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Dr. Madan Mohan Tito Ayyalasomayajula

LinkedIn
US Green Card Holder

Doctor of Science in Computer Science

Professional Summary

Enterprise data and AI engineering leader with a proven track record of guiding large, cross-functional teams and managing portfolio-level data initiatives across global organizations. Experienced in leading end-to-end delivery of mission-critical, enterprise-scale data platforms while providing strategic direction, mentorship, and executive alignment. Skilled in shaping company-wide data strategies, standardizing practices, and enabling organizations to operationalize analytics, machine learning, and generative AI solutions at scale. Recognized for leadership at every position held, combining technical depth with business acumen to influence both enterprise technology roadmaps and organizational transformation.

Enterprise Data Engineering & Implementation: Direct large-scale adoption of best practices in data integration, ETL/ELT, enterprise data warehousing, and data Lakehouse development. Drive standardization and optimization of enterprise data pipelines for performance, reliability, and scalability. Institute enterprise-grade data governance, quality, and validation frameworks. Establish streaming and event-driven architectures to support real-time business operations.

AI Readiness & Portfolio Enablement: Architect enterprise AI/ML-ready data estates. Oversee enterprise-wide data preparation and feature engineering frameworks to accelerate machine learning and LLM/Generative AI adoption. Ensure organizational data estates are future-ready for agentic architecture and AI-driven decision-making at scale.

Enterprise Technology Strategy: Evaluate and select enterprise-grade data technologies, platforms, and tools across portfolio companies. Define and enforce canonical data models, taxonomies, and data dictionaries to achieve cross-enterprise alignment. Provide strategic guidance on best practices to ensure efficiency, interoperability, and innovation.

Cloud & Platforms Leadership: Lead enterprise architecture and deployment of data and AI solutions on Azure, GCP, AWS, and Palantir. Drive hybrid-cloud and multi-cloud strategies, ensuring scalability, resilience, and cost optimization across the enterprise. Champion adoption of distributed, open-source ecosystems for enterprise-scale data processing.

Enterprise Performance Leadership: Directed organization-wide software and database performance engineering strategies. Specialized in high-volume transaction systems, infrastructure scaling, and capacity planning for enterprise workloads.

Collaboration & Stakeholder Alignment: Partner with C-level executives, portfolio managers, and business leaders to shape enterprise data strategies. Translate complex technical concepts into business outcomes to ensure clarity, alignment, and strategic buy-in at all organizational levels.

Leadership & Mentorship: Provide enterprise-level technical leadership and mentorship to large data engineering teams and portfolio company technology groups. Develop organizational capabilities, foster innovation, and establish best-in-class delivery models.

Architecture & Delivery Oversight: Lead enterprise architecture design and implementation of distributed, mission-critical data platforms. Experienced in multiple enterprise SDLC and operating models, including Agile-at-scale, Waterfall, Iterative, and DevOps transformations.

Go-to-Market & Pre-Sales Leadership: Enable enterprise growth through technical pre-sales, business development playbooks, and leading RFP/RFI/RFC responses with engineering deliverables.

Multi-Domain Enterprise Impact: Broad leadership experience across multiple domains, driving digital and data-driven transformation at scale.

EDUCATION

Aspen University	AZ, USA
Doctor of Science in Computer Science	*2024*
Osmania University	India
Master of Technology in Computer Science & Engineering	*2005*
Osmania University	India
Master of Computer Applications	*2001*
University	India
Bachelor of Science	*1977*

