ABDUL REHMAN MOHAMMAD

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SUMMARY

Results-driven software engineer with comprehensive expertise in developing robust data pipelines and innovative software applications across diverse technological domains. I specialize in designing scalable applications and implementing architectural solutions using cloud technologies, containerization, and infrastructure optimization. With a proven track record spanning multiple industries—from research and broadcasting to sports technologies—I excel at taking ownership of complex projects, collaborating effectively in team environments, and delivering meaningful technological solutions that drive organizational success. I hold a certification as a Node.js application developer (OpenJs JSNAD), showcasing my proficiency in the language.

WORK EXPERIENCE

Full Stack Developer, Champion Data — Feb 2025 - Present

- Developed full-stack applications for the AI/ML team, integrating with inference engines to deliver real-time in-game insights for analysts and clients.
- Collaborated with computer vision engineers to build an edge-based optical tracking system for Australian Rules Football at Marvel Stadium, featuring GCP cloud integration for sub-second ball tracking data feeds.
- Delivered a Next.js browser dashboard to visualize ball tracking data and manage venue cameras and inference workers.
- Worked with data analysts to create a dashboard for visualizing athlete tracking data (GPS + LPS) and applied machine learning to extract insights on player positions, matchups, using Next.js, Python, and PostgreSQL.
- Engaged with clients to gather requirements and delivered product demonstrations at key milestones.

Software Engineer, Australian Broadcasting Corporation (ABC) — Jun 2022 - Feb 2025

- Spearheaded improvements to the ABC's digital API platforms for data aggregation and content delivery, achieving 99.5% uptime during critical events like elections and emergencies.
- Refactored data ingestion processes by transitioning to serverless architecture, resulting in increased efficiency and cost savings.
- Architected API capabilities to enhance application scalability and performance, significantly boosting user capacity and reducing response times.
- Developed and optimized data models in PostgreSQL, leveraging SQL to create materialized views, design efficient schemas, and implement indexing for improved API data access.
- Contributed to boosting the organization's profile by publishing insightful blog posts and delivering presentations at industry conferences.
- Upgraded and expanded existing backend services in Typescript while also developing new API services as requested by downstream product teams.

Software Engineer, University of Melbourne — Jan 2021 - Jun 2022

- Facilitated the creation and implementation of research-focused IT systems using full-stack technologies, such as MERN and LAMP stacks.
- Oversaw backend infrastructure in Linux environments and employed container orchestration tools like Docker and Kubernetes for cloud deployments, ensuring scalability and effective integration of big data technologies for machine learning and API development.
- Directed the development of specialized research applications, including a virtual instrument project and a heart disease treatment platform, leveraging frameworks such as React, d3.js, and Tone.js.
- Trained natural language models to analyze sentiment and develop topic models on extensive social media datasets (>50Gb) sourced from Twitter, YouTube comments, Reddit, and Flickr.
- Built API microservices in Node.js and Python for aggregating large datasets and executing inference on various machine learning models.

Student Project Supervisor (Contract), University of Melbourne   Jul 2021 - Jun 2022

- Supervised student teams in the Software Project subject (COMP90082) for the Master's of Information Technology, guiding them through project lifecycles.
- Provided mentorship to ensure timely project completion, implementing strong communication strategies with faculty and external stakeholders.
- Assessed project outcomes and delivered constructive feedback to drive continuous improvement and student success.

Engineering Internship, Metso (formerly Outotec)   Nov 2019 - Mar 2020

- Designed AI and machine learning software for sophisticated process controllers, facilitating real-time communication via inter-process sockets and enhancing predictions for greenhouse gas emissions.
- Built online learners utilizing deep neural networks and weighted ensembles for ongoing model optimization, harnessing Python along with essential libraries like Pandas, scikit-learn, and TensorFlow.
- Employed Object-Oriented Programming to merge AI solutions with Outotec ACT simulations, effectively conveying outcomes to stakeholders and clients.

EDUCATION

Master's of Information Technology   **Jan 2019 - Dec 2020**
University of Melbourne

- Major in Distributed Computing
- GPA of 3.3

Bachelor of Science   **Jan 2012 - Aug 2015**
University of Melbourne

- Major in Pharmacology
- Minor in Chemistry

KEY SKILLS

Node.js & Typescript	**Python**	**PostgreSQL**
Full	Full	Full
AWS	**Linux**	**Next.js & React.js**
Professional	Professional	Professional

PUBLICATIONS

Mapping the Chatter: Spatial Metaphors for Dynamic Topic Modelling of Social Media
The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences
08/2022
https://doi.org/10.5194/isprs-archives-XLVIII-4-W1-2022-315-2022

The Australian Digital Observatory: Social Media Collection, Discovery and Analytics at Scale
The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences
05/2023
https://doi.org/10.1007/978-981-99-2233-8_23

Lifting the hood on how the ABC combines weather, emergency and location data
Australian Broadcasting Corporation
09/2023
https://www.abc.net.au/digital-product/how-the-abc-combines-weather-emergency- and-location-data/102756766

PRESENTATIONS

A Practical Perspective on Managing and Utilising Diverse Data Streams
2024 Common Alerting Protocol (CAP) Implementation Workshop and Training
10/2024
Recording: https://cap-workshop.s3.amazonaws.com/2024/videos/3-13.mp4
Slides: https://cap-workshop.alert-hub.org/2024/presentations/australia-broadcasting-corporation.pdf