Hemin Ibrahim

Machine learning, Programmer, IT team leader, iOS developer, e-System Designer

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With a background in mathematics, advanced software engineering and artificial intelligence, I bring more than 20 years of experience with computer programming, including using languages such as Python, Java, PHP, C++, MATLAB, and TensorFlow, Keras, and PyTorch libraries to the novel field of Artificial Intelligence. My current research and projects focus on different areas in AI such as machine learning, speech signal processing, social robotics, and computer vision. I have published 4 international-level papers in high reputation journals such as in IEEE and Springer. I have 4 years of university-level teaching experience, 2 years in directing the university's IT Department, and a chairperson of computer engineering department. Moreover, I have created 11 iOS apps that have more than 935k downloads on Apple store. I've created more than 32 dynamic websites and database management applications. I integrate knowledge from my background in mathematics, statistics, encryption, deciphering, machine learning, data mining, and indexing into the projects that I am involved in. In addition to technical development, I have been an advocate of Internet and computer literacy and e-government in the Middle East since 2002 through regular columns in media outlets.

Professional Experience

- ❏ 4.5 years working on machine learning, deep learning and robotics at University of Malaya – Malaysia.
- ❏ 2.5 years working at advanced robotic lab with various robotic projects.
- ❏ 4 years as a university-level teaching at Komar University of Science and Technology.
- ❏ 2.5 years as a director of IT office and lead IT team at university,
- ❏ 1.5 years as a chairman of computer engineering department.
- ❏ 20 years solid technical and leadership experience in programming, UI design, database design, development, and deployment of Object-Oriented software systems.
- ❏ More than 9 years experience in iOS app development.
- ❏ Designing more than 32 dynamic websites and created more than 7 database systems.
- ❏ 4 years as an editor in chief of the most popular IT magazine in Kurdistan (C4kurd Magazine).

Skills

❏ Machine learning, deep learning.	4.5 y	❏ Objective-C	8y
❏ MATLAB	6 y	❏ UI Design, HTML, JavaScript	15 y
❏ MySQL	13 y	❏ Java	8 y
❏ Python	4.5 y	❏ Object Oriented Programming	8 y
❏ Debugging	10 y	❏ Web Services	15 y
❏ Cocoa touch	4 y	❏ Swift	5 y
❏ PHP	13 y	❏ C++	13 y
❏ Parsing JSON	13 y	❏ XML	5 y
❏ Realm	3 y	❏ Database Design	13 y

Education

Nov 2017-Apr 2022 — **Ph.D.: Artificial Intelligence**

Universiti Malaya - Kuala Lumpur, Malaysia

- Research focus: Speech Signal Processing, Speech Emotion Recognition, Echo State Network, Random Projection, Recurrent Neural Network.

Sep 2012-Sep 2013 — **Master of Science: Advanced Software Engineering**

University of Sheffield - United Kingdom

- Thesis: A Social Networking App and Web Database for Carers. The main aim of this study is to build a social networking application for the iPhone to share personal information between friends.
- Awarded a national scholarship.

Oct 2006 - Jun 2011 — **Bachelor of Science: Information Technology**

University of Kurdistan-Hewler, Iraq

- First Class Honors.
- Thesis: UKH-Blackboard Web Interaction Service.

Oct 1995 – Sep 2001 — **Bachelor of Science: Mathematics**

University of Salahaddin - Hawler, Iraq

Thesis: A desktop software for encrypting texts using PlayFair cipher algorithm.

Graduated Research Assistant, Jan. 2018 – Nov. 2019

University of Malaya, Kuala Lumpur, KL

Responsibilities:

- ❏ Worked in the Advanced Robotics Lab at the University of Malaya regarding develop AI based applications, face recognition, robotic, and speech emotion recognition using deep learning.
- ❏ Assisted the lead faculty's research on AI for academic pursuits and practical applications.
- ❏ Built, configured, and tested robotic applications.
- ❏ Created, tested, and debugged AI models and commercial applications for mobile devices and robots.
- ❏ Designed and developed robot system for restaurant services using AI model with python and MySQL databases (Django) for detecting customer's emotions with facial expressions.
- ❏ Working on supervised, semi-supervised and self-supervised models.
- ❏ Four years working and experiencing on machine learning libraries and deep learning frameworks such as Tensorflow, Keras, PyTorch, OpenCV, knowledge in preparing GPUs, scikit-learn, and Caffe.
- ❏ Adopting Matlab, python and Java for AI models.

