Resume

Personal

Name   *Shymaa M. Arafat*

Birth Date   1972

Birth Place   *Malaysia*

Email Shymaa.arafat@gmail.com, shar.academic@gmail.com

Phone

GitHub   https://github.com/DrShymaa2022/,
       https://github.com/Shymaa-Arafat/

Medium   https://medium.com/@shymaa.arafat/

ORCID iD: 0009-0009-7571-4060

Facebook   https://m.facebook.com/100010333725264/

YouTube.   https://youtube.com/@shymaaarafat1342

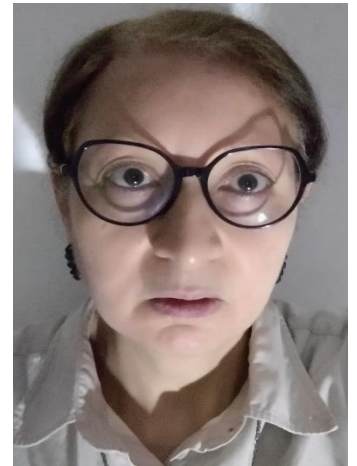**Researchgate** https://www.researchgate.net/profile/Shymaa-Arafat

Wallet address 0xe8a9e41b726ba3eae6837dcf74e00e2d224d5842

Address
    Current residency is in Egypt, but willing to work abroad.

Previous Positions

- Visting Associate Professor at Beirut Arab University, Lebanon (2/2012-4/2012), Faculty of Engineering, Computer Science & Engineering Dept.
- Part time Associate Professor in Computer Engineering Dept., Pharos University, Alexandria, Egypt (Spring 2011, Fall 2009)
- Full time Associate Professor at the Computer Science Dept., Faculty of Computer & Information Sciences, Ain Shams University, Cairo, Egypt. (started 1/10/1999 as an assistant lecturer, and resigned 7/7/2008)
- Participated as part-time lecturer/ professor in many universities & Institutes in the same Interval (99-2008) as listed in the teaching experience
- Research Assistant at Mubarak City for Scientific Research & Technological Applications, Informatics Institute (4/1995- 30/9/1999)

(worked mostly in a virtual reality application where we took a training of the *Worldup* Software, and worked on developing a walk thru application)

Education Record (Academic Grades)

Ph.D. **in Computer Science** (July 2001)
Alexandria University, Faculty of Engineering, Computer Science & System Engineering Dept.
http://193.227.0.100/eulc_v5/Libraries/Thesis/BrowseThesisPages.aspx?fn=ThesisPicBody&BibID=10011669
(copy of the thesis is available at https://github.com/DrShymaa2022/PhD_papers)

Title of Thesis *Operating on Optimal Binary Code Trees*
Supervisors
       Prof. Dr. Ahmed A. Belal
       Prof. Dr. Mohamed S. Selim
Ph.D. Courses

Course Name	Teaching Professor	Grade
Parallel & Distributed Systems	Dr. Hussain Ali	V. Good
Security in Computer Networks	Dr. Ahmed Belal	Distinction
Probabilistic Algorithms	Dr. Ahmed Belal	Distinction

M.Sc. **in Computer Science** (July 1997)
University of Alexandria, Faculty of Engineering, Computer science & System Engineering Dept.
http://193.227.0.100/eulc_v5/Libraries/Thesis/BrowseThesisPages.aspx?fn=PublicDrawThesis&BibID=10153838

Title of Thesis *An Efficient Parallel Sample Sorting Algorithm*
Supervisors
       Prof. Dr. Ahmed A. Belal
       Prof. Dr. Nagwa M. el-Makky
Master Courses

Course Name	Teaching Professor	Grade
Networking Personal Computers	Dr. Walid Aref	Distinction
Advanced Studies on Data Bases	Dr. Nagwa el Makky	V. Good
Algorithms Design & Analysis	Dr. Ahmed Belal	Pass *
Modern Control Theory	Dr. Ibrahim Abd el Salam	Distinction
Hard Ware	Dr. Salah Selim & Dr. Layla Abu Hadid	V. Good
Natural Language Processing	Dr. Ahmed el Nahas	Pass

