

## CS Research Plan 2022

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## CSIS Research Unit

The research unit is approved by the dean of the college of computer science and information systems to manage and support the research activities in the college.

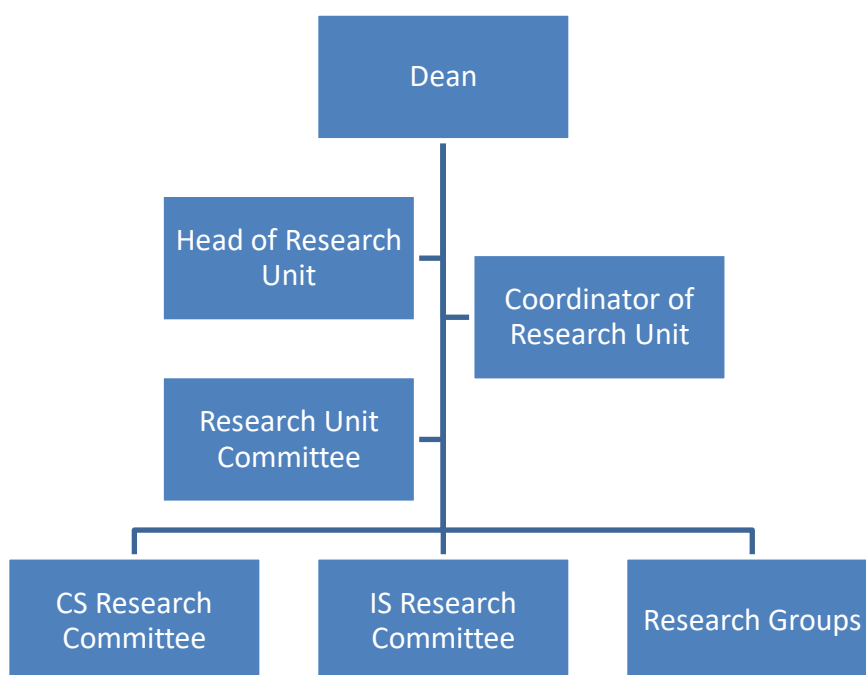


Figure 1. The hierarchy of responsibilities and decision making in the CSIS Research Unit

## Vision

To achieve excellence in Computer Science research at the local, regional and global level.

## Mission

To establish an outstanding research environment in the area of scientific research to produce a high-quality publication and serve the community through the transfer of research knowledge.

## Research Goals

College of Computer Science and Information Systems (CSIS) is committed to providing an outstanding environment to conduct high quality research. This research can later be measured by research output. CSIS ensure objectives include

- To create an innovative research environment for both faculty members and students to generate quality research output.

#### Research Unit

- To establish a research friendly environment for faculty members and students together to conduct research that can be published in SCIE, SSCI, ESCI, and Scopus Journals.
- To provide adequate research funding to faculty and students to support their research equipment.
- To encourage faculty members to represent CSIS by participating in international and national events/conferences.
- To arrange fantabulous rewards for faculty members and students upon successful completion of their research projects/output.
- To abide and link the **research vision, mission, and goals of the university**.

### Research Unit Committee

The research unit committee is approved by the dean of CSIS to supervise the research unit with main responsibilities of:

- Follow-up research work in the college
- Participate in creating and implementing unit plans
- Supervising research projects
- Participate in research activities at the university and cooperate with research bodies at the university
- Supervising the faculty newsletter
- Apply for research projects inside and outside the university
- Organizing scientific events (conferences, seminars, and workshops)

### CS Research Committee

Research committee was approved by the computer science department head to collaborate with research unit in the college level to achieve the research objectives in the department and collage level.

### Specific Goals and Objectives for 2022 For CS Department

Based on the research activities in the college for the year 2020 and 2021, the unit identifies specific goals for the year 2022 to improve research activities and outcomes in CSIS:

- Create the research labs

- Involve students in research
- Apply for more funds with DSR
- Apply for research equipment (devices and software)
- Collaborate with NU research centers (SERC)
- Collaborate with international institutions
- Collaborate with researchers in Saudi Universities
- Increase the number of ISI publications

### Key Objectives of this Plan

1. Ensure that the CS department makes a significant contribution to the Research Excellence Framework 2019-2021, either through the University Research Deanship or through their other research activities, and with the support of the University's professional services.
2. Apply for the research grant at deanship of research for the session of 2021-2022 and achieve quality of outputs, environment and impact, as judged against our benchmarks in Sub-standard given in the table below.
3. Increase our total research income – deanship of research + externally funded research – to achieve total output for KPIs by 2022.
4. Review this plan to ensure the continued promotion and development of research from January 2021 onwards (using the outcomes of the deanship of research).
5. Continue to invest strategically to support research activities with a research active curriculum, systematically encouraging academic enquiry and knowledge creation across the University.
6. Maintain and further develop our systems and processes for supporting research, particularly IT infrastructure, and the physical environment for faculty and research groups.
7. To come up with at least 10 journal publications ISI indexed with impact factor between 0.5 to 3.0 and 20 conference publications with acceptance ration of less than 20%.
8. To increase the number citation for each faculty member of CS department.
9. To introduce the postgraduate studies in order to complete research projects as the part of master thesis.

## Priority objectives for 2022

**1-** Prepare and approve a plan for the development of scientific research in the college in accordance with actual needs and specific priorities.

### Tasks to achieve the objective .1

- 1.1 Establishing the research labs according to the research area.
- 1.2 To prepare the research plan according to specific priorities.
- 1.3 Increasing the participation of faculty members in scientific conferences
- 1.4 To prepare the scientific research database.

**2-** Motivating scientific research and publication of research output in credited journals.

### Tasks to achieve the objective .2

- 2.1 To prepare a mechanism to monitor and collect the researches performed by each faculty members in the department.
- 2.2 Organizing lecture on latest scientific research area.
- 2.3 To develop a mechanism to encourage the faculty members to apply for funded projects in deanship of scientific research.
- 2.4 Publishing research output in credited scientific journals with international standards.
- 2.5 To identify the external source of funding for research projects.