Projects:

- ❏ Detect emotions from speech and facial expression and use it for creating an empathic robot.
- ❏ Café Shop robot, that can recognize the face and welcoming the registered person by voice. Detect person's emotion and update a live chart each second. Archive all user's emotions and save it in a database, and within an online website can access to a daily report.
- ❏ Convert speech to text and detect emotion as a sentiment analysis in real-time.
- ❏ LinkUS an intelligent system for connected aging with integrating AI models.
- ❏ Help a master student for Heartbeat project using human face.
- ❏ Smart glasses for face recognition.
- ❏ Handwash detection project by using recurrent neural network to prevent covid-19.

Faculty Member, IT Director and Head of Department, Feb. 2014 – Jan. 2018

Komar University of Science and Technology, Sulaimaniah, Iraq

Responsibilities:

- ❏ Chairman of Computer Engineering department.
- ❏ Member of the university council, the leading agency running the university with other deans and university president.
- ❏ Coordinated the university's efforts in receiving ABET and national accreditation.
- ❏ Supervised capstone projects in e-Commerce department that included web design, e-government and database systems.
- ❏ Designed and taught 12 different courses in the departments of Computer Engineering and Business.
- ❏ Delivered workshops, seminars, and training for university staff on computer literacy and network security.
- ❏ Directing the IT functions and leading IT staff at Komar University, including creating and running the university website, creating the university's registration database, supporting and training the university network, and supervision, also oversight of all IT-related projects.
- ❏ Assistant Coordinator of University Quality Assurance. We have a responsibility for improving teaching quality at our university and writing strategy for improving the quality of teaching based on America's standard.

Projects:

- ❏ Built the university's student registration system.
- ❏ Upon starting at the university, designed an online application receiving and reviewing system for new students that saved the university more than $20,000 in 2 months.
- ❏ First to introduce Google Classrooms at an Iraqi university, on the very first day Google Classroom was released.
- ❏ As director of the university's IT center, creating 4 database systems for HR, labs, student affairs and IT office.
- ❏ Redesign the university website by Drupal.
- ❏ Leading to establish university new campus network (4 buildings).
- ❏ I had responsibility as a coordinator of IT committee at Komar University for two years. With the team of 6 members, we design a new vision for improving IT at University.

Full Stack Developer July 2020 – Present (Part time)

IMMC Innovation Sdn Bhd, Kuala Lumpur, KL

Responsibilities:

- ❏ Web-based system development which includes the development of design and develop the frontend and the backend of web-based system.
- ❏ Deliver performance-driven and user-centric websites per business requirements.
- ❏ Review codes, debug problems and correct issues.
- ❏ Work with the team who preparing vending machines and design API.
- ❏ Support the deployment and maintenance of software that make it more efficient.
- ❏ Developing database design, adding new features to the backend server using PHP and improve the web UI design.

Projects:

- ❏ Create online system for vending machines.
- ❏ Develop backend and frontend e-system for salesman

Founder, Mar. 2005 – Present

C4kurd, Erbil, Iraq

Responsibilities:

- ❏ Founder
- ❏ Editor in chief of C4kurd Magazine.
- ❏ Design C4kurd Magazine pages.
- ❏ Marketing for C4kurd Magazine.
- ❏ Developing and designing the iOS apps from scratch.
- ❏ Expert level experience in website, user interface and graphic designs, as well as banners, brochures, posters and advertisements using Adobe Creative suite such as Photoshop, InDesign and Dreamweaver.
- ❏ Database design using PHP, MySQL, and MS Access.
- ❏ Object Oriented Programming by Java and Matlab.
- ❏ Writing code, tests, fixing bugs, writing documentation, performing code review.

