Ahmed Fathy Elnokrashy

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CAREER OBJECTIVE

An active & ambitious career relevant to R&D of medical devices, Biomedical Engineering, Electrical Engineering, Software Engineering and computer science.

MASTER SKILLS

C++ programming Language
C programming Language
C#
Assembly programming Language
OpenGL
OpenCL
Cg
Parallel programming using CUDA
Parallel Programming using OpenMP
Device driver(WDM)
MFC visual studio
Multi-Threaded Programming
Socket Programming
Open CV
Real Time Operating system(RTX)
DSP
PLD design (ALTERA and xilinx tools)
VHDL
PCB design using Orcad, P-Cad and Spectra
Analog and digital circuit design
Ultrasound machine design
Project planning using Microsoft project
Image Processing (Specially Ultrasound images)
DICOM
linux

UNIVERSITY EDUCATION

1993 – 1998 Faculty of Engineering - Cairo University
B.Sc. Systems and Biomedical Engineering.
Completed the college with Very Good degree.
Achieved an Excellent evaluation in graduation project.

2007 Faculty of Engineering - Cairo University
M.Sc. Systems and Biomedical Engineering.
Master in Ultrasound Doppler

2014 Faculty of Engineering - Cairo University
PHD. Systems and Biomedical Engineering.
4D Ultrasound Visualizaion and processing

COURSES

Mastered miscellaneous programming tools pioneering

C		→(*Excellent*)
C++		→(*Excellent*)
C#		→(*Excellent*)
Delphi	→(*Excellent*)	
Multi-Threaded Programming		→(*Excellent*)
OpenGL		→(*Excellent*)
OpenCL	→(*very good*)	
CUDA		→(*Excellent*)
OpenMP		→(*Excellent*)
RTX		→(*Excellent*)
VC++		→(*Excellent*)
Socket Programming		→(*Excellent*)
Open CV	→(*very good*)	
Visual Basic		→(*very good*)
SQL	→(*good*)	
Keil compiler (8051, ARM7)		→(*Excellent*)
Assembly language		→(*Excellent*)
VHDL		→ (*Excellent*)
Operating system device driver(WDM)		→ (*Excellent*)
Operating system device driver(linux)		→ (*good*)
Linux operating system		→ (*good*)
Related miscellaneous tools		
IDL	→(*very good*)	
Matlap	→(Very *good*)	
Lapview	→(very *good*)	
The Point Cloud Library (PCL)		→(*good*)

Engineering
PCB design using Orcad, P-Cad and Spectra
PLD programming using ALTERA and xilinx development tools
Course in the TV & Radio circuitry design and maintenance.
Course in Ultrasound system design and production (Universal Sonics USA) 2000
Course High-end Ultrasound system design and implementation (TETRAD Corp.)2006
Course in Data Analysis (*statistical science, duke university*) with distinction,2014

PROJECTS

- Under Graduate Projects
- Graphics project "Painting tool implementing vector images". Using VC++.
- AI(Artificial Intelligence) project "puzzle" Using VC++.
- Library Information System project Using C.
- ICU measuring and control system:

  Implementing a system to measure and control all the environmental parameters of the intensive care unit (ICU) room (Temperature, light, fire protection, door control, noise detection) this system interfaced to the PC using parallel port with C language program.

Graduation Project

Design and development of LASER diode instrument for physiotherapy, using 8051.
Design Engineer (2000-2006)
Black and white Ultrasound:
Ultrasound testing, Maintenance and Production.
Research and development.
Project planning, as a hardware team leader.
Ultrasound Doppler:
Research and development.
Project planning, as a hardware team leader.
OEM EKG (Electrocardiography) module for ultrasound machine:
Research and development
Project planning, as a hardware team leader.
OEM ultrasound keyboard
Research and development
Testing, Maintenance and production.
Project planning, as a hardware team leader.
Artificial kidney firmware using RTX from keil company:
Software development
Software team leader (start at 2006):
Developing software for ultrasound system
Device driver design and implementation
Scan Converter design and implementation (OpenMP)
Beamformer algorithm design and implementation (OpenMP)
Speckle Reduction module based on anisotropic diffusion filter using CUDA
User interface
Software Manger (start at 2008):
www.ibetech.com
4D ultrasound
Design and Develop 4D ultrasound system
Visualization based on OpenGL
CUDA (filter implementation)
Signal and image Processing (OpenMP)
www.ibetech.com