* The course is offered on a pass/Fail basis

B.Sc. in Computer science & Automatic Control (June 1994)
University of Alexandria, Faculty of Engineering, Computer science & Automatic Control Dept.
Graduation Grade   Very Good (84.39%) with degree of honor
Graduation Project   Simulation of Storage Subsystems
Project Grade Distinction

Online MOOCs

Mastering Web3 MOOC online course (winter 2025)
offered by University of Nicosia
Final grade: 100 (50/50 MCQ, download to view in detail
https://github.com/DrShymaa2022/recommendation_letters_CVdocuments/blob/main/
Mastering_Web3_Final%20MOOC%20Quiz_%20Attempt%20review%20_%20unic.m
html)
Certificate
https://github.com/DrShymaa2022/recommendation_letters_CVdocuments/blob/main/
Mastering_Web3_Certificate.pdf
Verifiable on the Bitcoin blockchain (https://www.unic.ac.cy/verify/)

ZKP MOOC online course (Winter 2023)
Zero Knowledge course offered by Berkeley University
https://zkp-learning.org
Earned Legendary Tier & Trailerblazer Tier NFTs.
https://basescan.org/tx/0xb6e86833b0f796c9a641dcc50ad0a400ce0ad7c5210abfe6dc19
fbb5559d92bd
http://basescan.org/tx/0x1f45129107b46fdea040761b6055e7a7f55326b0b40a72d0dbee
536910523fdb
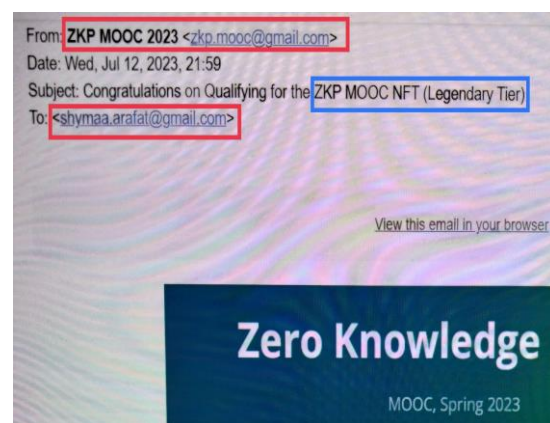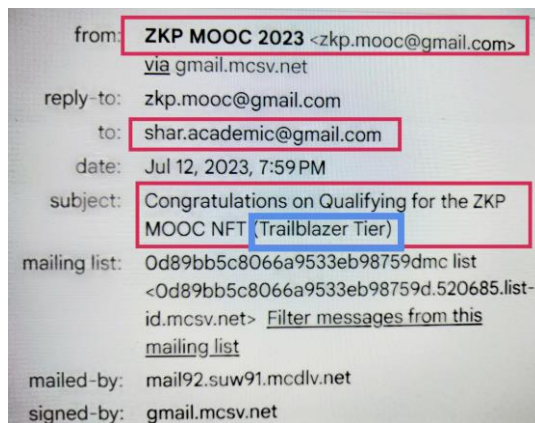
Introduction to DeFi MOOC (Spring 2023)
A compact 6 week online course offered by University of Nicosia
Final grade **88.9**, (26.67/30, No free NFT)

https://github.com/DrShymaa2022/recommendation_letters_CVdocuments/blob/main/
DeF23_FinalQuiz_%20Attempt%20review%20_%20unic.mhtml (download to view)

Introduction to Digital Currencies MOOC (Spring 2023)
Offered by University of Nicosia
Final grade **85.67**, NFT issued on 23/5/2023.
https://app.block.co/certificate/f640aada-8353-43bb-9126-f6a64b829b90/

DeFi MOOC online course (Fall 2021)
Decentralized Finance course offered by Berkeley University
https://defi-learning.org/f21
Earned the NFT Ninja-Tier
https://gallery.metamirror.space/detail/?item=defimooc2021nft-41