**3-** To encourages the research cooperation within the departments of college, the industrial sector and other scientific research bodies.

### Tasks to achieve the objective .3

- 3.1 Encouraging the research partnership among faculty members belongs to different departments in college.
- 3.2 Research collaboration agreements and protocols with the external / local community.

Table 1. Tasks to implement the objectives of 2021-2022

	Task	Time needed to Accomplish	Implementation Time	Task Responsibility	Note
1	International Collaboration	18 months	Summer2021 to Fall 2022	Research Unit (College level)  Research Committee (Department level)	15 papers must be published in impact factor journals
2	Establishing Research labs	6 months	Fall 2021	College Council  Research Unit (College level)  Research Committee (Department level)	Research Labs regulations to be approved by the college council  3 Research Labs will be established based on rules and regulations
3	Collaborate with NU research centers (SERC)	12 months	Fall 2021 to Fall2022	Research Unit (College level)  Research Committee (Department level)	Research activates  Research Labs and equipment  Funds and outreach
4	Introduce the postgraduate studies	12 months	Fall 2021 to Fall2022	Postgraduate Studies Unit (College level)	To complete research projects as the part of master requirement

## Research Unit

5	Increase the number of citations for each faculty member in CS department	12 months	Fall 2021 to Fall2022	Research Unit (College level)  Research Committee (Department level)  CS Faculty members	Every faculty member should report citation numbers by the end of academic year.
6	To come up with at least 10 journal publications ISI indexed with impact factor between 0.5 to 3.0 and 10 conference publications with acceptance ration of less than 20%.	12 months	Fall 2021 to Fall2022	Research Unit (College level)  Research Committee (Department level)  CS Faculty members	Every faculty member should report their publications by the end of academic year.
7	Apply for the research grant at deanship of research for the session of 2021-2022.	12 months	Summer 2021 to Summer 2022	Research Unit (College level)  Research Committee (Department level)  CS Faculty members	
8	Review the research plan to ensure the continued promotion and development of research from January 2021 onwards (using the outcomes of the deanship of research).	12 months	Fall 2021 to Fall2022	Research Unit (College level)  Research Committee (Department level)	

## Research Groups

There are six research groups working to conduct the quality of research for the department of computer science and information system.

Table 2. Research Groups on the College Level

	Name	Designation	Department
Human Computer Interaction			
1	Muhammad Akram	Lecturer	Computer Science
2	Yousef Asiri	Assistant Professor	Computer Science
3	Adel Sulaiman	Assistant Professor	Computer Science
4	Turki Alelyani	Assistant Professor	Information System
5	Asmaa Alrazzah	Lecturer	Information System
Information Assurance and Security			
1	Mana Al Reshan	Assistant Professor	Information System
2	Ghassan Ahmed Ali	Assistant Professor	Information System
3	Abdulrahman Althaqfan	Assistant Professor	Computer Science
4	Abdullah Alghamdi	Assistant Professor	Information System
5	Nyla Khadam	Lecturer	Computer Science
6	Hani Alshahrani	Assistant Professor	Computer Science
7	Maha Alwuthaynani	Lecturer	Computer Science
Networking and Communications			
1	Mohammed Asiri	Lecturer	Computer Science
2	Mohammed Al-shargabi	Assistant Professor	Information System
3	Aisha Mashraqi	Assistant Professor	Computer Science
4	Adel Rajab	Assistant Professor	Computer Science
5	Mohammad Majdoob	Assistant Professor	Computer Networks
6	Shah Murtaza Rashid Al Masud	Lecturer	Information System
7	Nyla Khadam	Lecturer	Computer Science
Software Engineering and Programming Languages			
1	Asadullah Shaikh	Associate Professor	Information System
2	Raniah Zaheer	Lecturer	Computer Science
3	Adel Sulaiman	Assistant Professor	Computer Science
4	Abdullah Alghamdi	Assistant Professor	Information System



5	Turki Alelyani	Assistant Professor	Information System
6	Hani Alshahrani	Assistant Professor	Computer Science
7	Ahmad Mohammad N. Alkheder Almasabi	Lecturer	Computer Science
8	Raniah Zaheer	Lecturer	Computer Science
Algorithms and Intelligent Systems			
1	Samar Alqhtani	Assistant Professor	Computer Science
2	Yahya Ali Abdelrahman Ali	Assistant Professor	Information System
3	Nourah Alshomrani	Lecturer	Computer Science
4	Asmaa Alraizzah	Lecturer	Information System
5	Khiran Rajab	Associate Professor	Computer Science
6	Hanan Talal Halawani	Assistant Professor	Computer Science
7	Ahmad Mohammad N. Alkheder Almasabi	Lecturer	Computer Science
8	Anwar Ali Yahya Esmail	Associate Professor	Computer Science
9	Maha Alwuthaynani	Lecturer	Computer Science
10	Ahood Almaleh	Lecturer	Information System
11	Eman abdelkreem	Lecturer	Computer Science
12	Raniah zaheer	Lecturer	Computer Science
13	Nourah Alshomrani	Lecturer	Computer Science
14	Saira Banu	Lecturer	Computer Science
Information Management			
1	Mohamed khairi	Assistant Professor	Information System
2	Fayez Alshahrani	Lecturer	Information System
3	Ibrahim Alyami	Lecturer	Computer Science
4	Fekry Ahmed	Assistant Professor	Information System
5	Mousa Alalhareth	Lecturer	Information System
6	Mohammed Hamdi	Assistant Professor	Computer Science
7	Ahood Almaleh	Lecturer	Information System
8	Soad Mohammedd	Lecturer	Computer Science

## Research Labs

Three research labs will be approved this year 2021. The Artificial Intelligence lab is submitted for approval and next the Cybersecurity lab and Software Engineering lab as shown [here](#).

### Cybersecurity lab

The Cybersecurity Research Lab at the University of Najran aims to be a research and knowledge platform that contributes to producing high-quality research and transmits knowledge in the fields of cybersecurity and programming to make a distinguished researcher generation. The lab also includes a student's club to involve the student in the lab activities.