WORK EXPERIENCE

Infosys Limited	Remote
SR. Technology Architect	*May 2023 – Present*

- Represented Infosys at the prestigious Cummins AI Wonderland event, presenting cutting-edge AI solutions and fostering collaborative innovation.
- Spearheaded CMS consolidation strategy at Hillenbrand, conducting evaluation of 30+ disparate CMS platforms (100+ portals), formulating a roadmap that addressed regulatory compliance (data sovereignty, regional mandates), identified redundancies, designed migration strategies, and established a phased implementation plan for modernization and efficiency gains.
- Identified and deployed specialized resources to meet Textron's complex technical and compliance requirements.
- Delivered architectural consultation and solution artifacts for WESCO's enterprise technology initiatives.
- Led architecture and development of Palantir Services at Toyota Material Handling, powering Warranty 360, Pricing Strategy, Demand Planning and Inventory Intelligence through advanced data engineering, AI, and Workshop application development.
- Working as an Enterprise Data & AI Architect for Toyota Material Handling, designing, architecting, and developing solutions on Palantir Foundry leveraging its components (Pipelines, Ontology, Functions, Integrations, Data Health, Lineage, Quiver, Contour, Workbooks) for enterprise data management, advanced analytics, and AI/ML applications.
- Developed and executed enterprise data architecture strategy aligned with Palantir's platform capabilities and client business objectives.
- Designed and implemented scalable, secure data architectures and data integration solutions (warehousing, data lakes, virtualization, federation) within Palantir, ensuring quality, lineage, and compliance.
- Developed conceptual, logical, and physical data models in Palantir Ontology to enable semantic understanding of complex relationships.
- Defined data security models, access controls, and compliance frameworks (GDPR, CCPA, CPRA, PI/PII protection) within Palantir and hybrid environments.
- Provided expertise in Palantir's analytical tools (Contour, Quiver, Workbooks) to support data science, BI, and reporting workloads.
- Provided strategic insights and recommendations for ADM RFP, aligning with Infosys's 8R Cloud Migration Principles.
- Directed technical resolution of complex infrastructure, API Gateway, and application server issues at ADT during ISAM migration to IBM Data Power.
- Defined technical strategy and implementation for Emerson's Auditing and Code Quality Program, supporting a high-value prospect.
- Led architectural planning and solution design for Incora, leveraging Infosys's AI-Next platform in a complex, multi-stakeholder environment.
- Defined cloud and security best practices across hybrid environments (IaaS, PaaS, SaaS, COTS).
- Drove SDLC modernization, including DevOps adoption, CI/CD pipelines, and Infrastructure as Code (IaC).
- Collaborated globally across on-site/offshore teams to deliver enterprise-grade solutions.
- Created architecture artifacts covering business, data, integration, and deployment views.
- Led PoC/PoT initiatives, ideation pipelines, and global transformation programs.
- Architected data engineering, analytics, RPA, and test automation platforms.
- Lead system capacity planning and performance optimization.

Walgreens

Enterprise Architect

Remote

Jun 2020 – May 2023

- Worked as an Enterprise Cloud Architect for Data Privacy & Regulation programs such as CCPA, CPRA, CDA, CPA, & GDPR, and Global Banking Transformations.
- Building processes that support data privacy, protection, and compliance for PI, PII, and Sensitive datasets for different user perspectives.
- Evaluate Privacy & Data Cataloging, Data Quality tools.
- Lead proof of technology/proof of concept (POC) engagements
- Onboarding all IT Platforms to ensure State Privacy Law Regulations & Compliance requirements.
- Work in a cross-functional model to onboard more than 20+ platforms consisting of 100's of applications.
- Coordinated with Teams like Legal & Privacy, Data Governance, Big Data Analytics Platforms, Marketing.
- Provide architectural decisions & guide the development teams based on long-term and short-term goals.
- Working with different lines of business to understand business requirements.
- Participating in Architectural & Design Review Board meetings to obtain approvals on funding & architectural exceptions.
- Create artifacts for the application, like Software Architecture Documents having: Business Architecture, Use Cases, Data or Information Architecture, Technology Architecture, Logical Views, Process, View, Implementation Views & Deployment Views, High availability, Location Architecture, Process Flows, Integration Architecture, and Specifications.
- Perform reviews on the quality of application design that involves On-Premise, Cloud, SaaS, and Hybrid environments.
- Collaborating with the teams on Azure-based integrations that deals with various Azure services such as Azure Functions, Storage services, Data pipelines, Analytics solutions, ETL activities etc.
- Presenting the solutions to ARB/Design Review Board, Security Review Board, and Data Governance Team and obtaining approvals.
- Coordinate with multiple cross-functional teams to guide and share the knowledge of Privacy Program requirements and Expectations.
- Identify critical architectural issues and take measures to prevent them proactively.
- Perform system capacity planning and system optimization.
- Orchestrate processes on the OneTrust Platform.
- Identifying, designing & integrating microservices that involves complex integration patterns and middleware systems.
- Driving the security-enabled system development.
- Building the roadmaps and features of the solutions.
- Driving data-driven process flows, integrations, data pipelines, and ETL Tasks
- Driving assessments, data mapping, data discovery, and analytics
- Worked on Azure Migration activities to migrate On-Premise services to Azure Cloud
- Designed and architected microservices components based on Java/J2EE Technology stack such as RESTful services, Spring Boot, SOAP, JDBC, XML etc. and containerizing applications for App Modernization.
- Designed various integrations that span across various heterogeneous systems.
- Designed and architected CI/CD pipelines.
- Performing code reviews, design reviews, architecture reviews and deployment reviews that involves conceptualization to realization activities.
- Applied many performances tuning concepts to tune both applications and databases to meet the business demands.

