

Ahmed Sadek Mohamed Tawfik

Principal Software (Engineer | Architect | Leader | Mentor)

Professional Profile

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EXPERIENCE BRIEF

With **Master of Science (MSc)** degree in Mechanical Engineering, **Mini MBA**, and **Microsoft Certified Professional (MCP)** since **2001**. The author of this curriculum has had a vast experience in building and leading sophisticated projects that covered the business needs ranging from oil companies to the census of country levels.

The author participated in a many **mentorship** events, distinguishably **Nasa Space Apps Hackathons in Cairo** with mentoring and being in the **Judge Panel**.

His Master's dissertation output was a state-of-the-art Desktop Application that employed a new concept in **CFD (Computational Fluid Dynamics)** pre-processing **meshing** tools that consisted of a custom **CAD** environment with new **Geometric Algorithms** to generate Hybrid Structured and UnStructured meshes. The generated mesh is then exported to any **Finite Volume Solver** for further processing.

During **2011** He was responsible about **Kuwait Census** with more than **600,000 Population** Physical Form beside the census **Website** that acted as a **hub** for accepting citizens details who preferred to give their information on the internet. Additionally, he designed and implemented the **Census Database** and linked it to the **Call Center** to review and check the census integrity through specialized campaigns.

In **2003** He overcame a tough challenge in making **ERP** solution for **Weahterford** petroleum services. The system was the brute force of the company in **Egypt** and **Libya** during **2003** to **2007** in managing its **Salaries**, **Purchasing Department**, **Stock Control** and **Voucher systems**. The system succeeded in connecting the company main office to their remote **workshops** in the desert.

Company Name	Role	Year
Fantastic Modeler	Founder Self Employed	2020 – Present
<ul style="list-style-type: none"> A Subscription based Collaborating Platform that will help engineers, artists, and educators to unleash their modeling capabilities in 2D and 3D environment through Web, Desktop and Mobile Technologies. https://www.youtube.com/channel/UC4dIeBL--dsG2AnqnrTil0g 		
AB3D Labs	Principal Software Engineer	2017 – 2020
<ul style="list-style-type: none"> Sole implementor of the company 3D models prediction licensed and patented algorithm. 		
Elibre	Principal Software Engineer / Architect	2015 – 2017
<ul style="list-style-type: none"> Writing and Implementing new (proprietary, and patented) geometrical algorithms that accelerates the prototyping of constructional, and architectural building designs. Coaching young engineers and tutored them in various programming tasks related to geometry algorithms implementation. 		
Technowireless	Technical Team Manager	2013 – 2014
<ul style="list-style-type: none"> Helping account managers in the Business Analysis phase and specifying clients' requirements. Leaded the company team through workshops in how to maintain a healthy source control environment for CI/CD in delivering projects. Established the company source control source control and CI/CD strategies in addition to organizing the company codebase. 		
Right Vision Corporate	Lead Engineer / Architect	2010 – 2012
<ul style="list-style-type: none"> Kuwait Census Business Analysis and Database design and implementation. SharePoint Architecture Analysis for the census process. Code reviews and mentoring for the team to ensure the census rules and guidelines in verification phase. 		
Blue Bridge Technologies	Advanced Senior Software Engineer.	2007 – 2010
<ul style="list-style-type: none"> Sharepoint Design, Implementation, and Deployment. Participation in the Design Meetings and software features through decision making. 		
Weatherford Petroleum Services	Consultant Contractor.	2003 – 2007
Tatweer Soft	Senior Software Engineer.	2003
El Shazly Software (Medical Solutions)	Independent Consultant Contractor	2002

<i>Education and Certifications</i>		Year
MSc <i>Mechanical Engineering</i>	Computational Fluid Dynamics - <i>Interactive Mesh Generation</i>	2015
Mini-MBA (Minimized Master Business of Administration)		2014
Postgraduate Diploma Refrigeration, Heating, and Air Conditioning		2008
BSc in Mechanical Engineering . Helwan University		2006
MCP (Microsoft Certified Professional)	MCPID# 2476558	2001

Language Skills

- **Arabic:** Native
- **English:** Fluent with **Toefl** score **85**: Reading **20**, Listening **24**, Speaking **20**, Writing **21**
- **French:** Beginner (*Les Course de Langue Francaise, du premier niveau*)
- **German:** Beginner
- **Japanese:** Beginner (Preparing for JLPT N5 Exam)

Selected Achievements

1) Fantastic Mesh Desktop (MSc)

The software is a state of art desktop application for creating **2D** and **3D** meshes used in the process of CFD (Computation Fluid Dynamics) Analysis.

The Application is highly intensive 3D CAD system to assist the researcher for building 3D models and gridding its spaces into hexahedral meshes that are exported to various types of Finite Volume CFD Solvers. The application implemented many numerical, geometrical, and algebraic algorithms using **C#** and **OpenGL**. <http://fantasticmesh.com>

2) Kuwait Census

I was the person who implemented the **ICR** (Intelligent Character Recognition) Forms for the census of Kuwait 2011 from defining fields to the global relations of rules. In addition I designed the Operation and the Workflow of the system besides supervising the system and testing it. I designed the link between the *call center* and the missing information from the system. I trained the **operation managers** of the system itself. Around 600,000 form for **Population** and 200,000 forms for **Buildings** and **Establishments**.

Designed the Census Database that links **People**, **Houses**, and **Buildings** with each other to be used by the ministry of the statistics and census in Kuwait, and to be later used with the data mining tools.

Moreover I architected the eCensus website that accepted Registration and People details. We used the **SharePoint** as Infrastructure. I was the leader of the team and implemented the important pages of the detailed information of household and its members using a heavily optimized javascript to apply the ministry rules of census, minimizing the overhead processing by transferring it from the server to the clients machines.