### Artificial Intelligence lab

The Artificial Intelligence lab at the University of Najran aims to:

- 1 -Producing original research in the field of artificial intelligence
- 2 -Follow up on developments locally and internationally in the field of artificial intelligence
- 3 -Raising awareness of the university community and society as a whole about AI specialization and its importance
- 4 -Transforming research in this specialization into practical applications to solve real-world problems
- 5 -Training students participating in the lab on research skills and specialization skills.
- 6 -Participation in competitions and events at the university and Kingdom level in AI specialization
- 7 -Organizing lectures, conferences, and events related to artificial intelligence at the college and university levels.
- 8- Cooperating with local and international researchers and business owners in the field of artificial intelligence.

### Software Engineering lab

The software engineering lab is involved in teaching and research in the areas of software engineering and information systems, with an emphasis on agile software development methods. It also provides you experience with different parts of Software Engineering and UML including requirements identification, behavioral and structural design using UML diagrams. The common methods used are requirement, design, code, testing and support.

## Research KPIs

Najran University is **a growing university in research activities**, with an **active research curriculum**, enhancing the **academic standing** of the institution as a channel of higher learning. Currently, we have **funded research projects** and **active research groups only**. These research groups are responsible to conduct the quality of research for the department of computer science and information system of Najran University. In the year 2019 and 2020, the college of computer science and information system achieved the following statistics.

