

CURRICULUM VITAE

Seyed Babak Moosavi Toomatari

Board-certified General Surgeon with advanced expertise in **vascular access procedures** (chemo ports, dialysis catheters and vascular access) and a unique background in medical software design and image processing

Personal Information

Surname: Moosavi Toomatari

Forename: Seyed Babak

Title: M.D.

Sex: Male

Date of Birth: 12/8/1981

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Iranian Medical Council Registration: No. 113108

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Publication

Books

- Seyed Babak Moosavi-Toomatari, Nariman Sepehrvand, Afshin Mohammadi, **“Radiography Images & Digital Image Processing: Testing Global Histogram Equalization and Unsharp Mask Algorhithems”**, LAP Lambert Academic Publishing, ISBN 978-3-659-17883-2, paperback, 53 Pages
- Nariman Sepehrvand, Seyed Babak Moosavi-Toomatari, **“Venous Thromboembolism & Fuzzy Based Electronic Alerts”**, LAP Lambert Academic Publishing, ISBN 978-3-8484-4840-1, paperback, 116 Pages

Articles

- Seyed Babak Moosavi Toomatari, Kamal Khademvatani, Seyedeh Zahra Karimi Sarabi, **Three and Four Dimensional Characteristics of Color Doppler M-Mode Echocardiography**, November 2023, Medrxiv, (doi: 10.1101/2023.11.07.23298198)
- Seyed Babak Moosavi Toomatari, Seyedeh Zahra Karimi Sarabi, **Calculation of Ellipse Circumference as a Cylindrical Section**, October 2021, Volume 10, Issue 10, (doi: 10.36106/paripex)
- Hemmat Maghsudi, Hojjat Almasi, Seyed Ehsan Mousavai Toomatari, Masoud Fasihi, Sara Akhavan Salamat, Seyed Babak Mousavi Toomatari, Mehdi Hemmati, **Comparison of Primary Closure, Secondary Closure, and Limberg Flap in the Surgical Treatment of Pilonidal Cysts, Plastic Surgical Nursing**, Plastic Surgical Nursing, April-June 2020, Volume 40, Issue 2 ,p 81-85 (doi: 10.1097/PSN.0000000000000297)
- Abdolreza Mehdinavaz, Afshin Alizadeh, Seyed Babak Moosavi Toomatari, Seyed Ehsan Moosavi Toomatari, **Comparing Three Different Methods of Dressing For Skin Graft Donor Site, International Journal of Medical Toxicology and Forensic Medicine**, 2020, 10(2):29059 (doi: 10.32598/ijmtfm.v10i2.29059)
- Ali Enshaei, Afshin Mohammadi, Seyed Babak Moosavi Toomatari, Zahra Yekta, Seyed Ehsan Moosavi Toomatari, Mohammad Ghasemi-Rad, Saber Zafar Shamspour, Zahra Karimi Sarabi, Nariman Sepehrvand, **The diagnostic value of a power Doppler ultrasound-based malignancy**

index for differentiating malignant and benign solid breast lesions, Indian Journal of Cancer, Vol. 57, Issue 1, January-March 2020, Pages 44-48 (10.4103/ijc.IJC_424_18)

