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

Current Residency Egypt

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.

 $\frac{http://193.227.0.100/eulc_v5/Libraries/Thesis/BrowseThesisPages.aspx?fn=ThesisPicB_ody\&BibID=10011669$

(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	Distinction		
-	Salam			
Hard Ware	Dr. Salah Selim &	V. Good		
	Dr. Layla Abu Hadid			
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.mhtml)

Certificate

 $\underline{https://github.com/DrShymaa2022/recommendation_letters_CV documents/blob/main/Mastering_Web3_Certificate.pdf}$

Verifiable on the Bitcoin blockchain (https://www.unic.ac.cy/verify/)

ZKP MOOC online course (Winter 2023)

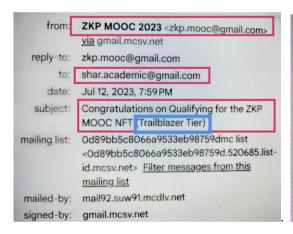
Zero Knowledge course offered by Berkeley University

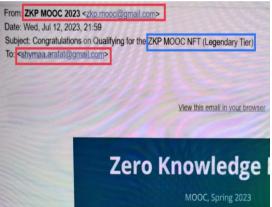
https://zkp-learning.org

Earned Legendary Tier & Trailerblazer Tier NFTs.

https://basescan.org/tx/0xb6e86833b0f796c9a641dcc50ad0a400ce0ad7c5210abfe6dc19fbb5559d92bd

 $\frac{http://basescan.org/tx/0x1f45129107b46fdea040761b6055e7a7f55326b0b40a72d0dbee}{536910523fdb}$

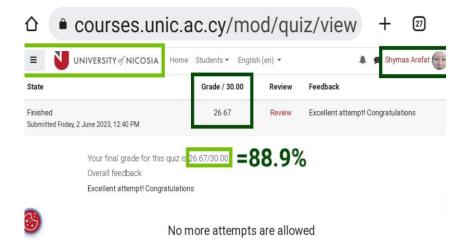




Introduction to DeFi MOOC (Spring 2023)

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)

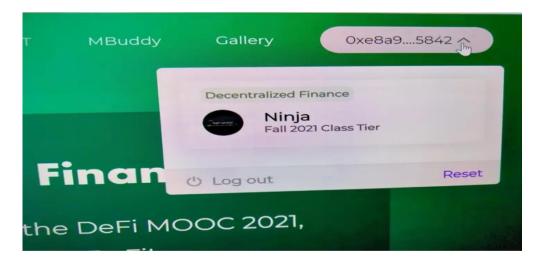
Offered by University of Nicosia
Final grade **85.67**, NFT issued on 23/5/2023.

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

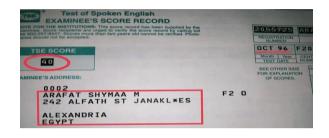


AMID-EAST Exams

TOEFEL <u>627</u> in 10/1995

TWE 4 in 10/1995

TSE <u>40</u> in 10/1996

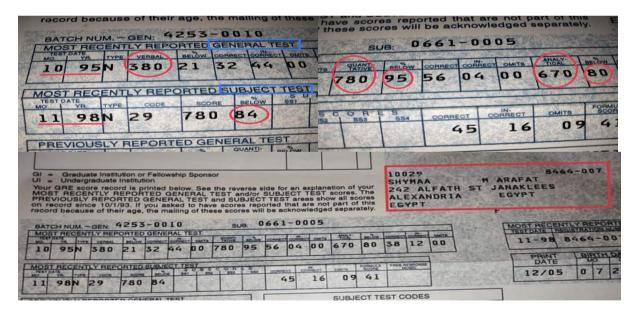




GRE General

verbal <u>380</u>, **analytical** <u>670</u>, **quantitative** <u>780</u> 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 &	Post-graduate Computer	Faculty of	3/2004-/2004
Analysis	sciences	Science,	3/2003-/2003
Compilers Theory	4 th year Computer science	Alexandria	9/2003-1/2004
Computer Systems &	3 rd year Computer science	University	9/2002-1/2003
Architectures	, ,	_	
Artificial Intelligence	3 rd year	Faculty of	2/2004-
		Computer &	6/2004
Operating Systems	3 rd year	Information	2/2008
1 0 1		Sciences	
Compiler Theory	4 th year Computer science		9/2002-1/2008
-	-	Ain shams	
Computer Security	4 th year Computer science	University	2/2002-6/2002
			2/2003-6/2003
Digital Design	2 nd year		9/2001-1/2002
Advanced Compilers	Post-graduate Computer		10/2003-2/2004
Design	Science		10/2002-2/2003
Introduction to wireless	4 th year Computer science		1/2005 -5/2005
networks			
Parallel & distributed	4 th year Computer science		1/2005 -5/2005
systems			
Structured	1 st year		1/2006- 5/2008
Programming			
Distributed Operating	Post-graduate		10/2005-2/2006
Systems	computer science		
Report Writing			2/2006-6/2006
Preparing Research			
Material			
Computing Algorithms	10 th &7 th term Computer	Arab	2/2003-6/2003
	Engineering	Academy for	
Advanced Programming	3 rd term Computer science	Science &	
Digital Design	3 rd term-Computer Science	Technology	
	& Computer Engineering		
Programming	Summer course		7/2003
Applications			
Computer Systems	4th year Electrical	Alexandria	
	Engineering	Institute of	9/2003-1/2004
Algorithms Design &	2 nd year Computer	Technology	
Analysis	Engineering		
Information Technology	3 rd year Computer		
	Engineering		2/2004-6/2004
Formal Languages	3 rd year Computer		
	Engineering		
Operating Systems	3rd year Computer	Pharos	9/2009-2/2010
	Engineering	University	
Computer & Networks	4 th year Computer	Pharos	3/2011-7/2011
Security	Engineering	University	
Data Structures	2 nd year Computer	Beirut Arab	2/2012-4/2012
	Engineering	University	

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:
 - $https://github.com/DrShymaa 2022/PhD_papers/blob/main/Limiting SearchFor 2Doptimal Alphabetic Trees_98.pdf$
- 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:
 - $https://github.com/DrShymaa 2022/PhD_papers/blob/main/Towards Dynamic Optimal Alphabetic Tree.pdf$

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=1000103337 25264
- 18- Draft talk on Blockchain Market Manipulation Attacks (3/2021) https://m.facebook.com/story.php?story_fbid=1386287771725667&id=1000103337 25264
- 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=1000103337 25264

- 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=1000103337 25264
- 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 *Trailerblazer* 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 Cross Chain 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 V oting 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 still evolving; i.e. work in progress)
- 34- S. Arafat, "*Blockchains in Water Management & Trading*",https://www.researchgate.net/publication/382642184_A_Study_of_Block chain_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 version after major revision, the paper is also submitted to SBC'25 (it is allowed to submit published or under review work to SBC'25)
- 36-S. Arafat, "WIP: Towards Hardcopy Solid Court Verifiability- A (2 Devices) (3 Receipts) Electronic Voting System", still work in progress, https://www.researchgate.net/publication/382853901 WIP now we can have eno ugh evidence in court- A Simple two Devices three Receipts inbooth_Voting_System; presentation: https://youtu.be/0wzcHdXEKHM