### \*\*Year 2019\*\*

Total Publications in 2019 = \*\*36\*\*

ISI Web of Science (WoS) Publications = \*\*7/34\*\*

Scopus Indexed Publications = \*4/34\*

CS Dept Published = \*\*11 out of 34\*\*

IS Dept Published = \*\*25 out of 34\*\*

### \*\*Year 2020\*\*

Total Publications in 2020 = \*\*24\*\*

ISI Web of Science (WoS) Publications = \*\*9/24\*\*

Scopus Indexed Publications = \*\*15/24\*\*

CS Dept Published = \*\*7 out of 24\*\*

IS Dept Published = \*\*17 out of 24\*\*

**Total Accepted 9<sup>th</sup> Stage Projects = \*\*18\*\***

\*\*9 from CS\*\*

\*\*8 from IS\*\*

\*\*1 from Network Engineering\*\*

**Total Accepted 10<sup>th</sup> Stage Projects (COVID 19) = \*\*6\*\***

\*\*3 from CS\*\*

\*\*3 from IS\*\*

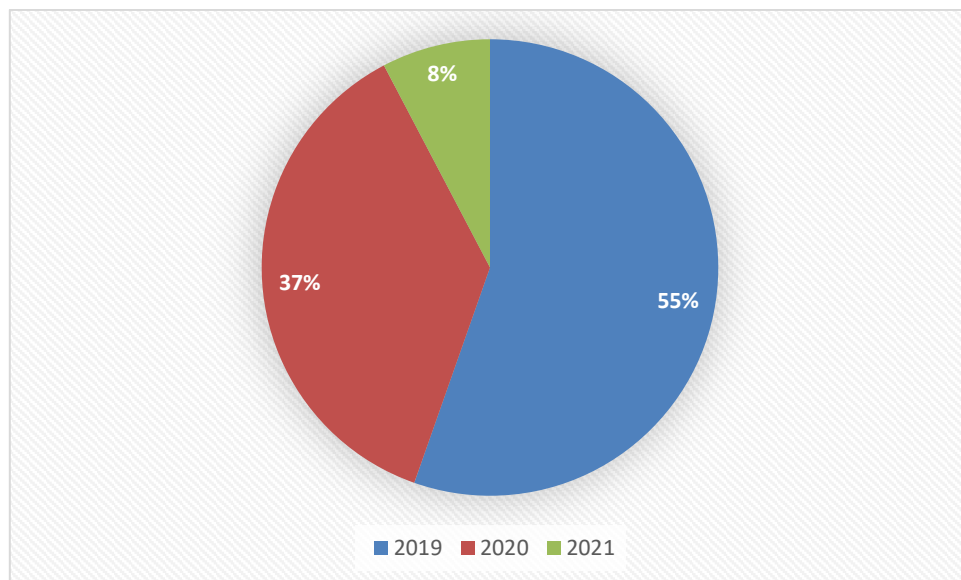


Figure 2. Percentage of publications per year

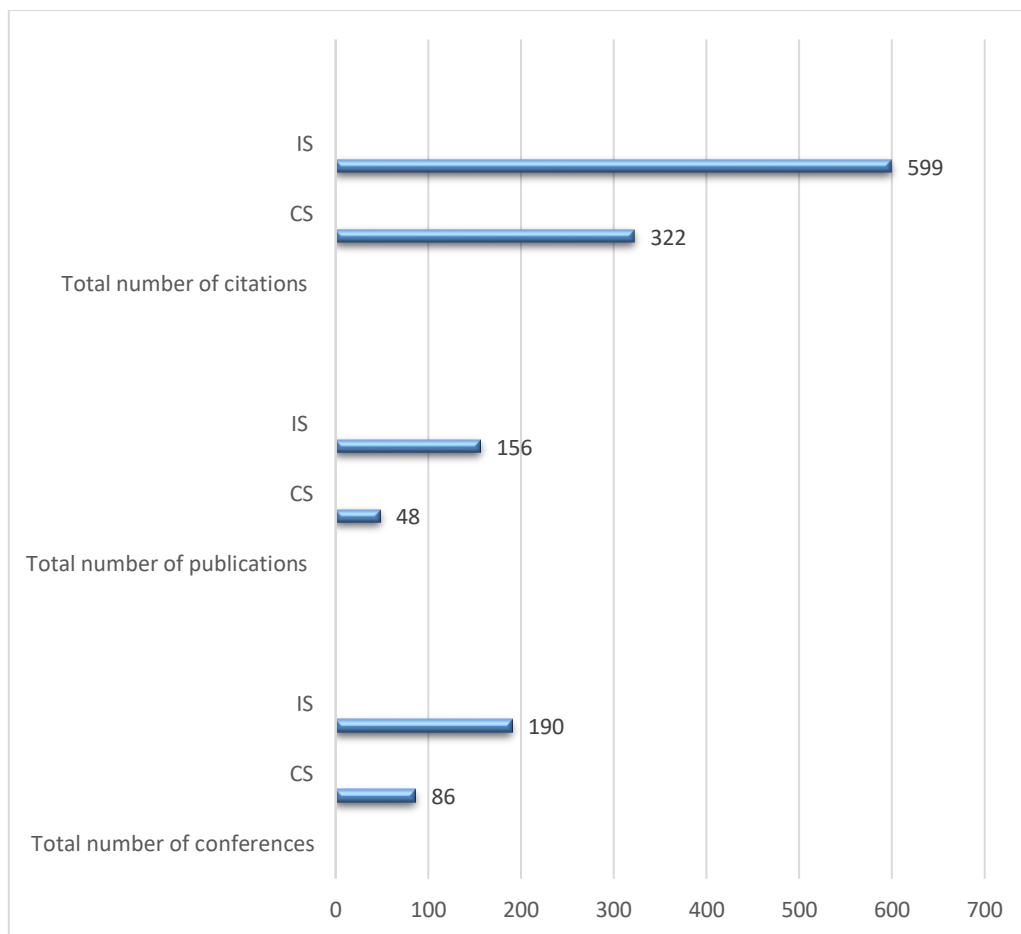


Figure 3. Research Statistics for CSIS

## List of Publications

Table 3. List of Publications for 2019

No	Paper	Year	Status	Faculty Member	Department
1.	Asadullah Shaikh. The Role of Maturity Driven Software Process Improvement in an Industry . International Journal of Advanced Trends in Computer Science and Engineering, VOL. 8, NO. 11, 344-350, January 2019, ISSN 2278 - 3091. Scopus Indexed	2019	Published	Dr. Asadullah Shaikh	Information System
2.	Soobia Saeed, Asadullah Shaikh, Muhammad Ali Memon, Muhammad Ali Nizamani, Faheem Ahmed Abbasi, and Syed Mehmood Raza Naqvi. Evaluating the Quality of Point of Sale (POS) Software. In University of Sindh Journal of Information Communication Technology (USJICT), Vol.3 (2) pp. 69-75, April (2019).	2019	Published	Dr. Asadullah Shaikh	Information System
3.	Asadullah Shaikh. The Impact of Management of Information Communication Technology (MICT) on Society- International Conference on Communication, Management and Information Technology- ICCMIT 2019, Vienna, Austria. Indian Journal of Science and Technology, Vol 12(18), May 2019. ISI web of science.	2019	Published	Dr. Asadullah Shaikh	Information System
4.	Muhammad Ali Memon, Zaira Hassan, Kamran Dahri, and Asadullah Shaikh. Aspects Oriented UML to ECORE model Transformation. The ISC International Journal of Information Security, Volume 11, Number 3 (pp. 97–103), August 2019,. ISI web of science.	2019	Published	Dr. Asadullah Shaikh	Information System
5.	Soobia Saeed, Asadullah Shaikh, Muhammad Ali Memon, Muhammad Ali Nizamani. System Development Life Cycle Test Driven Technique and Defect Investigation. In University of Sindh Journal of Information Communication Technology (USJICT), Vol.3 (3) pp. 128-134, July (2019).	2019	Published	Dr. Asadullah Shaikh	Information System
6.	Noorulhasan Naveed Quadri, Mohamed Rafik N. Qureshi, Asadullah Shaikh, Alhuseen Omar Alsayed, and Khalid Mohiuddin. Evaluating and Ranking Cloud-Bbased E-Learning Critical Success Factors (CSFs) Using Combinational Approach . IEEE Access, Volume 7 (2019), pp 157145-157157 , ISSN 2169-3536. ISI Thomson Reuters, Impact Factor, 4.098.	2019	Published	Dr. Asadullah Shaikh	Information System
7.	A. Abdullah, M. Thanoon, A. Alsulami “Toward a Smart Campus Using IoT: Framework for Safety and Security System on a University Campus”, Advances in Science, Technology and Engineering Systems Journal, vol. 4, no. 5, pp. 97-103 (2019). Scopus Indexed.	2019	published	Dr. Abdullah Alghamdi	Information System
8.	Al-Shargabi, M. A. "An Integrated Decision Support Model For Enhancing Continuous Improvement Of Academic Programs." Engineering, Technology & Applied Science Research 9.5 (2019): 4835-4841.	2019	published	Dr. Mohammed Al-Shargabi	Information System
9.	Mohammed Al-Shargabi, “Decision Support Approach for Enhancing Course Learning Outcomes Achievement and Accuracy of Continuous Improvement”, International Journal of	2019	published	Dr. Mohammed Al-Shargabi	Information System

