

Resume

Personal

Name ***Shymaa M. Arafat***

Birth Date 25-7-1972

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/>

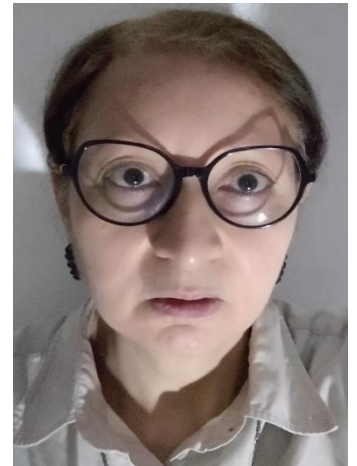
YouTube. <https://youtube.com/@shymaaarafat1342>

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

Wallet address 0xe8a9e41b726ba3eae6837dcf74e00e2d224d5842

Address

Currently living in Egypt, but willing to travel and work 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)

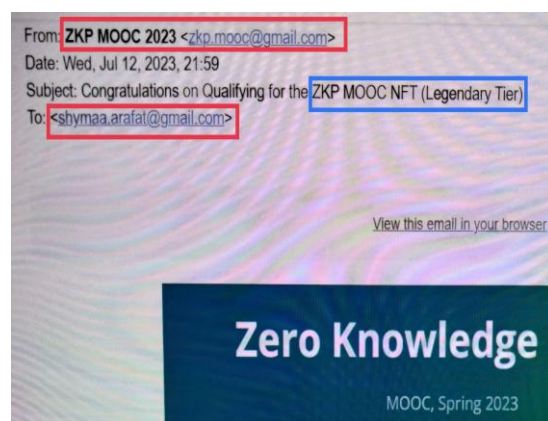
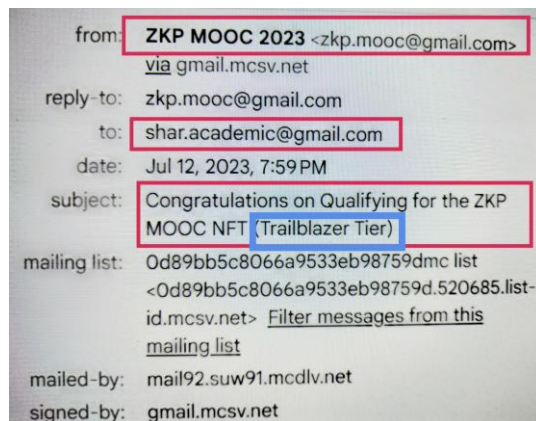
Zero Knowledge course offered by Berkeley University

<https://zkp-learning.org>

Earned Legendary Tier (according to answering lecture quizzes on time+ delivering training lab + take home exam) & Trailblazer Tier (according to articles available on GitHub and medium) 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 online MOOC course offered by Berkeley University

<https://defi-learning.org/f21>

Earned the NFT *Ninja-Tier*

<https://explorer.oasis.io/mainnet/emerald/token/oasis1qrels9582m4wf25guu5057wtg74jncvqay8u6947/instance/41>

(The older site <https://gallery.metamirror.space/detail/?item=defimooc2021nft-41> has changed due to changes in the oasis blockchain holding those NFTs that were somewhat earlier pioneers for such an idea of using NFTs as course certificates; passing was according to MCQ exam+an article that is available on my GitHub+smart contract lab exercise also available on GitHub).

-For honesty, I passed without getting the smart contract right then I've got it correct afterwards even with different versions (trying the 2 steps liquidation for > 50% that was not required by the lab, only presented in the lectures as a new contribution from the professor's paper).