AMID-EAST Exams

TOEFEL 627 in 10/1995

TWE 4 in 10/1995

TSE 40 in 10/1996

GRE General
verbal 380, analytical 670 , quantitative 780 in 10/1995

GRE Subjective in Computer Science **84** in 11/1998

Activities
Winner of a research grant offered by the Center of Special Studies and Programs (CSSP),
Bibliotheca Alexandrina (March 2005,involved 2 weeks visit to SMU11/9/2005-25/9/2005)
https://www.bibalex.org/cssp/Researchs/2004.htm
https://www.bibalex.org/cssp/Event/Event.aspx?ID=55
Research Title: *Providing Secure Communications for Wireless and Wireline Applications*
Foreigner Counterpart: Prof. Dr. Hesham el Rewini,
Chairman of Computer Science & Engineering Dept., Faculty of Engineering, Southern
Methodist University (SMU), USA (now in Marymount University as stated in the
recommendation letter)

Teaching Experience

Course Name	Academic year	University	Date
Algorithms Design & Analysis	Post-graduate Computer sciences	Faculty of Science, Alexandria University	3/2004-/2004 3/2003-/2003
Compilers Theory	4th year Computer science		9/2003-1/2004
Computer Systems & Architectures	3rd year Computer science		9/2002-1/2003
Artificial Intelligence	3rd year	Faculty of Computer & Information Sciences	2/2004– 6/2004
Operating Systems	3rd year		2/2008
Compiler Theory	4th year Computer science	Ain shams University	9/2002-1/2008
Computer Security	4th year Computer science		2/2002-6/2002 2/2003-6/2003
Digital Design	2nd year		9/2001-1/2002
Advanced Compilers Design	Post-graduate Computer Science		10/2003-2/2004 10/2002-2/2003
Introduction to wireless networks	4th year Computer science		1/2005 -5/2005
Parallel & distributed systems	4th year Computer science		1/2005 -5/2005
Structured Programming	1st year		1/2006- 5/2008
Distributed Operating Systems	Post-graduate computer science		10/2005-2/2006
Report Writing			2/2006-6/2006
Preparing Research Material			
Computing Algorithms	10th &7th term Computer Engineering	Arab Academy for Science & Technology	2/2003-6/2003
Advanced Programming	3rd term Computer science		
Digital Design	3rd term-Computer Science & Computer Engineering		
Programming Applications	Summer course		7/2003
Computer Systems	4th year Electrical Engineering	Alexandria Institute of Technology	9/2003-1/2004
Algorithms Design & Analysis	2nd year Computer Engineering		
Information Technology	3rd year Computer Engineering		2/2004-6/2004
Formal Languages	3rd year Computer Engineering		
Operating Systems	3rd year Computer Engineering	Pharos University	9/2009-2/2010
Computer & Networks Security	4th year Computer Engineering	Pharos University	3/2011-7/2011
Data Structures	2nd year Computer Engineering	Beirut Arab University	2/2012-4/2012

Publications

1- S. Arafat, A. Belal, N. el-Mekky, "A new parallel sample sorting algorithm", *In Proceedings of the IASTED conference on Computer Systems & Applications*, 30 March- 2 April 1998, Irbid, Jordan.

2- A.Belal, M. Abd el Azim, S. Arafat, "Limiting the search for two dimensional optimal alphabetic trees", *In Proceedings of The Fourth Joint Conference for Information Sciences JCIS98*, 23-28 October 1998, North Carolina, USA; http://dimacs.rutgers.edu/archive/TechnicalReports/abstracts/1998/98-43.html, full paper: https://github.com/DrShymaa2022/PhD_papers/blob/main/LimitingSearchFor2DoptimalAlphabeticTrees_98.pdf

3- A. Belal, M. Selim, S. Arafat, "Rebuilding Huffman Trees in Linear Time", *In Proceedings of The Seventh Maghrebian Conference on Computer Sciences MCSSEAI'2002*, 6-8 May 2002, Annaba, Algeria.

4- A. Belal, M. Selim, S. Arafat, "Merging Optimal Alphabetic Trees in Linear Time", *In Proceedings of The First International Conference on Intelligent Computing & Information Systems ICICIS 2002*, 24-16 June 2002, Cairo, Egypt.

5- A. Belal, M. Selim, S. Arafat, "Building Optimal Alphabetic Trees Recursively", *The 3rd WSEAS International Multiconference on Mathematics & Math 2002*, 1-5 September 2002, Wolin Island, Poland, Vol 1, Issue2 of WSEAS Transaction on Mathematics, 2002, pp.77-82.