	Advanced Trends in Computer Science and Engineering. 2019, 8(1.3):320-326.				
10	Mohammed Al-Shargabi, Smart Rubric-Based Systematic Model for Evaluating and Prioritizing Academic Practices to Enhance the Education Outcomes, International Journal of Advanced Computer Science and Applications. 2019,10(8).	2019	published	Dr. Mohammed Al-Shargabi	Information System
11	Namoun, A., Taleb, A., Al-Shargabi, M., & Benaida, M. (2019). A Learning Outcome Inspired Survey Instrument for Assessing the Quality of Continuous Improvement Cycle. International Journal of Information and Communication Technology Education (IJICTE), 15(2), 108-129.	2019	published	Dr. Mohammed Al-Shargabi	Information System
12	Al Reshan, Mana, Hang Liu, Chunqiang Hu, and Jiguo Yu. "MBPSKA: Multi-Biometric and Physiological Signal-Based Key Agreement for Body Area Networks." <i>IEEE Access</i> 7 (2019): 78484-78502.	2019	published	Dr. Mana Al Reshan	Information system
13	Verma, Sumit, M. Saqib Akhoun, Sajad A. Loan, and Mana Al Reshan. "A normally OFF GaN CAVET and its thermal and trap analysis." <i>Journal of Computational Electronics</i> 18, no. 3 (2019): 941-950.	2019	published	Dr. Mana Al Reshan	Information system
14	Conceptual Modeling for Achieving a Performance and Sustainability on SMEs Using Cloud Computing Technology, International Journal of Advanced Trends in Computer Science and Engineering (IJATCSE)- Scopus Indexed	2019	Published	Dr.FEKRY	Information system
15	Integration Social Media Platform in their Customer Relationship Management Process (CRMP) and Impact on Performance of SMEs, Indian Journal of Science and Technology, 2019	2019	Published	Dr.Fekry	Information system
16	Anwar Ali Yahya, Fekri Abdulwadod Mohammed, Addin Osman, (2019): A Novel Use of Educational Data Mining to Inform Effective Management of Academic Programs, International Conference in Educational Data Mining. Montréal, Canada, July 2 - 5, 2019	2019	Published	Dr. Fekry	Information system
17	Asiri, Y., Millard, D. and Weal, M., (2019). Studying The Usability of A Mobile Behavior Change Intervention to Enhance Critical Thinking in Project Supervision. In Journal of IEEE Transactions on Learning Technologies.	2019	Published	Dr Yousef Asiri	Computer Science
18	Asiri, Yousef, Millard, David and Weal, Mark (2019). Evaluating the Impact of the Components of A Mobile Behavior Change Intervention to Support Critical Thinking in Research Projects. In Mobile Learning - Proceedings of the 15th ML Conference, International Association for Development of the Information Society (IADIS). Pp.65-72.	2019	Published	Dr Yousef Asiri	Computer Science
19	Belal Abdullah Hezam Murshed1, Suresha Mallappa2, Fikri Abdulwedood Mohammed Ahmed3, HasibDaowdEsmail Al-ariki4(2020): Semantic Analysis on Big Twitter Dataset for Automatic Topic Modeling, TEST Engineering & Management.March-APRIL 2020 ISSN:0193-4120 Page No. 14657- 14684	2020	Published	Dr. Fekry	Information system



20	Fathy Mohammed , Fekry Olayah ,Nadhmi. A.Gazm, Abdullah Ali,(2020):The Effect of Cloud Computing Adoption on the Sustainability of E-Government Services, International Journal of Advanced Science and Technology(IJAST).	2020	Published	Dr. Fekry	Information system
21	S. Almakdi and B. Panda, "Secure and Efficient Query Processing Technique for Encrypted Databases in Cloud," in 2019 2nd International Conference on Data Intelligence and Security (ICDIS), IEEE, 2019, pp. 120–127.	2019	Published	Dr. Sultan Almakdi	Computer Science
22	S. Almakdi and B. Panda, "Designing a Bit-Based Model to Accelerate Query Processing Over Encrypted Databases in Cloud," in the 9th International Conference on Cloud Computing (CloudComp 2019), Springer, Cham, 2019.	2019	Published	Dr. Sultan Almakdi	Computer Science
23	S. Almakdi and B. Panda, "A Secure Model to Execute Queries Over Encrypted Databases in the Cloud," in 2019 IEEE International Conference on Smart Cloud (SmartCloud), IEEE, 2019.	2019	Published	Dr. Sultan Almakdi	Computer Science
24	COMPARATIVE WEB ACCESSIBILITY EVALUATION OF SAUDI GOVERNMENT WEBSITES FOR COMPLIANCE WITH WCAG 1.0 AND WCAG 2.0 USING AUTOMATIC WEB ACCESSIBILITY TOOLS, Journal of Theoretical and Applied Information Technology	2019	Published	Muhammad Akram	Computer Science
25	Alshehri, Ali; Marcinek, Pawel; Alzahrani, Abdulrahman; Alshahrani, Hani; Fu, Huirong; ",PUREDroid: Permission Usage and Risk Estimation for Android Applications,Proceedings of the 2019 3rd International Conference on Information System and Data Mining,,,179-184,2019,	2019	Published	Dr. Hani Alshahrani	Computer Science
26	Alzahrani, Abdulrahman; Alshahrani, Hani; Alshehri, Ali; Fu, Huirong; ",An Intelligent Behavior-Based Ransomware Detection System for Android Platform,"The First IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications', 2019.	2019	Published	Dr. Hani Alshahrani	Computer Science
27	A modified WBANs MAC superframe using priority-criticality index table for managing pilgrims' emergency traffic in Hajj', Indonesian Journal of Electrical Engineering and Computer Science, IJEECS, Vol 14 (3), 2019, pp 1499-1509	2019	Published	Shah Murtaza Rashid Al Masud	Information Systems
28	A priority-queue dominated and delay-energy guaranteed mac superframe structure for wbans to deal with various emergency traffic of pilgrims during hajj: an analytical model', Journal of Theoretical and Applied Information Technology (JATIT), Vol. 97 (7),2019	2019	Published	Shah Murtaza Rashid Al Masud	Information Systems
29	WMN enabled WBAN System for Pilgrims' Health Monitoring at Overcrowded Environment during Hajj in Saudi Arabia: a Feasibility Study', International Journal of Engineering and Technology (IJET), Vol 7 (4), 2018-2019, 5178-5187	2019	Published	Shah Murtaza Rashid Al Masud	Information Systems
30	<b>Turki Alelyani</b> , Arup Guha, Shion Guha and Pamela Wisniewski "Examining Parent versus Child Reviews of Parental Control Apps on Google Play."The 21st International Conference on. Human-Computer Interaction, 2019, Orlando, Florida.	2019	Published	Dr. Turki Alelyani	Information Systems
31	Aymen Hamrouni, Hakim Ghazzai, <b>Turki Alelyani</b> , and Yehia Massoud "Stochastic Team Formation Approach for Collaborative	2019	Published	Dr. Turki Alelyani	Information Systems