Description:

- ❏ C4Kurd is an IT solutions organization and website and publisher of C4Kurd Magazine, Iraqi Kurdistan's most widely distributed monthly publication dedicated to information and communications technology (discontinued after 54 issues).

Projects:

- ❏ Developed Quality Assurance e-system for local universities which contains database design, backend and frontend UI design, and using PHP and MySQL to build the whole system.
- ❏ Designed and programmed databases using MS Access and Visual Basic for numerous companies and ministries and departments of the KRG (Kurdistan Region Government).
- ❏ Developed more than 32 websites using PHP, MySQL, CSS, HTML, jQuery, XML and JSON.
- ❏ Developed 11 iOS apps which have more than 935k downloads on the Apple Store using Swift 5, SwiftUI and Objective C supported by PHP and MySQL as a server side and SQLite as a local database.
- ❏ Web hosting and domain registration: over 120 websites.
- ❏ Created a special keyboard layout program for writing the Kurdish alphabet for Internet users.
- ❏ Created a special keyboard layout for Kurdish language for both Mac and Windows users.
- ❏ Created an electronic English-Kurdish dictionary by using visual basic.
- ❏ Published 54 IT Magazine within 4 years.

iOS developer, Apr. 2018 – Jun. 2018 and Nov. 2019 – Jun. 2020

UMCH Technology Sdn. Bhd., Kuala Lumpur, KL

Project description:

- ❏ The app name is WeHealth, and the app can track your weight, food intake, blood pressure, heart rate, oxygen, concentration and sleep progress to help you stay on the path to fitness.

Responsibilities:

- ❏ Worked with professors in health and AI departments at the University of Malaya to build healthcare and fitness apps.
- ❏ Connect and use the medical devices to the app to store health records.
- ❏ Develop a health and fitness app that tracks weight, food intake, blood pressure, heart rate, oxygen level, and sleep progress.
- ❏ Store and retrieve data from Realm as local database and update the MySQL as server database.

- ❏ Developing and designing new APIs and help the help the team in frontend and backend server.
- ❏ Applied Apple's Swift development language to code native apps for iOS platform (WeHealth app).
- ❏ Writing code, tests, fixing bugs, writing documentation, and code review.

Administrative management, Mar. 2003 – Mar. 2006

Asin for Computer, Iraq-Erbil

Project description:

- ❏ Computer shop for selling computers, reinstalling systems, designing websites and databases.

Projects:

- ❏ Web and Database design.
- ❏ Computer selling, assembly and service.
- ❏ Graphic designs, including banners, posters and advertisements.
- ❏ Opening training courses for more than 1000 people in different programs such as MS. Word, MS. Excel, MS. Access, Photoshop, Visual Basic, and courses in using internet.

Administering the Internet café, Jan. 2002 – Mar. 2003

Max internet Café shop, Iraq-Erbil

Responsibilities:

- ❏ Network and Internet services.
- ❏ Web design services.
- ❏ Training course for Internet, database, MS Word, Excel, and Photoshop Courses.

Projects:

- ❏ Design and develop the special system to organize the café shop.

Academic Publications

- ❏ H. Ibrahim, C. K. Loo and F. Alnajjar, "Speech Emotion Recognition by Late Fusion for Bidirectional Reservoir Computing with Random Projection," in IEEE Access, vol. 9, pp. 122855-122871, 2021, doi: 10.1109/ACCESS.2021.3107858.
- ❏ Ibrahim, H., Loo, C. K., & Alnajjar, F. (2021, December). Grouped Echo State Network with Late Fusion for Speech Emotion Recognition. In International Conference on Neural Information Processing (pp. 431-442). Springer, Cham.
- ❏ Ibrahim, H., Loo, C.K. & Alnajjar, F. Bidirectional parallel echo state network for speech emotion recognition. Neural Comput & Applic (2022). https://doi.org/10.1007/s00521-022-07410-2.
- ❏ Ibrahim, H., & Chu Kiong Loo. (2022). RESERVOIR COMPUTING WITH TRUNCATED NORMAL DISTRIBUTION FOR SPEECH EMOTION RECOGNITION. Malaysian Journal of Computer Science, 35(2), 128–141. Retrieved from https://ejournal.um.edu.my/index.php/MJCS/article/view/34676
- ❏ H. Ibrahim. (2013). A Social Networking App and Web Database for Carers. Master thesis. The University of Sheffield.