6- A. Belal, M. Selim, S. Arafat, "*Towards an Optimal Dynamic Alphabetic Tree*", International journal on Intelligent Computing & Information Systems IJICIS; http://archive.dimacs.rutgers.edu/TechnicalReports/abstracts/1999.sav/99-22.html, full paper: https://github.com/DrShymaa2022/PhD_papers/blob/main/TowardsDynamicOptimalAlphabeticTree.pdf

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After PhD

7- S. Arafat, "An Efficient simple Algorithm for Building Optimal Alphabetic Trees in Parallel", *WSEAS International Conference on Algorithms and Scientific Computing,* Vol 2, Issue3 of WSEAS Transaction on Computers, July 2003.

8- M.Syam, M. Hashem, S. Arafat, M .Mabrouk, "Neural Networks for Computer Virus Detection", *The 4th WSEAS International Conference on Neural Networks and Applications,* May 2003, Athens, Greece*,* Vol 2, Issue3 of WSEAS Transaction on Systems, July 2003.

9- M.Syam, Z. Fayed, S. Arafat, N.Hossam el Din, "Efficient Probabilistic Fault-tolerant Scheduling Algorithm for Real-time Tasks in Heterogeneous Multi-Processor Systems", *The 4th WSEAS International Conference on Computer Systems*, Dec 2004, *New York.* Vol 2, Issue3 of WSEAS Transaction on Systems, April 2004.

10- S. Arafat, "Encryption Using Alphabetic Trees", *The 3rd ACS/IEEE International Conference on Computer Systems and Applications, (AICCSA'05)*, Jan 2005, Cairo, Egypt; https://ieeexplore.ieee.org/abstract/document/1387083/

11- M.Syam, Z. Fayed, S. Arafat, N. .Hossam el Din, "An Efficient Online Scheduling Algorithm For Real Time Tasks In Multi Processor Systems", *2nd International conference on Intelligent computing & Information Systems ICICIS*, 5-7 March 2005, Cairo, Egypt.

12- M.Syam, S.Arafat, A.Ibrahim, "A CFG Based Authorization Frame Work", *2nd International conference on Intelligent computing & Information Systems ICICIS*, 5-7 March 2005, Cairo, Egypt.

13- M.Syam, M. Hashem, S. Arafat, M .Mabrouk, "Data Mining for Computer Virus Detection", *2nd International conference on Intelligent computing & Information Systems ICICIS*, 5-7 March 2005, Cairo, Egypt.

14- M. Tolba, S. Arafat, R. Kotb, "Analysis of Alphabetic Tree Cipher", *the 4th International Multi conference in Computer Science & Information Technology*, 5-7 April 2006, Amman, Jordan.

15- S.Arafat, Y.Dakroury, A.Wahab, *"An Efficient and Secure Ad hoc Routing Protocol"*, Global Engineering Science and Technology Society (GESTS) Transaction On Computer Science & Engineering, Vol. 32 and No.1, Sept.2006; https://dblp.org/pid/81/7056.html (was accepted in IEEE conference)

16- M. Tolba, S. Arafat, R. Kotb, *"Comparing Alphabetic Tree Cipher (ATC) to RC5, RC6 and Rijndael"*, International journal on Intelligent Computing & Information Systems IJICIS, 2006.

Back From Retirement
(in chronological order)

17- Draft talk on Algorithmic Game Theory (12/2019) https://m.facebook.com/story.php?story_fbid=1018702451817536&id=100010333725264

18- Draft talk on Blockchain Market Manipulation Attacks (3/2021) https://m.facebook.com/story.php?story_fbid=1386287771725667&id=100010333725264

19- S. Arafat, "*Partitioning Bitcoin UTXOS Merkle Tree Into Different SubTrees To Reduce Proof Size*", https://github.com/Shymaa-Arafat/lab2/blob/main/DeFi_2UTXOS2_NewOutline.pdf; (rejected by DeFi'22) Reviewer1: border line paper, reviewers2&3: Bitcoin issue, not related to DeFi. The detailed review reports can be found on the Facebook link. https://m.facebook.com/story.php?story_fbid=1567082160312893&id=100010333725264