- Conducting code reviews, peer programming, debugging, end-to-end testing, collaborating with global workforce.
- Planning kickoffs, review sessions, retrospection reviews, preparing for Go-Live, and supporting on change management.

Toyota Motor North America (TMNA)

Enterprise Cloud Solutions Architect

Remote

Feb 2016 – May 2020

- Worked as a member of the Toyota Enterprise Architecture Team.
- Supported building the architectural standards for On-Prem, Cloud, and Hybrid environments.
- Analyzing the application backlog and health of the systems and developing the strategy for the cloud-first approach.

- Worked on 75+ projects concerning solution architecture, including On-Prem DC, Public Cloud, Private Cloud, Hybrid Cloud, IaaS, PaaS, CaaS, FaaS, SaaS, and COTS models.
- Developing strategies and implementing for Network routing and communications using VPNs and Express routes Hub spoke architectures and integrations.
- Analyzed On-Prem, Hybrid, and Cloud solutions and integrated public clouds such as Azure & AWS into traditional hosting or modernized delivery models.
- Recommended the strategies for lift and shift, green field, and brownfield applications for seamless migration from On-Prem to Cloud.
- Provide architectural decisions & guide the development teams based on long-term and short-term goals.
- Working with different lines of business to understand business requirements by engaging closely with business teams, IT customers, and external partners.
- Create artifacts for the application, like Software Architecture Documents having: Business Architecture, Use Cases, Data or Information Architecture, Technology Architecture, Logical Views, Process, View, Implementation Views & Deployment Views, High availability & DR, Location Architecture, Process Flows, Integration Architecture, and Specifications.
- Perform reviews on the quality of application design.
- Coordinate with multiple cross-functional teams to guide and share the knowledge of projects.
- Identified critical architectural issues and took measures to prevent them proactively.
- Implemented the best practices across development teams.
- Supporting various vendors in integrating their solutions
- Identifying, designing & integrating microservices that involves complex integration patterns and middleware systems.
- Mentored the application team(s) in technical aspects to ensure on-time delivery (OTD).
- Helped the teams do 'First time right' (FTR) or Fail Fast Models.
- Evaluated Application Performance requirements and suggested the direction.
- Participating in Architecture Review Board meetings to submit & process Architectural Exceptions
- Developing strategy for DevOps pipelines.
- Recommended cost-effective, efficient, scalable, highly available, DR-based solutions.
- Recommended designs for high-performance-oriented and reliable solutions.
- Performed system capacity planning and system optimization.
- Initiating and driving a well-defined cloud strategy and managing the cloud adaption process.
- Continuous process refinement to improve system quality.
- Worked on Data Center Migration activities to migrate On-Premise services and applications to Azure & AWS Public Clouds
- Worked on multiple SaaS, COTS, MOTS Presales engagements translating business & technical needs that are tailored for TMNA.
- Driving the solutions from conceptualization to realization to DevOps, Security, Data Governance, CI/CD/ and Containerized microservice architectures.
- Conducting in code reviews, peer programming, debugging, end-to-end testing, collaborating with global workforce.
- Planning kickoffs, review sessions, retrospection reviews, preparing for Go-Live, and supporting on change management.