TEACHING EXPERIENCE

C.A.S.B.E.C. *(Cairo university-Faculty of engineering)*
Medical power supply design
IMC *(Industrial Modernisation Center)*
ARM7 Architecture
IMC *(Industrial Modernisation Center)*
Embedded Real-Time operating system RTOS
C.A.S.B.E.C. *(Cairo university-Faculty of engineering)*
VHDL
SBME *(Cairo university-Faculty of engineering)*
CUDA
SBME *(Cairo university-Faculty of engineering)*
OpenMP - Multicore parallel programming
MIU *(Misr International University)*
Ultrasound System Architecture

CIBEC 2012

Parallel computing in medical images: multicore and GPU processing

SBME *(Cairo university-Faculty of engineering)*

Device driver design (WDM)

SBME *(Cairo university-Faculty of engineering)*

OpenGL-CG

CHI (Cairo Higher Institute For Engineering, Computer Sciences And Management)

Real-Time Operating System (2014/2015)

CHI (Cairo Higher Institute For Engineering, Computer Sciences And Management)

Introduction to Computer Science II (2014/2015)

MUST *(Misr University for Science & Technology)*

Advanced Ultrasound Imaging (2014/2015)

CIBEC 2014

Parallel computing in medical images: CPU and GPU processing

WORK EXPERIENCE

International Electronics:

From 1999 - 2002

Title: hardware Design engineer

From 2002 to 2006

Title: hardware Design team leader.

From 2006 to 2008

Title: software team leader

2007

M.Sc. Systems and Biomedical Engineering.

2008

Title: software manger

2014

PHD. Systems and Biomedical Engineering.

LANGUAGES

Proficient in English.

Arabic native language.

PERSONAL DETAILS

Military service: attempted.

Marital status: married.

Nationality: Egyptian.

Birth Day: 10/2/1975.

Work skills

PROGRAMMING

- Assembly program for ultrasound keyboard, it include PS2 trackball, 8 sliders, 5 Knops and 5 LEDs all using one chip 8051 controller
- Interface program (Visual C++) for ECG machine
- USB firmware interfacing ultrasound Machine with PC(Tetrad Corp)
- USB firmware interfacing EKG module with PC
- Firmware for ECG QRS detection
- Software for dialysis machine, ARM7 and RTOS. Haidylena company
- Firmware for DATALOGGER using cypress PSOC controller, supporting file system
- PCIE device driver for ultrasound machine using Microsoft DDK tools
- PC-based beamformer algorithm, OpenMP
- PC-based scan-converter algorithm, OpenMP
- Speckle reduction algorithm based on anisotropic diffusion filter, CUDA
- 4D ultrasound visualization and processing software using OpenGL, CG shading language and CUDA

PCB DESIGN

- PCB design and layout:
  OEM ECG (TETRAD corporation).
  Ultrasound DC-DC switched mode power.

PLD PROGRAMING

Small module for testing OEM modules
FPGA VHDL program for Doppler ultrasound module using ALTERA maxplus2.
FPGA VHDL program for PC-based oscilloscope, xillinx Spartan3. EZ Scope

HARDWARE ANALOG DESIGN SKILLS

Sliding filter for analog beamformer
Logarithmic amplifier for analog beamformer
TGC amplifier for analog beamformer
Dynamic delay element design for analog beamformer
TR Switch for pulsar circuit for analog beamformer
Ultrasound board testing and maintenance
Mixer circuit for spectral Doppler
Switched capacitor and switch resistor filters for spectral Doppler
Hilbert transform using analog filters for audio spectral Doppler.\
DC-DC design
Electrical safety used for design of ECG module to isolate and protect patient.
Sensor interface for dialysis machine

PLANNING AND CONTROL

Good experience in Microsoft project planning.

SKILLS

PUBLICATIONS

- Nonparametric clutter rejection in Doppler ultrasound using principal component analysis (SPIE2003)
- GPU-Based Reconstruction and Display for 4D Ultrasound Data (10.1109/ULTSYM.2009.0046)
- Multipass GPU Surface Rendering in 4D ultrasound (SIPEC IEEE 2012)
- Optimized GPU Processing Framework for Surface Rendering in 4D Ultrasound Imaging (J. Med. Imaging Health Inf. 4, 197-202 (2014))

REFERENCES

Prof: Abo Bakr Youssef (Professor of Biomedical Engineering Systems & Biomedical Engineering Faculty of Engineering, Cairo University)
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Prof: Yasser Mustafa (Professor of Biomedical Engineering Systems & Biomedical Engineering Faculty of Engineering, Cairo University)
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