

MAHMOUD ABDELHADI

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SKILLS

Languages JavaScript/TypeScript · SQL · R · Python · Golang · Java · GraphQL

Frameworks Angular · React · Vue · Docker · Node.js · Gin · Flask · Spring · Jest · Cypress · Spark

Tools Git · Git Actions · Cloud Platforms (AWS, Azure, OCP4) · Kubernetes · Terraform · Agile Methodology

TECHNICAL EXPERIENCE

Royal Bank of Canada (RBC)

September 2022 - September 2023

Data Engineer Co-op | Python, R, SQL, Node.js, Vue, NuxtJs, TypeScript, Jest, Docker, AWS, Azure, Jenkins

- Entrusted as a project lead to oversee overall system architecture and development for new modules, reflecting exceptional performance and a rapid advancement in responsibility over the internship course
- Reduced data loss by 90% by improving ETL pipeline efficiency and reliability by introducing data quality checks and upstream schema changes recognition to provide early problem detection
- Completed overall migration efforts 3 months ahead of initial timeline by leading a cross-functional cloud migration for backend bank audit system utilizing best practices to migrate from virtualization engine Pivotal Cloud Foundry to Azure,
- Reduced page load times by 50% and improved overall client satisfaction by upgrading web app framework from Nuxt2 to Nuxt3 with end-to-end regression testing, optimizing API calls and database queries
- automated manual audit approval workflows from hundreds of hours to real time approvals by containerizing and deploying GraphQL engine to prod environment with corresponding test suite, secrets management, deployment & network configs
- Implemented Auth code flow with PKCE utilizing Azure Active Directory to integrate with existing wider enterprise SSO system

Tutankhamun FC

May 2021 - August 2021

Machine Learning Engineer Co-op | Python, Sklearn, Tensorflow, Pytorch, MLflow, SQL, AWS (EC2, S3, API Gateway, IAM)

- Utilized YOLOv5 real-time object detection model and ByteTRACK to track and collect in-game football data to pinpoint prominent features, analyze players' data and build ML models to improve overall performance
- Evaluated models using collected real-time data, leading to a model with 63% accuracy over 10 games

EDUCATION

University of British Columbia, Vancouver, BC

Completed: May 2024

Bachelor of Applied Sciences – Electrical & Computer Engineering

Upper-level GPA: 82.8% (A-)

Relevant coursework: Data Structures & Algorithms, Cybersecurity, Computer Architecture, Software Design, Databases, operating systems

Awards: IMES Scholarship (merit-based \$100,000 scholarship for outstanding academic achievements), Dean's Honor List (2020 – 2023)

PROJECTS

FormAI Fitness App | Go, TypeScript, React Native, PostgreSQL, AWS, Terraform, Github Actions, Hashicorp Vault

- Architected a cross-platform fitness social media platform, where users can share photos/videos, message, and compete
- Utilized AWS suite (S3, CloudFront, and EC2) for compute and storage, Terraform and Github actions for CI/CD pipeline

Amazoom Automated Warehouse | .NET, C#, SQL, HTML, CSS, LinQ, Multithreading

- Implemented a front-end interface using CSHTML & SQL, including shopping cart functionality, administration portal, tiered authorization, relational databases of carts, users, items and UML, sequence, use-case, and class diagrams for each class
- Programmed multi-threaded backend to implement automatic robot delivery, anti-collision system, & battery charge simulation
- Optimized robot delivery algorithm to enhance truck delivery, restocking, and item placement by 50% from original approach

Formula One Prediction Neural Network | Python, Sklearn, Pytorch, BeautifulSoup, W&B

- Extracted and organized data from various sources using APIs and website scrapers, feeding into two neural networks with data over a 10-year period, incorporating a three-layer linear network with Softmax activation and dropout, alongside an MLP classifier from Sklearn, using Weights and Biases API for hyper-parameter tuning and result visualization
- Tested both models with data from 2020 and 2021 season; best model predicted 14/22 race winners for 2020 season and 11/17 race winners for 2021 season, with each race having 20 drivers

Abe Batthish
VP, Digital Product Innovation, Analytics & Data, Internal Audit, RBC
abe.batthish@rbc.com

To whom it may concern,

I am writing this letter to wholeheartedly recommend **Mahmoud Abdelhadi** for any academic or professional endeavor he chooses to pursue. I have had the privilege of working closely with Mahmoud during his tenure as a Data Engineer at RBC, and I am continually impressed by his dedication, expertise, and the significant impact he has made within our organization.

Mahmoud has consistently demonstrated exceptional proficiency in a wide range of responsibilities, showcasing his technical skills, problem-solving abilities, and leadership qualities. He has taken on additional responsibilities beyond his initial role, and his achievements are truly remarkable.

One of Mahmoud's key accomplishments involved architecting and implementing a real-time notification pipeline utilizing the Hasura GraphQL engine. This innovation streamlined processes, automated approval workflows, and eliminated manual reconciliation, resulting in increased efficiency and significantly reduced response times. His work has played a pivotal role in digitally transforming our audit processes.

In the area of cloud adoption, Mahmoud led the charge in creating a roadmap for Azure cloud adoption for IA's suite of ML/AI applications. His analysis of technical advantages, engagement with various teams, and documentation of strategies showcased his strategic thinking and ability to drive technological shifts. His efforts ensured a smooth transition to the cloud and improved deployment practices.

Mahmoud's development of the AE Profile module showcased his full-stack capabilities. This feature greatly enhanced the audit planning process, offering a centralized starting point, standardization, and improved user experience. His dedication to improving processes and user experiences is commendable.

Furthermore, Mahmoud played a pivotal role in ensuring data quality and integrity within our organization. His oversight of Dataiku version upgrades, implementation of data quality checks, and mechanisms to prevent data loss demonstrated his commitment to maintaining high standards and accuracy in our data-driven decisions.

Lastly, his contribution to the development of a Data API for the CRM Template Module exemplified his innovative thinking and problem-solving skills. By streamlining processes and reducing development time, he consistently seeks ways to improve functionality and efficiency.

In conclusion, I am confident that Mahmoud possesses the skills, determination, and work ethic to excel in any academic or professional pursuit he chooses. His accomplishments at RBC are a testament to his dedication and ability to drive impactful changes. I wholeheartedly recommend Mahmoud and believe that he will continue to thrive and make valuable contributions wherever he goes.

Please feel free to contact me at abe.batthish@rbc.com if you require any further information or insights regarding Mahmoud. I am more than willing to provide additional details to support his application.

Sincerely,



Abe Batthish
VP, Digital Product Innovation, Analytics & Data
Internal Audit, RBC