Key Projects Architected at Toyota

- **Outbound Email Gateway**: Proofpoint
- **Robotic Process Automation**: UI Path
- **Bio-Pack International Travelers**: Blockchain-based project
- **Vertex**: A tax management system
- **Unified Customs system**: Mexico
- **Shipment Request System**: Enterprise logistics management
- **HQ Video Production System**: Corporate media production
- **HR Investigation System**: Human resources management
- **eVehicle**: A Toyota Member Lease Program System
- **Toyota Legal One**: Document Management System
- **Team Connect - Toyota Legal**: Matter Management System
- **Toyota – Lenel**: Access Management System
- **Toyota – Organization Chart**: Organizational structure visualization
- **Toyota – Custodian Portal**: Asset management system
- **Oracle Business Intelligence Foundation Suite**: Enterprise BI platform

- ○ **Siebel**: Customer Communication System
- ○ **OBIFS & Hyperion**: Reporting tools
- ○ **NAI Toyota My Tool**: SharePoint-based collaborative tool
- ○ **Lenel OnGuard**: Card Access Management System

Mahindra Comviva India

Principal Architect *Sep 2007 – Nov 2015*

- ○ Built the architecture and design of MobliTix Suite in Mahindra Comviva's prestigious offering.

- ○ Developed architecture and design for Digital Wallets product suite.

- ○ Worked as a Product Architect for more than seven key products, which serve more than 200 Million Telecom Subscribers from concept to realization.

- ○ Worked on Mobile Payments & Mobile wallets related systems.

- ○ Worked on OSS & BSS systems in the telecom domain to support the products designed.

- ○ Provided architecture and design for Mahindra Comviva's Consumer Value Solutions Unit.

- ○ Provided Leadership to over 10+ cross-functional teams from different technology groups.

- ○ Worked with key Mahindra Comviva clients to understand their business strategy and help provide roadmaps & architecture vision to take their strategy forward.

- ○ Worked with the associates and lead architects to create reference architecture artifacts to keep the repository up to date.

- ○ Worked with multiple lines of business (LOB) to understand business requirements and create current state & target state architecture depicting logical, business, technology, network, data architecture.

- ○ Provide Architecture Recommendations for business development.

- ○ Lead proof of technology/proof of concept (POC) engagements.

- ○ Part of Architectural Review Board.

- ○ Lead the Software Performance Engineering (SPE).

- ○ Responsible for responding to RFP/RFI/RFC for engineering deliverable.

- ○ Responsible for Bill of Quantity (BOQ) for the HW & Data sizing delivery to clients.

- ○ Responsible for Product to Client requirements Gap Analysis.

- ○ Responsible for supporting cross-functional teams like Marketing, Business Development, Product Management, Quality Assurance, Support & Implementation

- ○ Worked as SME for Mahindra Comviva's internal & external requirements.

- ○ Provide effort estimations for Product building & customization.

- ○ Identifying, building & Integrating microservices

- ○ Mentoring the application team in technical aspects to ensure on-time delivery (OTD).

- ○ Helped the teams in doing 'First time right' (FTR) or Fail Fast Models.

- ○ Rolling the products on cloud infrastructure like AWS & Microsoft Azure.

Key Products Designed and Architected at Mahindra Comviva

- ○ **Post Call Notification (PCN)**: Interactive End Of Call Ad Enabler System (iEOCN)
- ○ **IRIS**: Incremental Revenue & Incremental Sales
- ○ **Subscriber Win Back**: Win the subscriber back & retain
- ○ **Retailer Loyalty Management System**: Customer loyalty platform
- ○ **Subscriber Loyalty Management System**: Subscriber retention platform
- ○ **Dynamic Pricing System**: Real-time pricing optimization
- ○ **Notification Server**: Enterprise messaging platform
- ○ **Campaign Management System**: Marketing campaign automation
- ○ **Bulk Messaging & Message Service Delivery Platform**: Mass communication system
- ○ **Mobile Wallets**: Digital payment solutions

