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| **Vinay Bharath Reddy Keshapalli** |

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| Experienced engineer with **8+ years** specializing in **ODBC/JDBC** Driver Development, **C++, Python, SQL**, and advanced expertise in SDLC. Proven track record in crafting **cloud-based ODBC drivers** and **Hadoop ODBC drivers**, comprehensive knowledge in **Data Science**, and **Virtual Assistants**. Strong analytical skills, proficiency in Data Manipulation, and a robust background in **Machine Learning and Deep Learning algorithms**. Demonstrated ability to analyze complex information system needs, design customized solutions, and excel as an effective communicator and relationship manager across all business levels. |
| **Profile Summary*** Experienced engineer with over **8 years** of experience in **ODBC/JDBC Driver Development, C++, Python, SQL, Machine Learning and Artificial Intelligence**
* Expertise in **Software Development Lifecycle (SDLC)** involving requirement analysis, system study, designing, architecture, testing, programming, coding, debugging & documentation
* Experience in developing **cloud-based ODBC drivers** such as Marketo, Xero, Salesforce Marketing Cloud, Service Now

which internally invokes **REST API** calls with respect to the relational **schema/metadata** defined in the connector as well as different authentication methods like **Basic, OAuth 1.0 & OAuth 2.0, Token Based & RSA Signatures*** Experience in developing Hadoop ODBC drivers such as Apache Druid, Apache Spark, Amazon Athena, Presto, Starburst (formerly PrestoSQL), Trino (formerly PrestoSQL), Apache Phoenix
* In-depth knowledge in various Authentication Mechanisms such as OAuth1.0, OAuth2.0, IAM, OIDC, Basic, JWT, Okta, ADP, Browser Azure, Browser SAML, MapR etc.,
* Implemented SSL certificate authorities in ODBC driver development using OpenSSL and libcurl, including System truststore, CRL, Self-Signed, and Intermediate CA for robust security measures.
* Expertise in implementing **Web Services and Micro Services (using Python Flask)**
* Strong knowledge on **Data Structures and Algorithms**
* Comprehensive knowledge on **Data Mining, Statistical Analysis, Machine Learning and Artificial Intelligence**
* Experience in developing **Virtual Assistants (Chatbots), NLTK, NLP, NLU and Sentiment Analysis**
* Comprehensive knowledge on:
	+ Data Manipulation and Machine Learning libraries **NumPy, pandas, scikit-learn and PyTorch**
	+ Machine Learning Algorithms such as **Linear Regression, Logistic Regression, Decision Trees, Random Forests, Support Vector Machines (SVMs) and Clustering**.
	+ Deep Learning Algorithms such as **MLP, CNN, Autoencoders, RNN, LSTM, Siamese Networks and GANs**
	+ Proficient in **Statistical Analysis** including Distribution Analysis, ANOVA, **Hypothesis Testing**, Correlations, **Dimensionality Reduction** and Feature Engineering
	+ Developed and deployed machine learning models for a wide range of applications, including predictive maintenance, customer segmentation, and demand forecasting.
	+ Proficient in data visualization techniques and BI report generation, utilizing tools such as Tableau and matplotlib to communicate complex findings in a clear and concise manner.
* Experience in analyzing information system needs, evaluating end-user requirements, custom designing solutions and troubleshooting for complex information systems management
* An effective communicator with relationship management skills with the capability to relate to people at any level of business and management
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| **Education**

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|  | **Bachelor of Science in Electronics & Communication Engineering** from Brilliant Institute of Engineering and Technology in 2015  |
| **Certification** |
|  | **Advanced Certification Program in Artificial Intelligence & Machine Learning** from International Institute of Information Technology (IIIT-H) in 2020 |

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| Z:\Approved_ResDev_Repository\Formats\Visual Resume Formats 2015-16\Icons\awardcup24x24icons.png **Notable Accomplishments Across The Career*** Won **Hackathon 2023 Award** for **AI Powered ODBC Driver** and secured executive sponsorship for project expansion and implementation.
* Received **Best Performer Award** in Jul’20 for **Angles for SAP ODBC Connecter**
* Received **Best Trainer Award** for giving the training to fresher’s
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**Projects**

**Insight Software Pvt Ltd**

**Role: Senior Software Engineer**

**Project: AI Powered ODBC Driver June 2023 – January 2024**

**Description:** Traditional ODBC drivers lack the advanced capabilities needed to efficiently process and analyze vast amounts of data in modern data-driven environments. As organizations increasingly rely on data-driven decision-making, there is a growing demand for a more intelligent and optimized approach to database connectivity. The current state of ODBC drivers fails to harness the power of Machine Learning, which could greatly enhance data integration, analysis, and predictive insights. We need an innovative solution - an ML capabilities ODBC driver that brings cutting-edge machine learning techniques to the world of database connectivity, enabling faster, more efficient, and smarter data access and analysis. Plug-in your own custom Pre-Trained AI/ML model to any of our Simba ODBC Driver and enable the capabilities of ML through SQL Query. This will enable users to perform predictive analytics, allowing them to forecast trends, identify patterns, and make data-driven predictions.

