

# Madhu Shivakumar

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**Summary:** Driven by a passion for innovation and efficiency, I leveraged my expertise in **Python** and **strategic problem-solving** at Acorns, **saving over \$400k annually** through **data analysis optimizations**. My work spans from **enhancing ETL pipelines** to contributing to **open-source projects**, showcasing my ability to **improve processes and drive projects to completion**.

## Skills:

- Artificial Intelligence
- Data Visualization
- Statistical Machine Learning
- Python, GO
- CSS, HTML, JavaScript
- Data Analysis
- Databricks (Unity catalog)
- AWS(glue, S3, DynamoDB etc)
- C, scala, Java
- GCP (GCS, BigQuery, cloud SQL)
- SQL, Postgres, Oracle SQL
- SPARK, NumPy, PyTorch
- Airflow
- Datadog
- DynamoDB
- REST APIs
- Distributed computing
- Design and implementing ETL

## Work Experience:

### Open Source Contributions:

2023 – 2024

- Developed coding examples to facilitate the transition from Keras to Keras 3.0, incorporating support for multiple backends.
- Developed a dataset generator an ETL data pipeline capable of extracting data from YouTube, structuring it into formats similar to LibriTTS, and facilitating the training of Text-to-Speech (TTS) models for various languages. [Git Link](#)

### Data/ Software Engineer – Acorns | Irvine, CA

May'22 – Nov'23

- Conducted analysis on **Databricks cost logs** to address Job inefficiencies, resulting in an annual cost **savings of \$400k+**.
- Implemented **data governance tool** for user self-service access using **Python**, **reducing daily direct requests by 40%**.
- **Optimized** a recommendation algorithm, using **statistical analysis**, to reduce runtime and **save \$110k+** annually.
- Developed automation scripts in Python to streamline **CI/CD** processes, resulting in a **30% reduction** in deployment time.
- Engineered complex **ETL** pipelines using **PySpark**, optimizing data extraction, transformation, and loading from diverse sources, such as **Redshift, S3, Kinesis Streams, and Kafka**.
- Built a Slack bot using **GPT-3 LLM** to address customer questions, winning the hackathon's judge's award.

### Systems/ Software Engineer – Hewlett Packard Enterprise | Bangalore, India

Jan'19 – Dec'20

- Built an **end-to-end command-line interface in C** for seamless protocol management to advance **Outbound Route Filtering (ORF)**
- Developed tools for the GNU Project Debugger, that enables visualization and analysis and **reduced debugging time by 50%**.
- Designed a **monitoring tool** that automated Operational health reports, resulting in a **20% improvement** in build quality assessment, a **30% reduction** in critical build errors, and an average time **savings of 2 hours per day**.

## Projects:

### Arizona State University | Tempe, AZ

2021 – 2022

#### Projects On Artificial Intelligence

- Applied Model-Based **Reinforcement Learning (MB-RL)** to optimize gait parameters of a sidewinding snake robot, utilizing a combination of robotics and advanced machine learning techniques.
- Created a **3D human reconstruction** system through pose estimation, coupled with the design and implementation of an **AI-powered gym trainer** that delivered customized workout instructions based on exercise-specific heuristics.
- Built and trained a **bot crawler** to pull itself forward using reinforcement learning.
- Implemented **uninformed search algorithms BFS, DFS, UCS** and informed search algorithms, such as **A\*** that trained a Pacman environment to find the optimal paths to food.

## Education:

MS in **Robotics and Autonomous Systems (AI)**, Arizona State University, AZ, USA

2021 – 2022

B. Tech in **Computer Science and Engineering**, PES University, KA, India

2015 – 2019

## Certifications:

- Data, Data Everywhere - [Certificate](#)
- Deep Neural Networks - [Certificate](#)
- Neural Networks - [certificate](#)
- Structuring ML Projects - [certificate](#)
- Python - [certificate](#)
- Improving DNN - [certificate](#)