Clients at Mahindra Comviva

Lebara UK, MTN Group, Etisalat, Airtel Africa (Congo B, Gabon, DRC, Kenya, Ghana, TCHAD, Zambia, Nigeria, Malawi, MG), Idea Cellular, Airtel India, TTSL, STel, Vodafone, HCPT Indonesia, Grameen Phone Bangladesh, Airtel Bangladesh

Fujitsu Business Systems Thailand & Indo Fuji Information Technologies
Systems Analyst

Bangkok, Thailand
Nov 2005 – Sep 2007

Telelogic India (Now IBM)
Application Engineer

Bangalore, India
Dec 2004 – Nov 2005

JNT University
Fellow Associate

Hyderabad, India
Aug 2002 – Jul 2003

Access Center Pvt Ltd.
Software Engineer

Hyderabad, India
Jun 2001 – Jul 2002

Technical Skills

Architecture & Tools: TOGAF: SOA, SEDA, SAGA, MVC, 2 Tier, 3 Tier, N Tier, IBM Rational, TAU G2, Enterprise Cloud Architecture, Data, Network, Business Architectures, Data Architecture, Visio, Draw.io, Lucid Chart

Big Data, AI & Analytics: Hadoop, HDFS, Map Reduce, ETL, Hive, Spark, Vector Wise for Hadoop, Splunk, Casandra, Power BI, Tableau, Azure Data Lakes, Snowflake, AI-Next, Palantir, Clickhouse, Pinecone

ML, DL, Gen AI: Building Rule Engines, Predictive analytics, K-Means, Logistic regression, linear regression, Decision Trees, RFM Algorithms, Sentiment Analysis, Computer Vision, CNN, RNN, Semantic Search, Vector DB, RAG, AI Agents, Centralized Learning, Distributed Learning, Federated Learning, Flow Management, Observability, Lang Chain, Lang Graph, Lang Smith, FloWise, n8n, Vector Embeddings, Open AI, Claude, Gemma

Palantir: Data Pipelines, Workshop, Ontology, Quiver, AIP, Notebook, Contour, Health Checks, Data Lineage

Workflow Automation: Robotic Process Automation (RPA), UI Path, Microsoft Power Automate, Fortra, n8n, Automation Anywhere, FloWise

Cloud Computing Azure: VNet, VNet NAT, VPN Gateway, DNS, Traffic Manager, ExpressRoute, Load Balancer, Application Gateway, User Defined Routes, Azure Private Link, Private Endpoint, VNET Peering, Front Door, Azure Network Watcher, Azure Active Directory, Azure role-based access control (RBAC), Subscription Management, Policy Management Groups, Blob storage, managed disks, Azure Files, StorSimple, File Sync, Data disks in Azure Blob Storage, Azure temporary storage, Azure premium storage, Azure Virtual Machines, Virtual machine scale sets, App Service autoscale Azure Batch, Azure Container Apps, Azure Container Registry, Azure Kubernetes Service (AKS), Azure Functions, WebJobs in Azure App Service, SQL Database, Database for MySQL, Database for PostgreSQL, Azure SQL Database serverless, Serverless SQL pool in Azure Synapse Analytics, Azure Cosmos DB, Cosmos DB Dedicated Gateway, Cache for Redis, Database Migration Service, Stream Analytics, Azure Data Explorer, Data Lake Analytics, Data Lake Store, Power BI, Cognitive Search, Data Lake Analytics, Azure Synapse Analytics, Elastic on Azure, Azure Data Explorer, Databricks, HDInsight, Data Lake Storage, Machine Learning, IoT Hub, Event Hubs, Activity log, Application Insights, Monitor, Blueprints, Azure App Configuration, Logic Apps, DevOps, Data Factory, Azure Purview, Queue Storage, Service Bus, Event Grid, Event Hubs, App Service, API Management, Front Door, Web App for Containers, Static Web Apps, Key Vault, Azure Policy