**Environment:** C++, Python, Jupiter notebook, ODBC, Visual Studio 2019, scikit-learn, Keras, TensorFlow, PyTorch, PowerBI, Tableau, Excel, ODBC Test Tool, REST API, Jenkins, SQL, Perforce, Postman, Fiddler, Windbg, Wireshark, JSON, Certificates, SSL, HTTP, HTTPS

**Responsibilities:**

* Conduct in-depth research on current limitations of traditional ODBC drivers in handling large volumes of data.
* Analyze existing machine learning techniques and their potential application in database connectivity.
* Collaborate with cross-functional teams to design an innovative ML-capable ODBC driver for Simba.
* Propose architecture and design patterns that incorporate machine learning capabilities seamlessly into database connectivity.
* Lead the development of the ML-capable ODBC driver, ensuring adherence to coding standards and best practices.
* Implement features that allow integration of custom Pre-Trained AI/ML models into the Simba ODBC Driver.
* Develop mechanisms for users to seamlessly plug in their custom AI/ML models to enhance SQL queries.
* Enable the ML capabilities through SQL queries, ensuring optimal performance and compatibility.
* Design and execute comprehensive testing strategies for the ML-capable ODBC driver.
* Collaborate with Quality Assurance teams to identify and resolve any issues related to machine learning integration.
* Continuously optimize the ML-capable ODBC driver for performance, ensuring efficient data access and analysis.
* Implement enhancements based on user feedback and evolving machine learning technologies.
* Create detailed documentation for the ML-capable ODBC driver, including installation guides and user manuals.
* Provide technical documentation for integrating custom AI/ML models with Simba ODBC Driver.

**Insight Software Pvt Ltd**

**Role: Senior Software Engineer**

**Project: Hadoop ODBC Connectors April 2020 – May 2023**

**Description:** Hadoop ODBC (Open Database Connectivity) drivers are software components that enable connectivity between Hadoop-based data storage and processing systems and applications that support the ODBC interface. Key features include query optimization, efficient data retrieval, and support for SQL-like queries. Hadoop ODBC drivers enable interaction with large-scale distributed data in Hadoop clusters for applications like business intelligence, reporting, and analytics. Examples of Hadoop ODBC drivers mentioned include Apache Phoenix, Apache Druid, Amazon Athena, Apache Spark, Apache Hive, Presto, Trino, and Starburst.

**Environment:** Hadoop, C++, AWS, SQL, Jenkins, AWS S3, MapR, REST API, ODBC Test Tool, PowerBI, Tableau, Perforce, Visual Studio 2019, Postman, Fiddler, Windbg, Wireshark, Thrift, JSON, XML, Certificates, SSL, HTTPS

**Responsibilities:**

* **Apache Druid ODBC Connector:**
	+ Took ownership of the project, leading the development efforts.
	+ Worked closely with a junior developer to build the Apache Druid ODBC Connector from scratch.
	+ Enabled direct connectivity between Apache Druid and BI tools, such as Tableau and Power BI.
	+ Facilitated real-time data querying and analysis within BI applications.
	+ Optimized query execution and result set processing for improved data retrieval performance.
* **Apache Spark ODBC Connector:**
	+ Contributed significantly to the Apache Spark ODBC Connector project.
	+ Implemented key features, including API Request Signing Support, Security Token Support, and Token-based Authentication Mechanism.
	+ Provided expertise in mapping SQL to Spark SQL, enabling standard SQL-92 access to Apache Spark distributions.
	+ Ensured full SQL application functionality and real-time analytic and reporting capabilities.
	+ Introduced MapR SASL Support for authenticating the driver with Spark & Hive servers using the SASL mechanism.
* **Amazon Athena ODBC Connector:**
	+ Implemented Browser SAML, Okta, IAM, Azure AD, and Browser Azure Authentication Mechanisms for Amazon Athena.
	+ Developed an ODBC Query Executor using Amazon's AWS-SDK CPP for efficient query execution.
	+ Ensured compatibility with Mac M1 by providing support for the Athena ODBC driver compatible with aws-sdk 1.11.2.
	+ Implemented support for Explain, Explain Analyze, and Prepared Statement functionalities.
	+ Successfully addressed and resolved a memory leak issue encountered during the parsing of results from the Streaming API.
	+ Provided a bug fix for the AWS Region use issue when working with Lake Formation and AWS STS clients.
* **Presto ODBC, Trino ODBC, Starburst ODBC Connectors:**
	+ Implemented HTTPS certificate authorities in ODBC drivers for Presto, Trino, and Starburst using OpenSSL and libcurl.
	+ Ensured robust security measures with System truststore, CRL, Self-Signed, and Intermediate CA support.
	+ Introduced FIPS support in Presto, Trino, and Starburst ODBC drivers to meet stringent security standards.
	+ Implemented SQLPrepare, SQLExecute, and SQLFetch functionalities in the Starburst ODBC driver.
	+ Enhanced driver functionality with support for aggregation functions and native filtering capabilities.

