmos DB), Java, Spring Boot, React.js, React Native, Redux, Node.js, React Router, Jest, Enzyme, Git, Jenkins, Jira.

**Software Engineer III** **Siemens Healthineers, Norwood, MA (12/2017 – 06/2018)**
Developed user interfaces using **React.js** and **TypeScript** for healthcare applications.
Developed healthcare UI workflows that contributed to my future research in patient-centric **blockchain** health systems.
Designed a prototype application for MET healthcare to run on tablets using **React Native** & Node for backend.
Collaborated with business analysts to define content strategy, features, and API integration.
**Environment:** Java, Spring Boot, React.js, React Native, TypeScript, Flux, MobX, Jest, JSON, RESTful APIs, Git, Jira, Jenkins.

## Education and Training
**Ph.D. in Information Technology –** UC, Williamsburg, Kentucky, Blockchain-Based PHR Systems (2025)
**Master of Science in Computer Science** – Governors State University, University Park, IL (2017)
**Bachelor of Technology in Computer Science** – ICFAITech University, Dehradun, India (2014)

## Projects

**PHR Vault Prototype**
Developed a blockchain-based Personal Health Record (PHR) vault as part of Ph.D. research.
Demonstrated how blockchain can enable real-world patient-controlled data ownership, forming the basis for secure Web3 healthcare systems.
Designed and deployed smart contracts on Ethereum using Solidity, leveraging ERC-721 (non-fungible tokens) to represent unique health records securely.
Implemented secure access controls, encryption mechanisms, and patient-centered data sharing.
Tech stack: Ethereum, Solidity, ERC-721, Web3.js, React.js, AWS.

**GitHub:** https://github.com/phr-vault/phr-vault

## Certifications
Certified Blockchain Expert™ – Blockchain Council
Certified JavaScript Developer I – Salesforce