KHALED BADRAN

AI Engineer and Software Researcher

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PROFESSIONAL EXPERIENCE

AI Engineer 01/2025 - Current
Kuwait Finance House *Kuwait, Shuwaikh*

- Managed the full model lifecycle, implementing CI/CD pipelines and tuning models for cloud and on-premises deployment.
- Deployed 10+ bilingual RAG systems on Azure for different departments.
- Built voice-enabled agents utilizing Whisper models and Microsoft Azure Speech.
- Built an on-premises, bilingual OCR and NER pipeline for automated information extraction from documents.
- Designed a talk-to-your-data LLM tool, enabling staff to query business data using natural language.
- Contributed to designing an on-premises central AI platform, including hardware sizing, LLM orchestration and tool use (MCP).
- Built a bilingual chatbot handling 50+ banking tasks with over 90% accuracy.
- Developed a service that anonymizes 20+ types of sensitive data in documents, ensuring privacy and compliance.
- Mentored junior developers through their first production feature deployments.
- Delivered technical workshops for staff across departments to drive company-wide adoption of AI.
- Built a multi-skill Microsoft Copilot agent using Copilot Studio and Power Apps, integrating SharePoint and internal APIs to automate employee workflows and knowledge access.

AI Developer 01/2023 - 05/2023
National Bank of Canada *Montreal, Canada*

- Developed plans to protect sensitive production data by implementing anonymization techniques and synthetic data generation.
- Conducted market research to evaluate over 70 open-source and commercial solutions.
- Collaborated on project proposal, securing funding within one quarter.

Research Assistant 01/2019 - 05/2024
Concordia University *Montreal, Canada*

- Published and presented research work at various top-tier international conferences and journals, accumulating over 480 citations.
- Collaborated on various research projects with a focus on the integration of machine learning and natural language processing into software engineering.
- Conducted user studies with developers, product managers, and other stakeholders to better understand their workflow and challenges.
- Delivered technical presentations to academic and industry audiences at international venues.

EDUCATION

MSc Software Engineering 2021 - 2024
Concordia University *Montreal, Canada*

- Outstanding Evaluation, Dean's Honour List student
- Thesis: Using ChatGPT to Augment Software Engineering Chatbots Dataset

Software Engineering For AI Program Trainee 2021 - 2024
Concordia University *Montreal, Canada*

- Relevant Courses: Software Engineering for Large Language Models, Technology and Society

BSc Software Engineering 2017 - 2021
Concordia University *Montreal, Canada*
- GPA: 3.96, Dean's Honour List student

TRAINING & WORKSHOPS DELIVERED

AI-Assisted Thesis Writing 2024
Concordia University *Montreal, Canada*
- Delivered a graduate-level workshop on using LLMs to help graduate students in writing their thesis.
- Trained participants on effective prompting techniques and ethical considerations in academic contexts.

Improving Your Daily Workflows Using AI 2025
Kuwait Finance House *Kuwait*
- Designed and delivered a workshop for KFH staff on practical applications of LLMs in their daily work tasks.
- Covered topics including different AI tools, the use of Microsoft Copilot within the Microsoft suite of tools.

PERSONAL PROJECTS

AskGit Available at askgit.io
- Implemented the first chatbot to compile data from code and issue-tracking repositories and answer developers' questions about their software project.
- Leveraged different Large Language models and vector databases in the chatbot implementation.
- Conducted user studies with over 20 developers, project managers and other support professionals, presenting findings on the effectiveness of the chatbot.
- Reached over 200 users through GitHub's Marketplace.

Arabic Music Generation Personal Project
- Fine-tuned ACE 1.5 using LoRA on Arabic music to produce more authentic melodies, rhythms, and instrumentation.
- Built a lightweight training and inference workflow (data preparation, checkpointing, and listening-based evaluation) to iterate quickly across genres and styles.

PUBLICATIONS

Using ChatGPT to Augment Software Engineering Chatbots Dataset K. Abdullah et al.
- Accepted Thesis, Submitted at ICSME
- Researched ChatGPT's potential to augment chatbot training datasets, finding an NLU performance increase of up to 11.6% F1-score across SE datasets.

MSRBot: Using Bots to Answer Questions From Software Repositories K. Abdullah et al.
- Published in Empirical Software Engineering (EMSE)
- Conducted a study with 12 participants, showing that the chatbot improved task completion speed by 3.6 times compared to traditional approaches.

A Comparison of Natural Language Understanding Platforms for Chatbots in SE K. Abdullah et al.
- Published in IEEE Transactions on Software Engineering (TSE)
- Conducted comparative evaluation of four popular NLU platforms for SE chatbots.

Challenges in Chatbot Development: A Study of Stack Overflow K. Abdullah et al.
- Published at Mining Software Repositories (MSR) 2020

- Analyzed over 120 million Stack Overflow posts to identify key topics for chatbot developers.

Can Ensembling Pre-processing Algorithms Lead to Better ML Fairness? K. Abdullah et al.
- Published in IEEE Computer
- Conducted empirical evaluation of fairness pre-processing algorithms and provided actionable recommendations.

TECHNICAL SKILLS

Programming Languages: Python (proficient), HTML & CSS (proficient), Java (advanced), JavaScript (advanced), SQL (advanced), C++ (moderate)
Platforms & Libraries: pandas, SciPy (proficient), RASA, Google Dialogflow (proficient), ChatGPT, Copilot (advanced), Git (advanced), Scikit-learn (advanced), Angular (advanced), Docker (advanced), Cloud Computing (moderate), React (moderate)

AREAS OF EXPERTISE

Software Engineering, Natural Language Processing, Machine Learning, Clustering, Chatbots, Software Bots, Large Language Models, Big Data, Machine Learning Fairness, Synthetic Data Generation, Data Analysis and Visualization, Mining Software Repositories

HONOURS & AWARDS

Fonds de Recherche du Quebec Graduate Scholarship 2023
Valued at $17,500 - Financial support for high-calibre master's students in Quebec

NSERC Canada Graduate Scholarship 2022
Valued at $17,500 - Financial support for high-calibre master's students in Canada

Top Concordian Graduate Scholarship 2022
Valued at $10,000 - Recognizes exceptional achievement and encourages top students

VOLUNTEERING & SERVICES

Workshop Organizer 2023
Women In Engineering Conference
- Designed and delivered a workshop for high-school students introducing core concepts in machine learning.
- Created 16 chatbots to emulate famous people to gamify the learning experience.
- Presented technical concepts in an accessible manner for a younger audience.

Web Chair 2023
International Conference on Mining Software Repositories (MSR)
- Managed the conference website at conf.researchr.org/home/msr-2023
- Createaed, edited, and consistently updated website content to showcase research tracks, committee members, and accepted publications.

Web Chair 2023
International Workshop on Bots In Software Engineering (BotSE)
- Managed the workshop website at botse.org
- Created and maintained website content for the workshop.