20- S. Arafat, "*Providing Non-inclusion Proofs in Bitcoin append to right UTXOS Merkles"*, https://github.com/Shymaa-Arafat/lab2/blob/main/DeFi_3fraudProofs.pdf; rejected by DeFi'22, Reviewer1&2: Bitcoin issue, not related to DeFi. The detailed review reports: https://m.facebook.com/story.php?story_fbid=1566310467056729&id=100010333725264

21- S. Arafat, " *The Effect of Propagation Delay Due to Geo-distribution on Blockchains*", https://github.com/Shymaa-Arafat/lab2/blob/main/DeFi_MOOC_Article.md, submitted in partial fulfillment of the DeFi MOOC course 2021

22- S. Arafat, " *SoK : Can NFTs Solve The Economic Problems of Countries with Ancient Heritage? Egypt as a Case Study"*, https://github.com/Shymaa-Arafat/lab2/blob/main/CameraReady_1sprngr_EgyptN.pdf, https://youtu.be/mT7qSMvV7FQ; **accepted** by EAI BlockTEA 2022 Springer Verlag conference; https://link.springer.com/chapter/10.1007/978-3-031-31420-9_10.

23- S.Arafat, https://medium.com/@shymaa.arafat/what-are-verkle-trees-kzg-commitments-and-could-they-be-applied-on-bitcoin-cbf4838d18ac; an article submitted (on 6 May 2023) in partial fulfilment of the *Trailerblaze*r Tier of the ZK MOOC course 2023.

24- S. Arafat, https://medium.com/@shymaa.arafat/fiat-shamir-transformation-and-its-security-problems-shymaa-m-a14d8f7d9192; an article submitted (on 6 May 2023) in partial fulfilment of the *Trailerblazer* Tier of the ZK MOOC course 2023.

25- S. Arafat, https://medium.com/@shymaa.arafat/metaverse-threats-liabilities-c7d8fd50a21d; 18/6/2023.

26- S. Arafat, https://medium.com/@shymaa.arafat/defi-attacks-part-1-1906a9307fe2; 21/6/2023.

27- S. Arafat, https://medium.com/@shymaa.arafat/defi-attacks-part-2-45c7e2c9c00; 25/6/2023.

28- S. Arafat, https://medium.com/@shymaa.arafat/cbdcs-part1-1da3a944722c; 7/2023

29- S. Arafat, https://medium.com/@shymaa.arafat/what-happened-to-polynetwork-2021-then-2023-2e991e29655b; 23/10/2023.

30- S. Arafat, https://github.com/DrShymaa2022/articles_papers/blob/main/Understanding_CrossChain_Interoperability_Solutions-_part1.pdf; (available on medium too)30/10/2023

31- S. Arafat, https://medium.com/@shymaa.arafat/bugs-in-our-pockets-client-side-scanning-from-2021-to-2024-2442b286e501, presentation: https://youtu.be/Qq3FT3CferU

32- S.Arafat, https://medium.com/@shymaa.arafat/crypto-crimes-2023-2024-report-b73055ba9d8b

33- S. Arafat, https://www.researchgate.net/publication/383220628_On_the_Estonian_Internet_Voting_System_IVXV_SoK_and_Suggestions; https://eprint.iacr.org/2025/506; (older version rejected by E-Vote-ID'24, I've done major changes and it is now submitted to E-Vote-ID'25)

34- S. Arafat, "*Blockchains in Water Management & Trading*", https://www.researchgate.net/publication/382642184_A_Study_of_Blockchain_applications_in_the_Water_Sector; a preprint.

35- S. Arafat, "*A Study of Blockchain Consensus Protocols*", https://www.researchgate.net/publication/382447691_A_Study_of_Blockchain_Consensus_Protocols; https://eprint.iacr.org/2025/637; this version is submitted to Cyber Security Journal and is now waiting for Editor in Chief decision (revised version uploaded on 2/4/2025).

36- S. Arafat, "WIP: *Towards Hardcopy Solid Court Verifiability- A (2 Devices) (3 Receipts) in-Booth Electronic Voting System*"; https://github.com/DrShymaa2022/articles_papers/blob/main/WIP_courtverify_18_5_25.pdf, this version is submitted to E-Vote-ID'25 as Work In Progress; earlier presentation: https://youtu.be/0wzcHdXEKHM