	Mobile Crowdsourcing". "The 31st International Conference on Microelectronics, 2019, Egypt				
32	<b>Turki Alelyani</b> , Ye Yang, Jon Wade, Dinesh Verma, Martin Törngren, Ronald Michel " A Literature Review on Obsolescence Management in COTS-Centric." The 17th Annual Conference on Systems Engineering Research, 2019, Washington DC	2019	Published	Dr. Turki Alelyani	Information Systems
33	Ye Yang, Jon Wade, Dinesh Verma, Martin Törngren, Ronald Michel, <b>Turki Alelyani</b> " Towards a Taxonomy of Technical Debts for COTS-Intensive Cyber Physical Systems." The 17th Annual Conference on Systems Engineering Research, 2019, Washington DC	2019	Published	Dr. Turki Alelyani	Information Systems
34	Alqhtani, S.M., Alqhtani, A., Raizza, A. (2019), 'Steganography Android Application Using LSB and DCT Techniques for Gray and Color Images', Academicsera, 14 November 2019	2019	Published	Dr. Samar Alqh	Computer Science
35	Mohammed Hamdi, Kavya Narne, Hamzah Arishi, Feng Yu, Wen Hou, "A Denormalization Approach to Answering Join Queries", DBKDA 2019, pp 17-27.	2019	Published	Dr. Mohammed Hamdi	Computer Science
36	Patanasakpinyo, T., Batinov, G., Whitney, K., Sulaiman, A., & Miller, L. (2019). Enhanced Prediction Models for Predicting Spatial Visualization (VZ) in Address Verification Task. EPiC Series in Computing, 58, 247–256. <a href="http://doi.org/10.29007/V9G3">http://doi.org/10.29007/V9G3</a>	2019	Published	Dr. Adel Sulaiman	Computer Science

Table 4. List of Publications for 2020

No	Paper	Year	Status	Faculty Member	Department
1	Soobia Saeed, Asadullah Shaikh, Muhammad Ali Memon, Muhammad Ali Nizamani, Muhammad Memon. Online Deal Portal: Factors to Consider for an Effective Design. University of Sindh Journal of Information Communication Technology (USJICT), Vol. 4(1) pp. 38-44, March (2020).	2020	Published	Dr. Asadullah Shaikh	Information System
2	Asadullah Shaikh, The Framework to Analyze the Factors and Aspects of Information Security Program Maturity Grid. International Journal of Advanced Trends in Computer Science and Engineering (IJATCSE), VOL. 9, NO. 1.1, 311-315, March 2020, ISSN 2278 - 3091. Scopus Indexed.	2020	Published	Dr. Asadullah Shaikh	Information System
3	Abdul Hafeez Muhammad, Asadullah Shaikh, Quadri Naveed, and, Mohamed Rafik Noor Qureshi. Factors Affecting Academic Integrity in e-Learning of Saudi Arabian Universities. An investigation using Delphi and AHP. IEEE Access, Volume 8 (1) 2020, pp 16259-16268 , ISSN 2169-3536. ISI Thomson Reuters, Impact Factor, 4.098.	2020	Published	Dr. Asadullah Shaikh	Information System
4	Quadri Noorulhasan Naveed, Mohamed Rafik Noor Qureshi, Nasser Tairan, AbdulHafeez Mohammad, Asadullah Shaikh, Alhuseen O. Alsayed, Asadullah Shah, and Fahad Mazaed Alotaibi. Evaluating Critical Success Factors in Implementing E-Learning System using Multi-Criteria	2020	Published	Dr. Asadullah Shaikh	Information System



	Decision-Making. PLOS ONE. 2020;15(5):1-25. doi:10.1371/journal.pone.0231465. Impact Factor, 2.776, 2020.				
5	Ali Farooq, Farhan Ahmad, Nyla Khadam, Birgy Lorenz and Jouni Isoaho The Impact of Perceived Security on Intention to use E-Learning Among Students	2020	Accepted For ICALT 2020 6 - 9 July · Tartu, Estonia	Nyla Khadam	Computer Science
6	Alzahrani, Abdulrahman; Alshehri, Ali; Alshahrani, Hani; Fu, Huirong; ", Ransomware in Windows and Android Platforms, arXiv preprint arXiv:2005.05571, 2020,	2020	Published	Dr. Hani Alshahrani	Computer Science
7	"An Extended and Granular Classification of Cloud's Taxonomy and Services" has been nominated and accepted to be published as a book chapter by 'Book Publisher International', 2020	2020	Accepted	Shah Murtaza Rashid Al Masud	Information Systems
8	M. Asiri, T. Sheltami, L. Al-Awami and A. Yasar, "A Novel Approach for Efficient Management of Data Lifespan of IoT Devices," in IEEE Internet of Things Journal, vol. 7, no. 5, pp. 4566-4574, May 2020, doi: 10.1109/JIOT.2019.2955099.	2020	Published	Mohammed Asiri	Computer Science
9	<b>Turki Alelyani</b> , Paul T. Grogan, Yla Tausczik and Ye Yang "Software Crowdsourcing Design: An Experiment on the Relationship between Task Design and Crowdsourcing Performance". "The 22nd International Conference on Human-Computer Interaction, 2020, Copenhagen, Denmark.	2020	Accepted	Dr. Turki Alelyani	Information Systems
10	Aymen Hamrouni, Hakim Ghazzai, <b>Turki Alelyani</b> , and Yehia Massoud "Optimal Team Recruitment Strategies in Collaborative Mobile Crowdsourcing Platforms". "The IEEE International Symposium on Circuits and Systems (ISCAS), 2020, Spain.	2020	Published	Dr. Turki Alelyani	Information Systems
11	Asadullah Shaikh. Guest Editorial: Impact of Integrated Intelligent Information and Analytical Systems on Society. Journal of Information Technology Management (JITM), Vol 12(3), pp 1-3. Scopus Indexed. DOI 10.22059/JITM.2020.76287.	2020	Published	Dr. Asadullah Shaikh	Information System
12	Asadullah Shaikh. Guest Editorial: Advances in Deep Learning in Mobile Interactive Algorithms and Learning Technologies. International Journal of Interactive Mobile Technologies (IJIM), Vol 14(10), pp 4-6, 2020. DOI 10.3991/ijim.v14i10.15369	2020	Published	Dr. Asadullah Shaikh	Information System
13	Asadullah Shaikh. An Interactive Design using Human Computer Interaction for Autonomous Vehicles. International Journal of Engineering Trends and Technology (IJETT) – Editor's Issues - 2020, pp 160-172, 2020. DOI: 10.14445/22315381/CATI3P226. Scopus Indexed	2020	Published	Dr. Asadullah Shaikh	Information System
14	Asadullah Shaikh, Mueen Uddin, M.A. Elmagzoub, and Abdullah Alghamdi. PEMC: Power Efficiency Measurement Calculator to Compute Power Efficiency and CO2 Emissions in Cloud Data Centers. Accepted in IEEE Access,	2020	Published	Dr. Asadullah Shaikh	Information System