AMID-EAST Exams

TOEFL 627 in 10/1995

TWE 4 in 10/1995

TSE 40 in 10/1996

TOEFL [®] EXAMINEE'S SCORE RECORD			
TEST OF ENGLISH AS A FOREIGN LANGUAGE		2052582	
SECTION 1	SECTION 2	SECTION 3	TOTAL SCORE
63	61	64	627
TOEFL SCALED SCORES			
TEST OF WRITTEN ENGLISH			
TWE SCORE			
4.0			
EXAMINEE'S ADDRESS:			
ARAFAT-SHYMAA-M			
242 ALFATH ST JANAKLEES			
ALEXANDRIA			
EGYPT			
REGISTRATION NUMBER		NAME (Family or Surname, Given, Middle)	
OCT 95		ARAFAT-SHYMAA-M	
Month Year		DATE OF BIRTH	
2513		07/25/72	
5815		Month Year	
2516		DATE OF BIRTH	
F201		EGYPT	
INST CODE		NATIVE LANGUAGE	
DEPT CODE		ARABIC	
XXXX		NATIVE LANGUAGE	
SPONSOR CODE		NATIVE LANGUAGE	
CENTER NUMBER		NATIVE LANGUAGE	
F2		NATIVE LANGUAGE	
0		NATIVE LANGUAGE	
YOUR SIGNATURE		NAME OF COUNTRY	
		ISSUING PASSPORT	
		OR IDENTIFICATION	
		NUMBER ON IDENT	

Test of Spoken English	
EXAMINEE'S SCORE RECORD	
NOTE FOR THE INSTITUTIONS: This score record has been supplied by the	
score. Score recipients are urged to verify the score record by calling toll	
free 800-257-2547. Scores more than two years old cannot be verified. Photo-	
graphs should not be accepted.	
TSE SCORE	
40	
EXAMINEE'S ADDRESS:	
0002	
ARAFAT SHYMAA M	
242 ALFATH ST JANAKL*ES	
ALEXANDRIA	
EGYPT	
F2 0	

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									
MOST RECENTLY REPORTED GENERAL TEST									
TEST DATE	MO.	YR.	TYPE	VERBAL	ANALYTICAL	QUANTITATIVE	SCORE	% BELOW	SS1
10	95	N		380	670	780			
MOST RECENTLY REPORTED SUBJECT TEST									
TEST DATE	MO.	YR.	TYPE	CODE	SCORE	% BELOW	SS1	SS2	SS3
11	98	N		29	780	84			
PREVIOUSLY REPORTED GENERAL TEST									
TEST DATE	MO.	YR.	TYPE	VERBAL	ANALYTICAL	QUANTITATIVE	SCORE	% BELOW	SS1
10	95	N		380	670	780			
PREVIOUSLY REPORTED SUBJECT TEST									
TEST DATE	MO.	YR.	TYPE	CODE	SCORE	% BELOW	SS1	SS2	SS3
11	98	N		29	780	84			
SUBJECT TEST CODES									
10029 SHYMAA M ARAFAT 8464-007									
242 ALFATH ST JANAKLEES									
ALEXANDRIA EGYPT									
11-98 8464-007									
PRINT DATE BIRTH DATE									
12/05 072									

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 Ain shams University	2/2004□ 6/2004
Operating Systems	3 rd year		2/2008
Compiler Theory	4 th year Computer science		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/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_Voting_System_IVXV_SoK_and_Suggestions; <https://eprint.iacr.org/2025/506>;
 older version rejected by E-Vote-ID'25, but sections 6.2-6.4 were submitted as posters
 (https://github.com/DrShymaa2022/E_Vote_ID_2025_posters/blob/main/Encrypted_copyattackPoster_13_9_25.pdf,
https://github.com/DrShymaa2022/E_Vote_ID_2025_posters/blob/main/Insiders2TrustPoster_7_9_25.pdf)
- 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/>) to be printed in
 2026.
- 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/courtverify_EVVoteID_final.pdf, an earlier version was rejected by E-Vote-ID'25 Track-1 and now the
 idea is submitted as a poster
 (https://github.com/DrShymaa2022/E_Vote_ID_2025_posters/blob/main/CourtVerify2_P_Poster_9_9_25.pdf); earlier presentation: <https://youtu.be/0wzcHdXEKHM>