

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/>

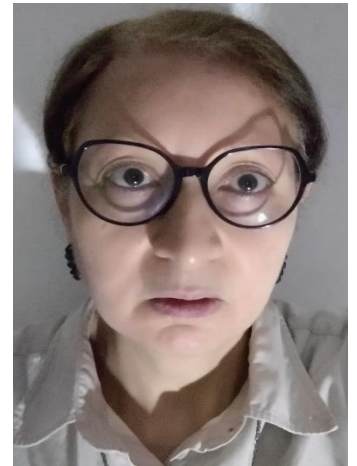
YouTube. <https://youtube.com/@shymaaarafat1342>

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

Wallet address 0xe8a9e41b726ba3eae6837dcf74e00e2d224d5842

Address

Currently live in Egypt, but willing to travel abroad.



Previous Positions

- Visiting 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=ThesisPicBoddy&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.mhtml)

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)

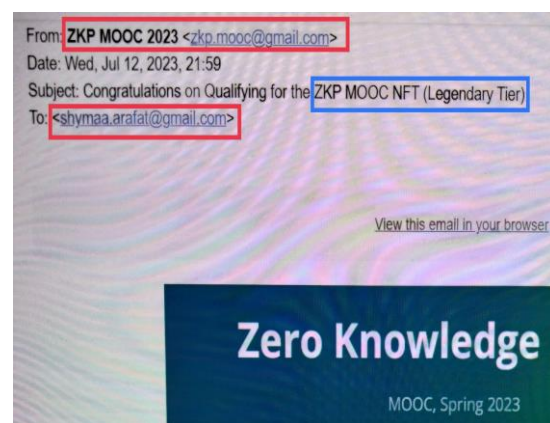
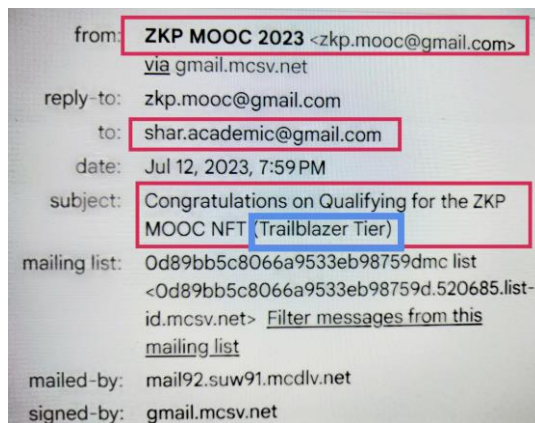
Zero Knowledge course offered by Berkeley University

<https://zkp-learning.org>

Earned Legendary Tier & Trailblazer Tier NFTs.

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

<http://basescan.org/tx/0x1f45129107b46fdea040761b6055e7a7f55326b0b40a72d0dbec536910523fdb>



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)

courses.unic.ac.cy/mod/quiz/view

UNIVERSITY of NICOSIA

Home Students English (en)

Shymaa Arafat

State	Grade / 30.00	Review	Feedback
Finished Submitted Friday, 2 June 2023, 12:40 PM	26.67	Review	Excellent attempt! Congratulations

Your final grade for this quiz is 26.67/30.00 = 88.9%

Overall feedback
Excellent attempt! Congratulations

No more attempts are allowed

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

TOEFL 627 in 10/1995

TWE 4 in 10/1995

TSE 40 in 10/1996

TOEFL [®] EXAMINEE'S SCORE RECORD				2052582		ARAFAT-SHYMAA-M	
TEST OF ENGLISH AS A FOREIGN LANGUAGE				REGISTRATION NUMBER		NAME (Family or Surname, Given, Middle)	
SECTION 1	SECTION 2	SECTION 3	TOTAL SCORE	OCT 95		2513 78	
63	61	64	627	Month Year		07/25/72	
TOEFL SCALED SCORES				TEST DATE		Month Year	
				F201		2516 78	
TEST OF WRITTEN ENGLISH				INST CODE		DEPT CODE	
TWE SCORE				F201		XXXX	
				CENTER NUMBER		SPONSOR CODE	
				F2		0	
EXAMINEE'S ADDRESS:							
ARAFAT-SHYMAA-M							
242 ALFATH ST JANAKLEES							
ALEXANDRIA							
EGYPT							
YOUR SIGNATURE							
NAME OF COUNTRY							
ISSUING PASSPORT							
OR IDENTIFICATION							
NUMBER ON IDENTIFICATION							