- Seyed Babak Moosavi Toomatari, Afshin Mohammadi, Nariman Sepehrvand, Seyed Ehsan Moosavi Toomatari, Mohammad Ghasemi-Rad, Saber Zafar Shamspour, Seyfollah Rezayi, Mohammadreza Toubaei, Zahra Karimi Sarabi, **A novel computerised quantification of thyroid vascularity in the differentiation of malignant and benign thyroid nodules**, Pol J Radiol, 2019, 84: e517-e521 (10.5114/pjr.2019.91208)
- Hemmat Maghsudi, Seyed Ehsan Mousavai Toomatari, Naser Agha Mohammadzade, Farzad Najaf Pour, Sara Akhavan Salamat, Seyed Babak Mousavi Toomatari, Afshin Gharekhani, **Levothyroxine Dosage Determination According to Body Mass Index (BMI) After Total Thyroidectomy**, Erciyes Med J, 2019; 41(2) (DOI: 10.14744/etd.2019.14892)
- Nariman Sepehrvand, Firouz Ghaderi Pakdel, Mohammad Hosein Rahimi-Rad, Babak Moosavi-Toomatari, Shahrzad Bazargan-Hejazi, **Practice Guidelines and Clinical Risk Assessment models: is it time to reform?**, BMC Medical Informatics and Decision Making 2011, 11:63
- Mohammadi A, Aghazadeh J, Ghatte AA, Moosavi-Toomatari SB, Sepehrvand N, Moosavi-Toomatari SE, Ghasemi-Rad M, **Testing Global Histogram Equalization and Unsharp Mask Algorithms for Processing Conventional Chest X-Ray Images**, Shiraz E-Medical Journal Vol. 12, No. 4, October 2011, Pages 172-178
- N. Sepehrvand, S.B. Moosavi Toomatari, F. Ghaderi Pakdel, M.H. Rahimi Rad., **Design of an Electronic Alert Software to Increase Thromboprophylaxis In Admitted Patients**, Journal of Iran University of Medical Sciences, Vol16, Spring 2009. P: 109
- S.B. Moosavi-Toomatari, K. Khadem Vatan, **Design of a Computer Program to Analyze ECG and Detect of QRS Complex Based on Digital Image Processing Techniques**, Thesis of Doctorate Graduate. 2006

Education and Training

- Resident of General Surgery, Urmia University of Medical Sciences, From August 2013 to August 2017
- Resident of Radiology, Damascus University, Syria, From March 2012 to June 2012
- Legal Medicine Course, Legal Medicine Organization of Iran, April 2007 to July 2007
- Doctorate in Medicine, Urmia University of Medical Sciences, Iran, 1999 – 2006
- Educational Period in School: 1987 – 1999
- Member of West Azarbaijan Chemistry Olympiad Team, Spring 1998

- Workshop of " Fuzzy Thinking and Fuzzy Logic Interface in Clinical Reasoning ", Iran University of Medical Sciences (IUMS), May 2009
- Workshop of " Antivirus and Defense Against Internet viruses ", Urmia University of Medical Sciences (UMSU), May 2009
- Workshop of " Research Method ", Urmia University of Medical Sciences (UMSU), November 2002

Professional Experience

- General Surgeon at Imam Sajjad Hospital, Tabriz Azad University of Medical Sciences, From September 2021 until Now
- General Surgeon at Noor Nejat Hospital (Private), Tabriz, Iran, From March 2021 until Now
- General Surgeon at Valiasr Hospital, Zanjan University of Medical Sciences, From November 2017 to May 2020
- Web Administrator of Food and Drug Deputy of Urmia University of Medical Sciences, August 2010 to August 2011
- Member of Legal Medicine Organization of Iran, April 2007 to October 2008
- Internship: March 2005 to September 2006
- Member of Students Research Committee of Urmia University of Medical Sciences
- Head of Computer Group of Students Research Committee of Urmia University of Medical Sciences

Computer Skills

- Advanced Computer Programming with Delphi
- Web Programming: HTML, CSS, Javascript, PHP and Java
- Professional Windows XP and 7
- Proficient in Microsoft Office (Word, Access, Excel)
- Latex (Word processing system for mathematics)
- Proficient in Graphic Software, Specially in Photoshop
- Joomla (Content Management System)
- Basic Programming with Turbo C and JAVA
- Basic Programming with Assembly
- Advanced Search in Internet
- Moderate in Using SPSS

Electronic Skills

- Arduino Programming
- Hardware Programming with Delphi
- Programming of AVR Family Microcontrollers with AVR Studio

- Programming of 8051 Family Microcontrollers with Assembly
- Basic Digital Signal Processing
- Basic Electronics Knowledge