3) Quantity System Language / Platform

<http://QuantitySystem.org> is an open-source library for scientific calculations through units' conversions and quantities prediction. The library key strengths includes but are not limited to:

- **New language Syntax** for Mathematical Expressions
- Embeddable as a **Dynamic Language** in the .NET ecosystem.
- Inclusion of **Scalars, Vectors, Matrices, and Tensors** Algebra.
- Inclusion of **Symbolic Calculations** blended with numerical calculations in the same context.

Technical Skills Overview	
.NET Platform (10+ years Solid Experience)	.NET 4.5, C# 6.0, VB.NET, and Managed C++/CLI
	WPF, WCF, WF, Power Shell, and DLR
ICR / OCR	<ul style="list-style-type: none"> Certified ABBYY Developer http://www.abbyy.com/
Server Solutions	<ul style="list-style-type: none"> Microsoft Office SharePoint 2007-2010 Exchange 2007 (Using Exchange Web Services EWS).
Audio	MIDI programming through GM 1.0 specification.
Database solutions	SQL Server , Access, and Embedded DBs like SQLITE .
Graphics and Display	GDI+ , and OpenGL 4.0, ES 2.0 and WebGL .
Server Internet Technologies	ASP.NET MVC, XML, XPATH, and XSLT .
Client-Side Web	Vue, JavaScript, TypeScript and HTML5
Scripting & Scientific Languages	<ul style="list-style-type: none"> Python, Perl, and Ruby Matlab, Mathematica, and Maxima
Design and Modeling	<ul style="list-style-type: none"> UML Modeling. DSL (Domain Specific Language) Design, and DDD (Domain Driven Design) (Hands on) TDD (Test Driven Development)
Distributed & SOA	COM, COM+, Web Services, WCF, Restful and WebAPI .
Assembly Language	<ul style="list-style-type: none"> Z80 8 bit [MSX Using ZEN> Assembler]. x86 Real Mode 16 bit [Dos]. Nasm, Masm Assemblers and Inline Assembly in C.
Technical Writing	<ul style="list-style-type: none"> Scientific writing using LATEX / Lyx
Operating Systems	Windows, Linux, FreeBSD, and old MSX .

Selected Projects History

Blue Bridge Projects (2007-2009)	
InHouse (SharePoint Advanced Document Manager)	
<ul style="list-style-type: none"> SharePoint Wiki Library Customization. Special custom component for HTML to PDF Conversion Custom workflow for Wiki documents to be converted into PDF 	
Kapsch Kibsi (SharePoint Interfacing Website)	
<ul style="list-style-type: none"> SharePoint Customization of the Publishing Feature featuring New Site Templates, automatic lists, Web Parts, Custom Forms and many areas of SharePoint skinning and programming. Replace the old portal site of Kapsch on the internet with their new look and feel web site employing SharePoint as their back end. http://www.kapsch.net 	
UNIDO Offline Questionnaire	
<ul style="list-style-type: none"> InfoPath forms in an offline windows application using XML, XSLT, XPath, and XPath functions. Interactive InfoPath Emulator Component (doesn't depend on InfoPath or Office infrastructure) The offline data are stored at SharePoint backend web service. UNIDO (United Nations Industrial Development Organization) 	

Weatherford Petroleum Services (2003-2007)			
A suite of projects ranging from Intranet Applications to Windows Applications started since 2003			
Years	Development Share	Status	Technologies
2003-2007	> 97%	N/A	ASP.NET, C#, SQL Server
Purchasing System [Egypt Branch]			
<ul style="list-style-type: none"> Intranet Purchasing application include Two Approval cycles beginning from site requests to warehouse delivery by applying electronic signatures for approvals. 			

Purchasing System [Libya Branch]	
<ul style="list-style-type: none"> Same as Egypt Branch but employing different Approval Cycles. 	
Weatherford Payroll Program	
<ul style="list-style-type: none"> Windows application holding Weatherford Salaries with implemented before TAX law modifications and then modified to meet the new Tax rules. Windows Application with Sql Server. 	
Weatherford Stock Control System	
<ul style="list-style-type: none"> Windows application managing Weatherford assets and items in conjunction with the purchasing system. 	
Voucher Application	
<ul style="list-style-type: none"> Conversion of legacy voucher software o store vouchers and printing Checks. Windows Application C#, and Sql Server 	

Scientific Projects	
Music Software for PhD Degree (Validation of music composition)	
<ul style="list-style-type: none"> The software used during the PhD of Professor "<i>Sahar Abd El Maleek</i>". Achieved in 2009 Western and Arabic Music Scales like (Bayaty, Saba, Rast, Rahet El Arwah, and etc.) http://lostparticles.net/Software/ArabicMusicComposer 	
<i>Technologies</i>	<ul style="list-style-type: none"> MIDI Programming GUIDO Native C++ Library for Score drawing. .Net 3.5 and C#

Activities

- **Nasa Space Apps Cairo Hackathon Mentor/Judge** (2015 – 2019)
- *First Supply Chain Management Conference (SCOR)* - Dusit Thani Hotel in Cairo (July-2010)
- *The first Arabic forum for Developing Strategic Plans in Renewable Energy* (UNESCO & Cairo University June - 2010)
- *Science & Engineering Conference* – American University in Cairo (Feb-2010)
- Participated in **Leadership Helwan Institute** in 2002.

Organizations Memberships

- [**ASHRAE**](#) (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Member
- [**IASA**](#) (International Association of Software Architects) Member

Free Time Hobbies

- **Playing Lute:** Learning to play lute in the *Arabic Lute House* under supervision of **Naseer Shamma**.
- **Biking** and **Lifting** Weights.
- **Learning** New **Languages**