	vol. 8, pp. 195216-195228, 2020, doi: 10.1109/ACCESS.2020.3033791. ISI Thomson Reuters, Impact Factor, 3.745				
15	M.A. Elmagzoub, Asadullah Shaikh, Abdullah Alghamdi, and Khairan Rajab. A Review on MIMO Wireless Signals over Fibre for Next Generation Fibre Wireless (FiWi) Broadband Networks. Electronics. 2020; 9(12):2014. ISI Thomson Reuters, Impact Factor, 2.412, 2020.	2020	Published	Dr. Magzoub	Network Engineering
16	Asadullah Shaikh, and Khairan Rajab. Editorial Special Issue on New Frontiers in Data Sciences and Data Analytics Tools and Applications. Advances in Data Science and Adaptive Analysis Vol. 12, No. 2 (2020) 2002001, pp.1-3. World Scientific Publishing Company. DOI: 10.1142/S2424922X20020015. ESCI indexed, 2020	2020	Published	Dr. Asadullah Shaikh	Information System
17	Asadullah Shaikh, Yousef Asiri, and Adel A. Sulaiman. (Editorial) Evaluating Critical Measures of Quality Management And Quality Control. International Journal for Quality Research, Vol. 14, No. 4 (2020), pp.985-988. Scopus and ESCI indexed, 2020.	2020	Published	Dr. Asadullah Shaikh	Information System
18	Daler Ali, Malik Muhammad Saad Missen, Muhammad Ali Memon, Muhammad Ali Nizamani, Asadullah Shaikh. Extracting Temporal Entities in Urdu Language. University of Sindh Journal of Information and Communication Technology (USJICT), Vol.4 (3) pp. 181-188, October 2020.	2020	Published	Dr. Asadullah Shaikh	Information System
19	Daler Ali, Malik Muhammad Saad Missen, Muhammad Ali Memon, Muhammad Ali Nizamani, Asadullah Shaikh. Extracting Temporal Entities in Urdu Language. University of Sindh Journal of Information and Communication Technology (USJICT), Vol.4 (3) pp. 181-188, October 2020.	2020	Published	Dr. Asadullah Shaikh	Information System
20	Mohammed Al-Shargabi. Impacts of TAG and TAW Signaling Protocols on Packets Delay over OBS Networks. International Journal of Engineering Trends and Technology (IJETT), Special issue – AIIC - 2020.	2020	Published	Dr. Mohammed Al-Shargabi	Information System
21	The Impacts of Burst Assembly Parameters on Optical Burst Switching Network Performance, International Journal of Emerging Trends in Engineering Research, Volume 8. No. 9, September 2020.	2020	Published	Dr. Mohammed Al-Shargabi	Information System
22	Feng Yu, David S. Wilson, Tasha M. Wells, Mohammad A. Hamdi, Xiaolan Huang, Wen-Chi Hou. "Scalable Correlated Sampling for Join Query Estimations on Big Data". International Journal of Computers and Their Applications, Volume 27, pp 14-23.	2020	Published	Dr. Mohammed Hamdi	Computer Science
23	An M/M/1 Preemptive Queue based Priority MAC Protocol for WBSN to Transmit Pilgrims' Data. " International Journal of Advanced Computer Science and Applications (IJACSA), 11(10), 2020. <a href="http://dx.doi.org/10.14569/IJACSA.2020.0111023">http://dx.doi.org/10.14569/IJACSA.2020.0111023</a> [ISI & Scopus indexed]	2020	Published	Muhammad Akram	Computer Science

24	Preemptive Queue Based Modified MAC Superframe for WBSN to Efficiently Transmit Pilgrims' Heterogeneous Data at Ritual Sites: An Analytical Approach, IJCSNS International Journal of Computer Science and Network Security, VOL.20 No.10, October 2020	2020	Published	Muhammad Akram	Computer Science
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Table 5. List of Publication for 2021

No	Paper	Year	Status	Faculty Member	Department
1	Asadullah Shaikh, Abdul Hafeez, M.A. Elmagzoub, Abdullah Alghamdi, Ansar Siddique, and Basit Shahzad. Ontology-Based Verification of UML Class Model XOR Constraints and Dependency Relationships Constraints. Intelligent Automation & Soft Computing, vol. 27, no.2, pp. 565–579, 2021. ISI Thomson Reuters, Impact Factor, 1.276, 2021.	2021	Published	Dr. Asadullah Shaikh	Information System
2	Asadullah Shaikh, Mana Saleh AlReshan, Yousef Asiri, Adel Sulaiman, and Hani Alshahrani. Tele-COVID: A Telemedicine SOA-based Architectural Design for COVID-19 Patients. Computers, Materials & Continua, vol. 67, no.1, pp. 549–576. Impact Factor, 4.89, 2021.	2021	Published	Dr. Asadullah Shaikh	Information System
3	Shaikh, Asadullah, Mana Saleh AlReshan, Yousef Asiri, Adel Sulaiman, and Hani Alshahrani. "Tele-COVID: A Telemedicine SOA-Based Architectural Design for COVID-19 Patients."	2021	Published	Dr. Mana Al Reshan	Information System
4	Rashid Naseem, Zain Shaukat, Muhammad Irfan, Muhammad Shah, Arshad Ahmad, Fazal Muhammad, Adam Glowacz, Larisa Dunai, Jose Antonino-Daviu, Adel Sulaiman "Empirical Assessment of Machine Learning Techniques for Software Requirements Risk Prediction," Electronics, Vol. 10, No. 01, January 2021.	2021	Published	Dr. Adel Sulaiman	Computer Science
5	A. Shaikh, M. S. AlReshan, Y. Asiri, A. Sulaiman and H. Alshahrani, "Tele-covid: a telemedicine soa-based architectural design for covid-19 patients," Computers, Materials & Continua, vol. 67, no.1, pp. 549–576, 2021.	2021	Published	Dr. Adel Sulaiman	Computer Science

## Funds and Collaboration

As shown in Figure 4, the research unit is working with many stakeholders inside the university such as the deanship of scientific research and research centers and other colleges. The unit is collaborating with Saudi universities and international institutions. A collaboration with international institutions (University of Sindh, Pakistan) was approved by the deanship of scientific research with project number: NU/IFC/INT/01/008. The unit is also trying to apply for funds through collaboration with public and private sectors as shown in the example in Figure5.