Designed Medical Software

- **Color Doppler Analyzer:** Has been created to analyze color-doppler and power-doppler images of thyroid and breast nodules.
- **Radiograph Smart (Online Software):** 'Radiograph Smart' (RGS) has been created to process simple radiographic images with jpg format and C-arm images with tiff format. This software uses 'Histogram Equalization' (HE), 'Unsharp Mask' (UM) and 'Adaptive Contrast Enhancement' (ACE) digital filters. It can be used as a co-diagnostic device.
- **Angiograph Smart (Registered):** Angiograph Smart (AGS) has been created to apply 'histogram equalization' (HE) and 'Unsharp Mask' (UM) digital filters on angiographic films with *avi* format.
- **Fractal Dimension for Cytology:** Fractal Dimension for Cytology (FDC) has been created to calculate Fractal dimension of the marginal sides of cells in urine smear. This software receives the images of these smears and extracts a box of 512*512 pixels of them and specifies the margin of cells as semi-automatic method by using digital image processing techniques. Finally, calculates the Fractal dimension and displays its graph [diagram] in logarithmic and arithmetic mode.
- **QRS Detector Based on Digital Image Processing Techniques:** This is investigatory software has been created to recognize QRS complex in images taken from an electrocardiograph (ECG). By using a scanner, 8 seconds of the ECG is scanned as bmp format. Finally, this software analyzes these data and recognized QRS complex.
- **Electronic Alert:** This software has been designed to apply electronic alert (E-Alert) in prophylactic treatment of DVT of patients admitted in hospital based on fuzzy logic method.
- **ECG Monitoring System:** EKG Monitor has been designed to receive electrocardiograph (ECG) data by parallel port to gain data from previously designed ECG device.
- **Hear Impairment:** Simple software to calculate the percent of binaural hearing loss.
- **Forensic Medicine Database**

Designed Non-Medical Software

- **GPS Receiver:** This software has been designed to receive GPS data from serial port on the basis of NMEA protocol.
- **Night Vision Camera:** This software converts a webcam to a night vision camera which works in two modes: BW and RGB.
- **Delay Film Creator:** Software to create delay film with webcam in avi format.
- **Aquaculture Automation:** Investigatory software for controlling filters, warmers and lighting of an aquaculture system.

- **TEL Decoder:** Software to convert database of TEL software (which is DOS-based) to Microsoft Access Database.
- **Digital Filter:** A simple program to filter 35, 50 and 60 hertz frequencies.

Congress

- Testing of global histogram equalization and unsharp mask algorithms for processing of conventional chest X-ray images, “2nd World Congress of Thoracic Imaging and Diagnosis in Chest Disease”, 30 May – 2 June 2009, Valencia, Spain. [Poster]
- Testing of global histogram equalization and unsharp mask algorithms for processing of conventional chest X-ray images “The Leiden International Medical Student Conference”, Leiden University of Medical Sciences, Netherland, March 2009. [Oral]
- Design of an Electronic Alert Software to Increase Thromboprophylaxis In Admitted Patients, “The Students International Conference on Biomedical and Interdisciplinary Research”, Iran University of Medical Sciences, Iran, May 2009. [Oral]
- QRS Detection Based on Digital Image Processing Techniques, “The 21st International Medical Sciences Student Congress”, Istanbul University, Turkey, May 2009. [Oral]
- Design of a Computer Program to Interpret ECG and Determine Its PPV of QRS Complex Detection Based on Digital Image Processing Techniques, “The 8th Annual Research Congress of Iranian Medical Sciences Students & The 1st International Student Congress on Medical Research in Iran”, Shiraz University of Medical Sciences, Iran, May 2007. [Poster]
- Design of a Software to Analyze Fractal Dimension of The Marginal Side of Cells in Urine Smear As Semi-Automatic Method, “Students Conference of New Ideas in Medical Fields”, Urmia University of Medical Sciences, Iran, March 2009. [Oral]
- “The 2nd International Congress of Medical Ethics in Iran”, Tehran, Iran, April 2008.
- “The 1st Students Research Congress of North Universities of Medical Sciences”, Rasht University of Medical Sciences, Iran, November 2007.
- “Collective Disasters Conference”, Legal Medicine Organization, Tehran, Iran, May 2007.
- “Infertility and Its Treatments from Legal Point of View”, Legal Medicine Organization, Tehran, Iran, June 2007.

Inventions

- Variable Two Branches Surgical Retractor, Registration No: 104388

Study and Research

Vascular Surgery, Colorectal Surgery, Medical Engineering (Design of Medical Software), Medical Image Processing

Recent Projects

- Design a wireless central post ICU monitoring system
- 3D analysis of M-Mode doppler of aorta arch echocardiography

Hobbies

Taking Photos, Reading (Scientific and Social Fields), Sudoku and Puzzle Solving, Geopolitics, Watching the sociology based movies