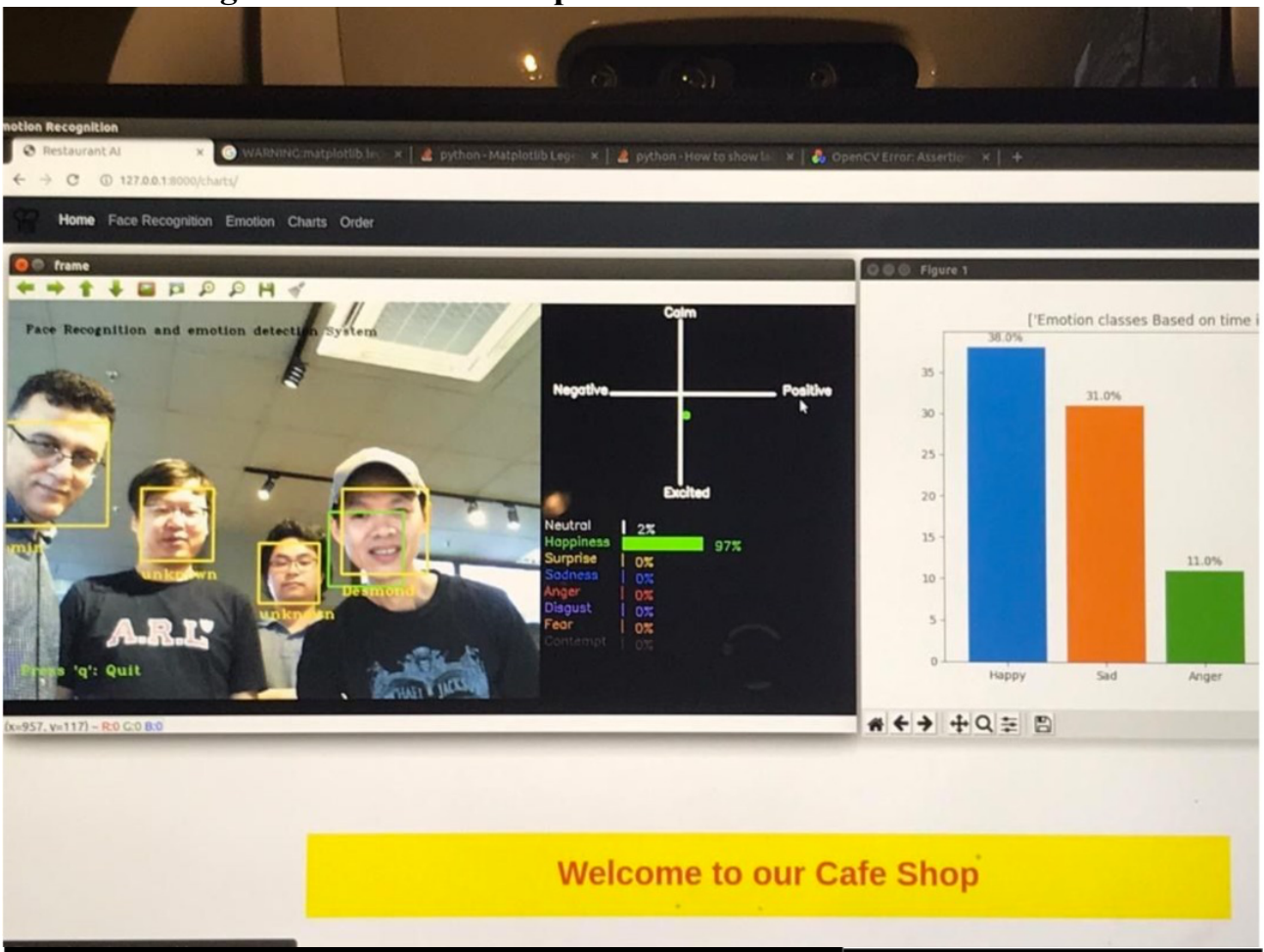
General Publications:

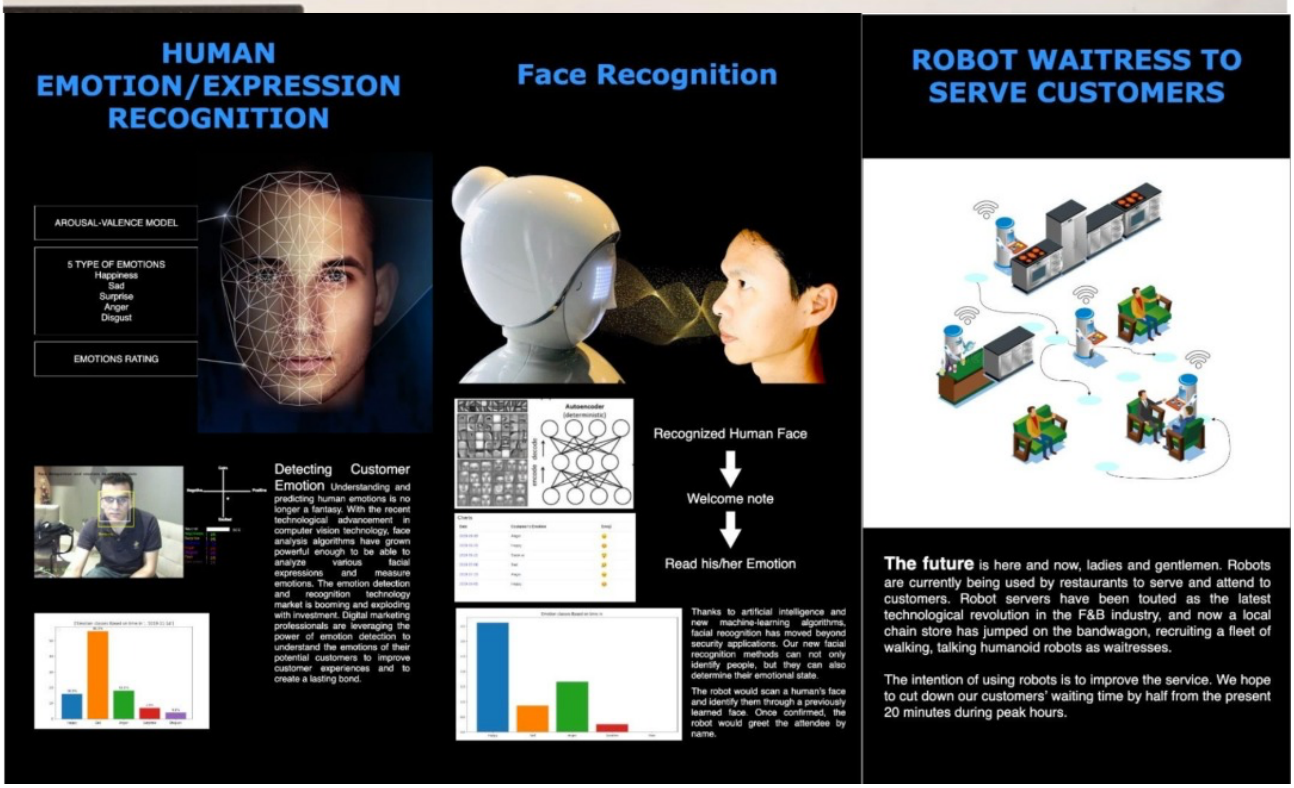
- ❏ Ibrahim, Hemin F. (2004) Tips for Designing and Programming Websites, Education press, Erbil.
- ❏ Published more than 15 articles in Xebat Newspaper, a daily newspaper, about how to use computer and the Internet.