Figure 4. Research Unit main stakeholders for support and collaboration



Figure 5. Example of applying for research funds with the Ministry of Environment, Water and Agriculture

## College Flyer

The collage flyer is published once every semester with goal of promoting the collage activities and the research news. The flyer aims to recognize the achievements of researchers by presenting their work to the collage and the NU community. The flyer also supports the community service by the collage members as well as students' activities in the collage. Three editions have been issued and the fourth issue is coming by the end of this semester.



Figure 6. The three editions of the college flyer can be found [here](#).

## Projects accepted in DSR 9<sup>th</sup> phase:

Total number of 18 funded project from the deanship of scientific research were accepted 10 of them from the CS department with the following titles:

- 1- A New Approach for Backhauling MIMO Wireless Signal over Passive Optical Networks for Next Generation Mobile and Access Networks
- 2- A reliable connectivity restoration technique for wireless sensor networks
- 3- A Study for the Relationship between Digital Empathy and Well-being Issues in Social Media Saudi Arabia Context
- 4- Adaptive and Intelligent Secure System to Detect Cyber Attacks in SDN Using Machine Learning
- 5- An effective method of academic advising through e-learning on emergencies circumstances like Coronavirus, or war events, Najran university as a case study



- 6- Analysis and Recommendations for Starting a New Postgraduate Computer and Engineering Programs
- 7- Attitude Toward Adopting Cloud Computing in the Saudi Banking Sector Investigation of influential Factors
- 8- Colldroid A Collaborative Framework to Detect Android Malicious Applications Based on Blockchain Technology
- 9- Deep Learning for Event Detection in Social Media
- 10- Development of Advanced Fire Detection and Alarm System for Integrated Buildings
- 11- E-learning Capability of Improving Student Learning Outcomes in Computer Science
- 12- Fuzzy Logic and Modified Butterfly Optimization with Enhanced Elliptic Curve Digital Signature
- 13- Algorithm based on Fault detection for Secured Fault-Tolerant Routing in Wireless Sensor Networks
- 14- Implementation of Distributed Controllers for Reliable SDN Networks
- 15- IMPROVE THE QOS USING MULTIPATH ROUTING PROTOCOL FOR WIRELESS MULTIMEDIA SENSOR NETWORK
- 16- Intelligent Agent as a Counterterrorism Tool for Social Media
- 17- Towards a model for teaching cyber security in all university majors, Najran university as a case study
- 18- Towards Intelligent Healthcare Systems Investigating Cancer Disease in Saudi Arabia via Machine Learning Approaches
- 19- الاستكشاف المعرفي في الطب - التنقيب في الآثار الجانبية للأدوية المضادة للتشنجات من مراجعات المرضى على الانترنت
- 20- التنفيذ التكيفي لإطار المصادقة الآمن في شبكات WBAN باستخدام القياسات المتعددة لمنع الهجمات الإلكترونية
- 21- الطرق المعتمدة على تحليلات البيانات لتوجيه اتخاذ القرارات في البرامج الأكاديمية



Figure 7. The number of accepted research projects for the COVID 19 phase compared to other colleges.

## Projects accepted in DSR COVID-19 phase:

Total of 6 funded project from the deanship of scientific research were accepted with the following titles:

- 1- Anew approach based on social insect inspiration to reduce of COVID-19 spreading
- 2- A Study of The Impact of COVID19 on the Emergency Management Resources in Saudi Universities
- 3- Using eLearning for Emergency Online Teaching in Two Different Crises War Case and COVID19 in Saudi Arabia
- 4- Assessment of Learning Outcomes during emergency online teaching due to COVID-19
- 5- Creating an Engaged Interactive Instruction in Covid-19 E-learning Era to Achieve Exemplary Students' Performance in Computer Science Virtual Classrooms
- 6- Tele-COVID A Telemedicine Architectural Design for COVID 19 Patients

## Recommendation to Increase Citations, Scopus, ESCI, and SCIE or SSCI Publications

In the year 2019-2020 we published \*\*60\*\* papers and \*\*24\*\* projects from the Deanship of Scientific Research (DSR) are approved All the above research statistics are achieved based on DSR and individual support. To increase the above statistics following recommendation are proposed

### Recommendations

- Provide an open access fee to each faculty member to publish in Scopus, ESCI, and SCIE or SSCI without approved DSR project.
- Allow each faculty to travel for a conference without any deductions and support financially at least once a year.
- Encourage research groups at NU to establish their research lab to conduct high-quality research and write research papers that can be published in Scopus, ESCI, and SCIE or SSCI journals.
- Provide funding to buy research equipment to conduct experimental results.
- If open access fee is provided the citation number will automatically improve as papers will be available free for reading.
- Encourage faculty members to apply research projects at DSR and the requirement of completion of the project can be Scopus indexed paper rather than SCIE/SSCI paper.

KINGDOM OF SAUDI ARABIA

Ministry of Education

Najran University

College of Computer Science and Information Systems



المملكة العربية السعودية

وزارة التعليم

جامعة نجران

كلية علوم الحاسب ونظم المعلومات  
وحدة البحوث

Research Unit

- Once the papers are published, citation can be only be obtained if papers are freely available, therefore, encourage each staff member to upload their papers on a personal website and official website of the college.
- Access of plagiarism software to each faculty member of the college.