Cloud Computing AWS: VPC, NAT Gateways, VPN Gateway, Route 53, Direct Connect, Network Load Balancer, Security Groups, Application Load Balancer, Custom Route Tables, Private Link, VPC endpoints, VPC Peering, CloudFront, VPC Flow Logs, IAM, MFA, Directory Service, Cognito, S3 Standard, S3 IA, S3 Glacier, S3 Deep Archive, EBS(Provisioned/Throughput), EFS, Storage Gateway, DataSync, EC2, AWS Auto Scaling, AWS Batch, Amazon ECS, Beanstalk, AWS Fargate, App Runner, ECR, EKS, AWS Lambda, RDS, Aurora Serverless, DynamoDB, ElastiCache, Amazon MemoryDB for Redis, Database Migration Service, Kinesis Analytics, QuickSight, CloudSearch, Athena, Elasticsearch Service, EMR, Redshift, Lake Formation, SageMaker, IoT Core, Kinesis Firehose, Kinesis Streams, CloudTrail, CloudWatch, X-Ray, Control Tower, AWS AppConfig, Step Functions, CodeDeploy, CodeCommit, CodePipeline, CLI, Data Pipeline, Glue, SQS, SNS, Amazon MQ, API Gateway, Cloud Front, Amplify for Static Web Apps, WAF, KMS

RDBMS, NoSQL: Oracle, MySQL, PostgreSQL, MS SQL Server, DB2, Lucene, Redis, Mongo DB, Cosmos DB, Dynamo DB, Couch DB, Splunk

Telecom, OSS, BSS: Campaign & Loyalty Management Systems, Messaging Platforms, SMSC, USSDGW, IN, PCRF, PCEF, Provisioning Servers, SMS, SMSC, USSD, USSDGW, IN Ericsson, IN ZTE, E-TopUp, Mobile Wallets, HLR, Bulk messaging GW, PCRF, PCEF, GSM, Subscriptions, Provisioning, Mobile Analytics, Messaging Service Delivery platforms

Web: Apache Tomcat, WebSphere, JBoss, WS02, Web Services, REST APIs, XML, JSON, Web Services, SOAP, JavaScript, HTML, CSS, jQuery, Bootstrap, EJB, JSP, Servlets, Angular JS, Typescript, Figma

Software Tools: Microsoft Office, PPM, JDBC, JMS, JBoss, MS-Projects, Cognos, VMware, JMeter, Apache Bench Marking, SQL Developer, ANT, Maven, SSH, Putty, VPN, SQL Developer, JIRA, Bugzilla, PMD, JProfile, Your Kit, Maven, Ant, GitHub, Kafka, Jenkins, Chef, Puppet, Confluence, Bit Bucket, Git, Oracle xStore, Dynatrace, App Dynamics, Docker

SDLC Methodologies: Agile/SCRUM, Iterative & Incremental, DevOps, Test Driven Development, Systems Engineering, Responsible AI

Integration: API Managers, EDI systems, Enterprise Service Buses, IBM MFT, IBM B2B systems, Sterling File GW, ServiceNow, IBM Data Power

OS: Red Hat Linux, Cent OS, MS Windows, Sun Solaris, AIX, HP UX

Programming Languages & Frameworks: JAVA, J2EE, Python, VB.Net, C#.Net C, C++, SQL, PL/SQL, Perl, PHP, Spring, Hibernate, Struts, C3P0, DBCP, Log4j, JUnit, Django, Data Structures

Hardware/Networking: Intel Xeon/Sparc Servers, Storage devices, SAS, SATA, Load balancers, Back up devices, L3/L2 Switches, Nutanix

Security: Penetration Testing, Firewalls, Web Security Testing, Attacks, SSO, Role-based access control

ADVANCE CREDITS

Doctoral Writing and Inquiry into Research; Discrete Mathematics for Computer Scientists; Concurrent and Distributed Systems; System Metrics & Risk Management; Techniques and Interpretation for Advanced Statistical Research; Modern Compiler Design; Operations and Supply Chain Management; Simulation and Modeling; Automata Complexity Theory; Algorithm Design; Computer Ethics; Artificial Intelligence; Research Methods; Managerial Economics and Business Theory; Technology and Innovation Management

SOCIAL MEDIA

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