- ❏ Published more than 100 articles in C4Kurd magazine, a technology publication, about information technology, e-Government, mobiles, website programming and learning computer software.
- ❏ Published numerous articles in Data Magazine, an IT magazine, about programming and computers in general.
- ❏ Published more than 30 video e-learning tutorials about designing websites.

Samples of My Apps, Websites, and Projects

Emotion recognition from facial expression





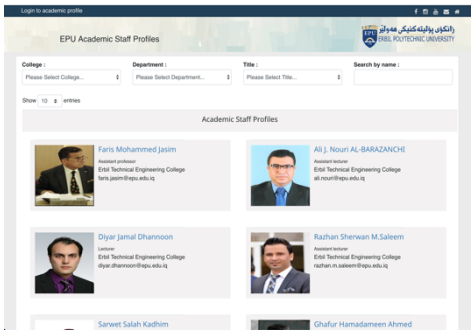
Quality Assurance e-systam for universities

Websites: I started to design a website from 2003-2019. I created more than 30 websites and I was providing domains and hosting to my clients. I ended this job when I was so busy work on my university as IT Director.

Ministry of justice

Student Union Website

Polytechnic University



Journal review website

Oil Company

www.oilbridge.co

FLU University

Rangar Company Website

www.rengar.com

Rojev to Polling website

www.rojev.org

Alsofy Group Website

www.alsofygroup.com

Quick Soft Company Website

www.quicksoftdbase.com

Diwan Company Wensite

www.diwanco.com

College of Technique Website

www.tech-hawler.com

International Union of Businessman website

www.iub-iraq.org

Adan Company

www.adan-co.com

Ministry of Religion

NewCity Supermarket Website

www.newcityiq.com

Naz City Website

www.naz-city.com

AB website

For academic articles

Komar University

Komar.edu.iq

Sport Website

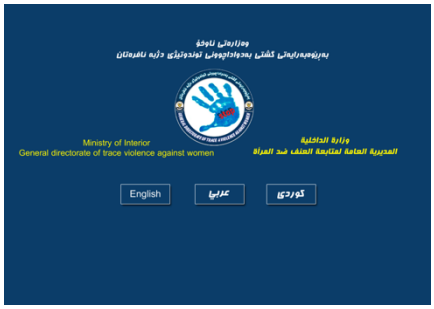
Sarhang Muhsin

Erbil Citadel

www.erbilcitadel.org

Hang Company

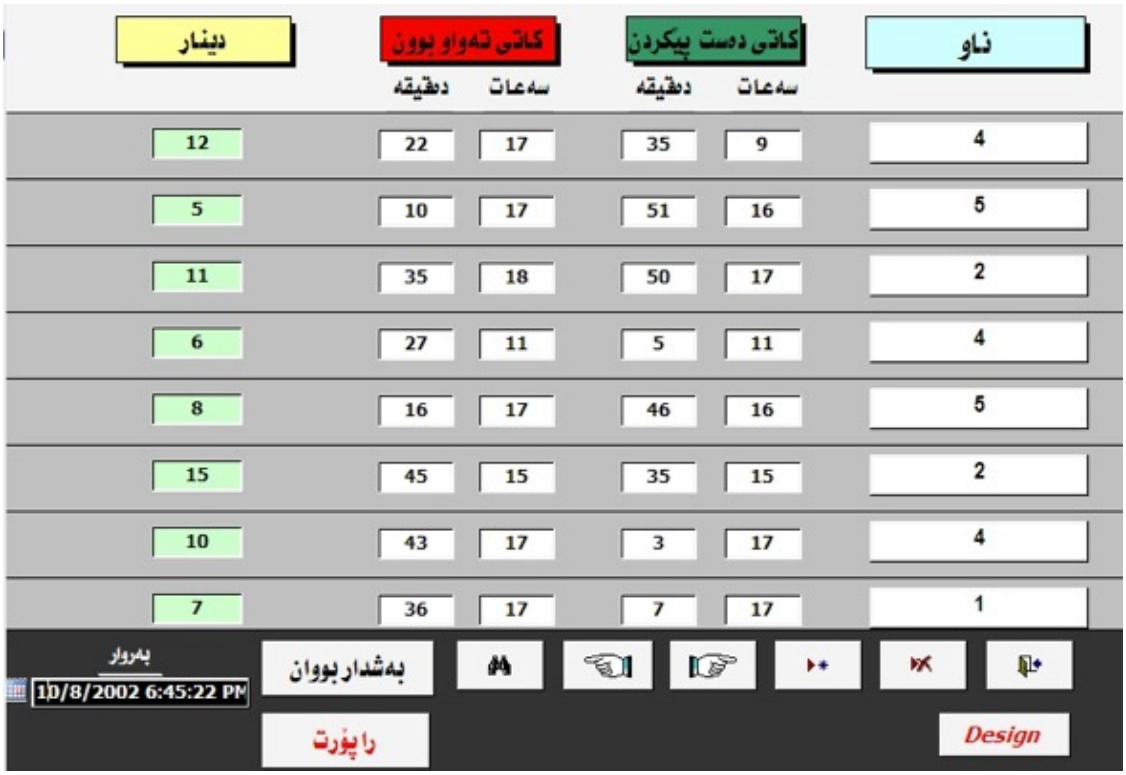
Radio Garmyan

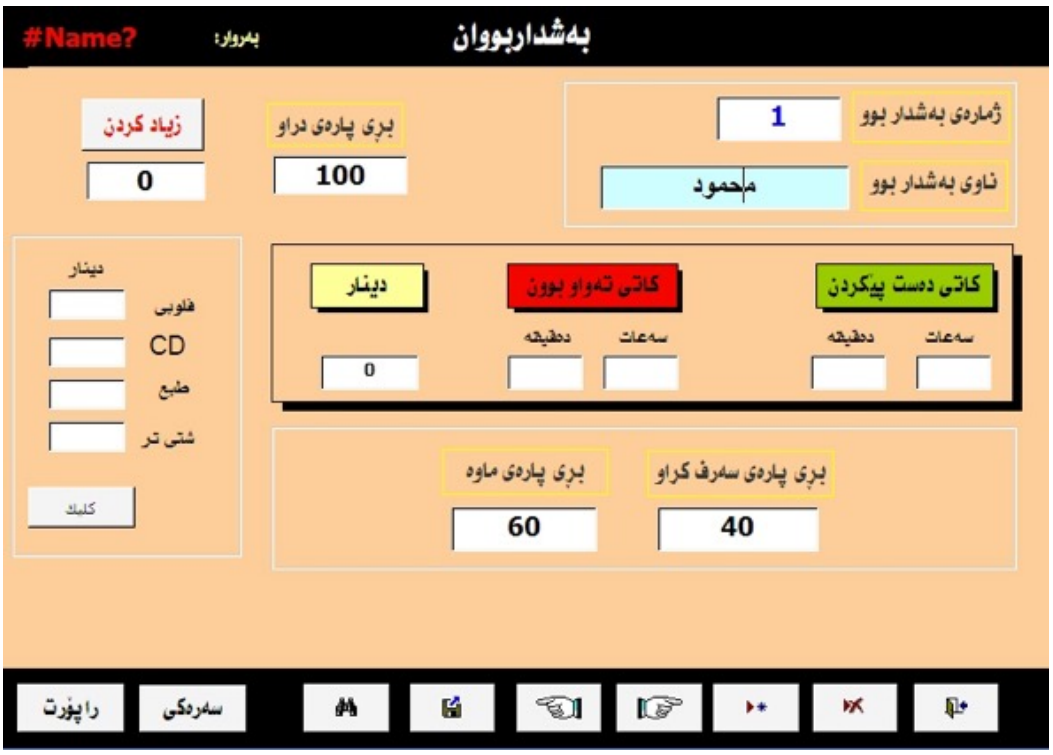


Editor in chief of the most popular Computer Magazine in the region (C4kurd)

Databases: Some samples of my databases

Data Base by Microsoft Access + Visual Basic to Internet Café
In 2002





Asuda Organization Database 2008