

Ahmed Sadek Mohamed Tawfik

Principal Software Engineer

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EXPERIENCE BRIEF Has a Master of Science (**MSc**) degree in Mechanical Engineering, (**Mini MBA**), and Microsoft Certified Professional (**MCP**) since **2001**. I have a vast experience in building sophisticated systems spanned from oil companies to census of country levels. The merging of real-world challenges with the scientific study background helps me in taking crucial decisions during critical situations.

The master's hypothesis output is a sophisticated desktop application that employs a new concept in the **CFD** (Computational Fluid Dynamics) pre-processing tools. It is a meshing program that involves a simple **CAD** System with **Meshing** Algorithms that generates hybrid meshes. The generated mesh is exported to a **Finite Volume** CFD Solver. The software uses **OpenGL**, **C#**, and my Open Source **Quantity System Framework** for Numerical & Symbolic Calculations.

In **2011** I was responsible about the **Kuwait Census 2011**. With more than **600,000 Population** form and the **Electronic Web Site** that accepted citizens details who preferred to give their information on the internet. In addition to link the Data to the **Call Center** for reviewing and quality check through specialized campaigns.

In **2003** as an Independent professional I overcome 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 workshops with remote sites at desert.

Company Name	Position	Year
AB3D Labs	Principal Software Engineer	2017 – Current
<ul style="list-style-type: none"> Developing 3D modeling software based on a 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. BIM (Building Information Management) Software Development Manager using AutoCAD, and Revit Autodesk Platform. Implementation of online drafting tool using latest web technologies of TypeScript, and WebGL. 		
SAB / Technowireless	Technical Team Manager	2013 – 2014
<ul style="list-style-type: none"> Business Analyst and specifying Client requirements Leading the company team in delivering projects Organizing the company code base and building the company source control methodology 		
Right Vision Corporate	Lead Engineer / Architect	2010 – 2012
<ul style="list-style-type: none"> Business Analysis and specifying Client requirements Sharepoint Analysis for the census process. Ministry Reporting for the current status of census progress. Code reviews and mentoring for the team to ensure the company guidelines in code. Documentation review for the solution to ensure highly illustrative documents. 		
Blue Bridge Technologies	Advanced Senior Software Engineer.	2007 – 2009
<ul style="list-style-type: none"> Sharepoint Design, Implementation, and Deployment. Participation in Design Meetings and software features through decision making. Documenting features and architecture of the solutions. Reviewing and documenting the deployment (setup) process for the solution packages. Ensuring integrity of the software features and the company guidelines. 		
Weatherford Petroleum Services	Independent Consultant.	2003 – 2007
<ul style="list-style-type: none"> Documenting the business cycles of approvals and the path of written papers through the organization. Specifying business requirements and making proof of concepts (prototypes) software. Documenting and reviewing required features. Designing and implementing the required software. 		
Tatweer Soft	Senior Software Engineer.	2003
El Shazly Software	Independent Professional.	2002

Educations & Certifications		Year
MSc <i>Mechanical Engineering</i> Computational Fluid Dynamics - <i>Interactive Mesh Generation</i>		2015
Mini-MBA (Minimized Master Business of Administration)		2014
ABBYY Certified Flexi Capture Developer (<i>ICR/OCR</i>) http://www.abbyy.com/		2011
Postgraduate Diploma Refrigeration, Heating, and Air Conditioning		2008
BSc in Mechanical Engineering. Helwan University		2006
MCP (Microsoft Certified Professional)	MCPID# 2476558	2001

Selected Achievements

1) Fantastic Mesh Software (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 2011

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**.

I **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 include but are not limited to:

- **New language Syntax** for Mathematical Expressions
- Based on **Microsoft DLR** (The base library of **IronPython** and **SilverLight**)
- 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.

Personal Language Skills

- **Arabic:** Excellent
- **English:** Excellent 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

Technologies, and Skills	
ICR/OCR Developer	Certified ABBYY Developer http://www.abbyy.com/
.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
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	NodeJS, 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, DCOM, 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	▪ Scientific writing using LATEX / Lyx
Operating Systems	Windows, Linux, FreeBSD, and old MSX .

Selected Projects History

Right Vision Corporate Projects (2010 - 2011)	
Kuwait Census 2011	
<ul style="list-style-type: none"> ▪ Forms Workflow Operation Design and Call Center Integration. ▪ ICR (Intelligent Character Recognition) Forms Implementation (ABBYY Software). ▪ Electronic Census Web Site. (Design, and Lead) ▪ Kuwait Census Human Resource website. 	
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 web site)	
<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	
PhD Music Software (Validation of music composition) (2007 – 2009) new version for lute house 2012	
<ul style="list-style-type: none"> The software used during the PhD of Professor "<i>Sahar Abd El Maleek</i>". Achieved in 2009 The software is in an extension phase for the Arabic Oud House under supervision of Naseer Shamma 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#

Open Source Projects	
<ul style="list-style-type: none"> Quantity System Framework Symbolic Algebra Library <i>GitHub Open Source Projects</i> 	<ul style="list-style-type: none"> http://www.QuantitySystem.org http://SymbolicAlgebra.codeplex.com https://github.com/ibluesun

Organizations Memberships

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

Activities

- Nasa Space Apps Cairo Hackathon Mentor/Judge** (2015 – 2017)
- 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)
- Sciences & Engineering Conference* – American University in Cairo (Feb-2010)
- Participated in **Leadership Helwan institute** in 2002.

Free Time Hobbies

- Playing Lute:** Learning to play lute in the *Arabic Lute House* under supervision of Naseer Shamma.