**Insight Software Pvt Ltd**

**Role: Software Engineer**

**Project: MEMPHIS (rest api) ODBC Connectors January 2017 – March 2020**

**Description:** The Simba ODBC Driver by InsightSoftware offers a high-performance connectivity solution, enabling access to various data sources using your preferred analytic tool. As diverse data sources often store information in structures distinct from conventional relational tables and columns, a mapping to a relational format becomes essential. Traditional ODBC and JDBC toolsets may not inherently support these unique data structures. To address this, the Simba ODBC Driver employs schema tables to effectively map the data into formats compatible with both ODBC and JDBC standards.

**Environment:** Hadoop, C++, SQL, Jenkins, AWS S3, MapR, REST API, ODBC Test Tool, PowerBI, Tableau, Perforce, Visual Studio 2019, Postman, Fiddler, Windbg, Wireshark, JSON, XML, Certificates, SSL, HTTP, HTTPS

**Responsibilities:**

* **RESTful ODBC Connectors:**
	+ Created and maintained RESTful-based ODBC drivers for Marketo, Salesforce Marketing Cloud, ServiceNow, Oracle Eloqua, Oracle Responsys, Xero.
	+ Implemented driver authentication methods such as Basic, OAuth 1.0, and OAuth 2.0.
	+ Developed Get-Token Flow and Refresh-Token Flow for two-legged and three-legged authentication.
	+ Enhanced driver performance with support for Pagination, API Filters, Concurrent Calls, and Bulk Insert.
	+ Conducted training sessions for new hires, guiding them in building new ODBC drivers.
* **SaaS SDK:**
	+ Provided a streamlined solution for the effortless creation of RESTful ODBC Drivers.
	+ Accelerated the driver generation process through a user-friendly UI, reducing the need for manual configurations.
	+ Implemented different authentication mechanisms, multiple pagination mechanisms, and data parsing functionalities.
	+ Facilitated the enhancement of throttling support in the SaaS SDK.
* **Angles for SAP ODBC Connector:**
	+ Implemented Simba Angles for SAP ODBC data connector, enabling direct SQL query translation to SAP ERP data.
	+ Enabled Collaborative Query Execution (CQE) for high-performance access to SAP ERP data.
	+ Supported token-based and basic authentication, CQE functionalities like filters, aggregates, projection, sort, and limit.
	+ Developed a SQL Parse Function for translating SQL queries to POST request bodies.
	+ Implemented a Data Parser to map HTTP responses to the result set column map.
	+ Introduced multi-threaded functionality to improve the performance of data fetch through concurrent API calls.

**Synergy Technologies**

**Role: Software Engineer**

**Project: AI Powered VOIP Chatbot for Auto Service Feedback July 2015 – Dec 2016**

**Description:** The “AI Powered VOIP Chatbot for Auto Service Feedback**”** project was a pioneering initiative aimed at revolutionizing the way customer feedback is collected and analyzed for car services. As a software developer at Synergy Technology, I led the development of a sophisticated chatbot application that seamlessly integrated with Twilio's VOIP calling service, creating an innovative and interactive platform for users.

**Environment:** Python, PyCharm, Jupiter notebook, SQL Server, Sci-Kit Learn, Pandas, NumPy, Matplotlib, NLP, VOIP, Twilio

**Responsibilities:**

* Spearheaded the end-to-end development of the chatbot application using Python, ensuring a user-friendly and intuitive conversational interface.
* Collaborated with UX/UI designers to implement responsive design principles, enhancing the overall user experience.
* Integrated Twilio's VOIP calling service seamlessly into the chatbot, allowing for automated and interactive feedback collection through phone calls.
* Conducted thorough testing to ensure the reliability and efficiency of Twilio integration, troubleshooting any issues that arose during the process.
* Developed and implemented sentiment analysis algorithms to evaluate the emotional tone of user feedback.
* Utilized machine learning techniques to continuously improve the accuracy and relevance of sentiment analysis results.
* Established mechanisms for real-time data analysis, enabling prompt identification of customer sentiments and actionable insights.
* Developed dashboards and reports to visualize trends, patterns, and sentiment scores, providing management with accessible and meaningful information.
* Designed and implemented strategies to enhance user engagement with the chatbot, ensuring a positive and interactive experience.
* Conducted A/B testing and gathered user feedback to iteratively improve the chatbot's conversational flow and effectiveness.
* Maintained comprehensive documentation of the chatbot application, including system architecture, codebase, and integration details.