Test of Spoken English	
EXAMINEE'S SCORE RECORD	
NOTE FOR THE INSTITUTIONS: This score record has been supplied by the examinee. Score recipients are urged to verify the score record by calling toll free 800-287-2647. Scores more than two years old cannot be verified. Photographs should not be accepted.	
TSE SCORE	
40	
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EGYPT	
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GRE General

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

GRE Subjective in Computer Science 84 in 11/1998

BATCH NUM. - GEN: 4253-0010										SUB: 0661-0005												
MOST RECENTLY REPORTED GENERAL TEST										MOST RECENTLY REPORTED SUBJECT TEST												
TEST DATE	MO.	YR.	TYPE	VERBAL	ANALYTICAL	QUANTITATIVE	SCORE	% BELOW	SS1	TEST DATE	MO.	YR.	TYPE	CODE	SCORE	% BELOW	SS1	SS2	SS3	SS4	FORMULA SCORE	TRUE RESPONSE MODE
10	95	N		380	21	32	44	00		11	98	N	29		780	84						
PREVIOUSLY REPORTED GENERAL TEST										PREVIOUSLY REPORTED SUBJECT TEST												
GI = Graduate Institution or Fellowship Sponsor										10029 SHYMAA M ARAFAT 8464-007												
UI = Undergraduate Institution										242 ALFATH ST JANAKLEES												
Your GRE score record is printed below. See the reverse side for an explanation of your										ALEXANDRIA												
MOST RECENTLY REPORTED GENERAL TEST and/or SUBJECT TEST scores. The										EGYPT												
PREVIOUSLY REPORTED GENERAL TEST and/or SUBJECT TEST areas show all scores																						
on record since 10/1/93. If you asked to have scores reported that are not part of this																						
record because of their age, the mailing of these scores will be acknowledged separately.																						
BATCH NUM. - GEN: 4253-0010										SUB: 0661-0005												
MOST RECENTLY REPORTED GENERAL TEST										MOST RECENTLY REPORTED SUBJECT TEST												
TEST DATE	MO.	YR.	TYPE	VERBAL	ANALYTICAL	QUANTITATIVE	SCORE	% BELOW	SS1	TEST DATE	MO.	YR.	TYPE	CODE	SCORE	% BELOW	SS1	SS2	SS3	SS4	FORMULA SCORE	TRUE RESPONSE MODE
10	95	N		380	21	32	44	00		11	98	N	29		780	84						
SUBJECT TEST CODES																						
PRINT DATE										BIRTH DATE												
12/05										07/2												

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	4 th year Computer science		9/2003-1/2004
Computer Systems & Architectures	3 rd year Computer science		9/2002-1/2003
Artificial Intelligence	3 rd year	Faculty of Computer & Information Sciences	2/2004– 6/2004
Operating Systems	3 rd year		2/2008
Compiler Theory	4 th year Computer science	Ain shams University	9/2002-1/2008
Computer Security	4 th year Computer science		2/2002-6/2002 2/2003-6/2003
Digital Design	2 nd year		9/2001-1/2002
Advanced Compilers Design	Post-graduate Computer Science		10/2003-2/2004 10/2002-2/2003
Introduction to wireless networks	4 th year Computer science		1/2005 -5/2005
Parallel & distributed systems	4 th year Computer science		1/2005 -5/2005
Structured Programming	1 st 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	10 th &7 th term Computer Engineering	Arab Academy for Science & Technology	2/2003-6/2003
Advanced Programming	3 rd term Computer science		
Digital Design	3 rd 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	2 nd year Computer Engineering		
Information Technology	3 rd year Computer Engineering		2/2004-6/2004
Formal Languages	3 rd year Computer Engineering		
Operating Systems	3rd year Computer Engineering	Pharos University	9/2009-2/2010
Computer & Networks Security	4 th year Computer Engineering	Pharos University	3/2011-7/2011
Data Structures	2 nd 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

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 Merkle*", 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 *Trailerblazer* Tier of the ZK MOOC course 2023.
- 24- S. Arafat, <https://medium.com/@shymaa.arafat/flat-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/cbdc-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 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 ***accepted*** by
Cyber Security Journal (<http://www.cybersecurity.springer.com/>).
- 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>