Binoy George

AI | ML | Analytics |Solution Architect

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Accomplished AI/ML and Analytics Solution Architect with over 17 years of experience in client-facing roles, including 8+ years dedicated to data science and analytics solutioning. Proficient in crafting and implementing advanced solutions for streamlined business processes, I specialize in AI, ML, and analytics. Skillful at translating intricate business requirements into innovative technical solutions, my commitment to staying updated with technology trends ensures the delivery of transformative AI strategies, propelling organizations to unprecedented success.

EDUCATION

PGP CLOUD COMPUTING | GREAT LAKES INSTITUTE OF MANAGEMENT Bangalore, Karnataka, IN	| **Feb '23 – Oct '23**
M. SC. - DATA SCIENCE | LIVERPOOL JOHN MOORES UNIVERSITY Liverpool, UK	| **Dec '19 – Oct '21**
PG DIPLOMA IN DATA SCIENCE | IIIT Bangalore, Karnataka, IN	| **Dec '19 – Dec '20**
B. SC. – PHYSICS & MATHEMATICS | MG UNIVERSITY Kottayam, Kerala, IN	| **Apr '95– May '98**

KEY PROJECTS

- **AI-Enhanced Academic Advising System (Major University):** The RFP prioritized enhancing student success via personalized academic advising, addressing advisor challenges, and integrating predictive analytics with early warning systems. Emphasizing seamless integration, scalability, and alignment with institutional values, it stressed a student-centric, secure, and ethical AI-driven advising solution. The proposed solution utilizes Python-based libraries (TensorFlow, scikit-learn) for insights, AWS SageMaker for predictive analytics, Apache Spark for scalability, and Azure Machine Learning for early warnings. The user-friendly interface, built with React.js, ensures cross-department adoption, backed by AWS or Azure cloud services. Continuous learning, ethical considerations, and robust data security (AWS Key Management Service or Azure Key Vault) highlight the commitment to responsible AI practices.

- **Chatbot-Enhanced Customer Support System (E-Commerce Client):** In response to an e-commerce client's directive to enhance customer support efficiency, our proposed solution features a sophisticated chatbot leveraging BERT-based natural language processing for precise understanding, seamlessly integrated with Salesforce through Dialogflow, and powered by TensorFlow for model training, hosted on Microsoft Azure to ensure scalability and reliability, embodying a comprehensive approach to address the client's emphasis on natural language understanding, CRM system integration, and adept handling of diverse customer queries within the framework of a cutting-edge, technologically robust, and seamlessly integrated customer support system.

- **Smart Energy Optimization (Utility Client)**: In response to a utility company's RFP for AI-driven energy optimization, our proposed solution integrates NLP for textual analysis, deploys Python and scikit-learn for machine learning, including autoregressive models like ARIMA/SARIMA/SARIMAX for forecasting, while seamlessly integrating with AWS IoT Core for real-time insights, all hosted on AWS, aligning with the emphasis on real-time monitoring, predictive analytics, and IoT integration to efficiently optimize energy consumption and reduce costs.

- **AI-Driven Supply Chain Optimization System (Retail Client):** Developed an AI-driven supply chain optimization system for a multinational retail enterprise, addressing the RFP's objectives of revolutionizing operations, minimizing costs, and maximizing efficiency. The solution employed Python-based libraries like TensorFlow and scikit-learn for predictive modeling, featuring operational and management dashboards for real-time insights. Leveraging AWS SageMaker, Apache Spark, and React.js ensured scalability, efficient data processing, and user-friendly interfaces. AWS served as the primary cloud provider, incorporating sustainability metrics and ethical AI practices. The implemented system yielded significant improvements in cost efficiency, inventory management, and overall supply chain agility, showcasing a commitment to ethical AI, sustainability, and robust data security.

- **Cloud Migration Solution for Enterprise Data Warehouse:** Proposed an optimal cloud migration solution for a multinational corporation's Enterprise Data Warehouse, meticulously selecting AWS for its global reach, mature AI/ML services, and cost-effectiveness, leveraging AWS Database Migration Service, Redshift, Sagemaker, and Apache Spark for seamless integration, enhanced query optimization, and robust data security using AWS Key Management Service, backed by a user-friendly React.js interface, with a comprehensive cost estimation demonstrating AWS's economic advantage, showcasing expertise in orchestrating complex cloud migration initiatives with AI/ML integration.

RECENT PERSONAL PROJECTS (to stay abreast of the latest technology and solutions):

- Explored the practical application of Large Language Models (LLMs) in collaboration with Google Cloud and Python, gaining hands-on experience with Vertex AI. Developed a basic customer support chat bot using input() and a while loop, evaluating return eligibility per set parameters. Concluding the conversation with the keyword "END" facilitated loop exit. This project enhanced my comprehension of utilizing diverse LLMs for business applications, showcasing customization and integration possibilities across various applications.

- Explored the practical application of a Natural Language Code Assistant through the Code Generation API. This API generates code by interpreting natural language descriptions. For instance, articulating a unit test requirement for a particular function result in the API generating the corresponding code using the code-bison model from Vertex AI.

- Developed a personalized data analysis and machine learning (ML) workflow using Python, Jupyter Notebook, PySpark, AWS Redshift, and Amazon EMR. Achieved scalability through EMR, optimizing AWS Redshift for efficient querying. Implemented collaborative practices with Jupyter Notebooks. The project successfully establishes an end-to-end workflow, enabling comprehensive data processing and ML model development for personal use.

- Implemented a data optimization project on AWS, establishing a robust search infrastructure using AWS Opensearch, Lambda functions, and API Gateway. The initiative enhances knowledge discovery and user experience, boosting productivity and collaboration. Successfully replicated a scenario involving extensive PDF data, resolving document search challenges. Key steps included creating an Opensearch domain, deploying Lambda functions via CodePipeline, setting up triggers, and implementing an API Gateway for efficient document retrieval, contributing to strategic objectives and ensuring a significant return on investment.

- Conducted a comprehensive cost estimation and comparison analysis for an AWS-based use case, analyzing the implementation of a system handling invoice data on S3, SNS, EC2, and RDS. Assessed the monthly OpEx for a global organization, factoring in three locations and a 20% YoY growth in a workforce of 100,000. Delivered a thorough cost comparison between On-Premises and Cloud solutions, providing strategic recommendations for short-term and long-term viability based on financial considerations.

KEY SKILLS

- Project Management
- Problem Solving
- LLMs/ AI/ML/ Analytics
- Stakeholder Management
- Communication
- Python/ Spark/Hive / SQL
- Solution Design
- Cloud Computing (AWS/Azure/GCP/ Git/Docker)

PROFESSIONAL EXPERIENCE

Experience Activation, (*Freelancer*)	Principal Consultant, Analytics	Jan 2023 – Present
Clarivate, India	Manager Data and Analytics	Feb 2021 – Dec 2022
Cognizant Technology Solutions, India	Manager AI & ML	Jan 2019 – Jan 2021
IBM, India	Industry Consultant (Analytics)	Oct 2009 – May 2016