LAMAR UNIVERSITY
Departmental Report
Calendar Year 2019

Department: Computer Science

Unit Goals for 2019 and Accomplishments

1.   Continue to involve students in undergraduate and graduate research, programming competitions, and other academic activities. This goal was accomplished as our Faculty engaged undergraduate and graduate students in doing research.
2.   Maintain our programs accreditation (e.g., ABET, SACS), improving our new programs (e.g., Computer Game Development, Cybersecurity) and improve our effective recruitment and retention practices. The goal was achieved for the last six years as we had been approved for ABET re-accreditation.
3.   Continue to cooperate for getting support from the higher administration, advisory board, industry, and collaborate with other academic departments. This goal was accomplished as we received support from the advisory board and industry as well as the higher administration. We also collaborated very well with other departments.

1.   Please list the enrollment for the last few years for lowerclassmen, juniors and seniors. *
     Please comment on the enrollments and retention to senior status.

	SPRING	FALL	SPRING	FALL	SPRING	FALL
Classification	2017	2017	2018	2018	2019	2019
FR	63	93	59	103	53	76
SO	65	59	44	54	51	63
JR	44	62	59	58	39	51
SR	62	64	73	79	74	96
PB	3	1	1	0	2	5
MS	170	94	92	78	70	64
TOTAL	**407**	**373**	**328**	**372**	**289**	**352**

The freshman undergraduate students in Fall 2019 decreased by 26% compared to Fall 2018 and 18% compared to Fall 2017. For the sophomore UG, we have an increase of 17% compared to Fall 2018 and 8% compared to Fall 2017. For the juniors, we have a decrease of 12% compared to Fall 2018 and 18%

compared to Fall 2017. However, for the seniors, we have an increase of 22% compared to Fall 2018 and 33% compared to Fall 2017. The graduation rates are analyzed next item.

As for the graduate student population, we have an decrease of 18% in Fall 2019 compared to Fall 2018 and 32% compared to Fall 2017. Considering the entire (undergraduate + graduate) student population, we have 352 in Fall 2019 and 372 in Fall 2018, hence a decrease of 5%. We hope the numbers will improve in the near future. During this pandemic, we adapted to the situation and start using Zoom for Orientation sessions for Graduate Students. We are conducting classes online using Collaborate Ultra, so that students can still take classes from overseas.

We have a very good student's retention for sophomores, juniors and seniors. The main reason is that we are required by ABET to impose a minimum grade of 'B' or better for our introductive courses (COSC 1336 Programming Fundamentals I, COSC 1173 Programming Lab I, COSC 1337 Programming Fundamentals II, COSC 1174 Programming Lab II). It is our observation that once the students reach the sophomore status, the overwhelming majority of our students is graduating on time (within 3-5 years). Other important reasons for our good retention rates are following the schedule rotational scheme required by ABET, offering sufficient elective courses, involving students in programming contests, ACM, UPE and E-Sports activities, Career Forums, Advisory Board Conferences, and other out-reach academic events.

2. Compare graduation rates for past three (3) years. *

The below table indicates the number of degrees awarded for the past three years:

Degrees Awarded for the past three years				FY 2017	FY 2018	FY 2019	Three years total
11010100	2	BS	Computer Science	18	15	22	**55**
11010100	2	BS	Computer Information Science	2	4	9	**15**
11070100	3	MS	Computer Science	160	47	33	**240**

Regarding the BS in CS program, the graduation rate for FY2019 is 22/55 = 40% compared to 15/55 = 27% in FY2018 and 18/55 = 33% in FY2017. Hence, we have improved our graduation rate in 2019 compared to previous years.

Regarding the BS in CIS program, the graduation rate for FY2019 is 9/15 = 60% compared to 4/15 = 27% in FY2018 and 2/15 = 13% in FY2017. Hence, we have significantly improved our graduation rate in 2019 compared to previous years.

Regarding the MS in CS program, the graduation rate for FY2019 is 33/240 = 14% compared to 47/240 = 20% in FY2018 and 160/240 = 66% in FY2017. Hence, we have decreased our graduation rate in 2019 compared to previous years. According to our students, the main reason is the reduced number of awarded visas to come for studying a Master program in the United States.

3. What do these numbers/trends mean and what do you need to change or improve?

Considering the Undergraduate Student chohort, the numbers are promising. As for the Graduate Students, we hope to have more students in our Graduate program. We continue our efforts to promote all our programs, to engage students in our research projects, programming competitions, and many othe academic activities.

4. Compare enrollment (SCH + Faculty FTE) data for the past three (3) years. *
   Comment on trended data and actions taken this year.

| | Fall 2017 | | | | Fall 2018 | | | | Fall 2019 | | | | Fall 2017-2019 % Change | | | |
| | Student Level | | | | Student Level | | | | Student Level | | | | Student Level | | | |
Department	UG	PB	MS	Total	UG	PB	MS	Total	UG	PB	MS	Total	UG	PB	MS	Total
Computer Science	273	1	94	368	289	0	81	370	292	5	68	365	7.0%	400%	-27.7%	-0.8%
Department	LW	UP	GR	Total	LW	UP	GR	Total	LW	UP	GR	Total	LW	UP	GR	Total
Computer Science	1,409	625	713	2,747	1,639	844	534	3,017	1,461	559	528	2,548	3.7%	10.6%	-25.9%	-7.2%
Face to Face	857	366	558	1,781	638	333	444	1,415	765	445	396	1,606	-10.7%	21.6%	-29.0%	-9.8%
Online	552	259	155	966	1,001	511	90	1,602	696	114	132	942	26.1%	56.0%	-14.8%	-2.5%

The Undergraduate Student enrollement increased by 7% and the postbacallaureat by 400%, which gives us confidence that we are doing a good job. However, the Graduate Student population decreased by 27.7%, which makes us increase our efforts to attract more students willing to pursue a Master in Computer Science degree.
As far as the SCH numbers, the situation is actually better. Regarding the freshman and sophomore level Undergraduate Students, the SCH of face-to-face classes decreases by 10.7%, but we have an increase of 26.1% at the online courses. As for the junior and senior level Undergraduate Students, the students tend to prefer face-to-face courses as opposed to online courses. We believe it is because of the level of difficulty of the course compared to the lower level UG courses.
For the Master students, we have a decrease of at both levels, due to the decrease in general of the enrollment. We are doing our best to attract more students in our Master program.

5. How many non-teaching faculty (FTE) do you have and what are their roles?

SCH/Teaching FTE:												
	Fall 2017			Fall 2018			Fall 2019			Fall 2017-2019 % Change		
Department	Total SCH	Tch FTE	SCH/FTE	Total SCH	Tch FTE	SCH/FTE	Total SCH	Tch FTE	SCH/FTE	Total SCH	Tch FTE	SCH/FTE
Computer Science	2,747	13.4	205.0	3,017	12.9	233.9	2,548	13.3	191.6	-7.2%	-0.7%	-6.5%

We have one Teaching Faculty and two Staff members who are teaching some Labs or lower level courses. We do have 12 Faculty holding PhD whose roles are research, teaching, and service.

6. Compare the number of classes / sections offered by year vs. the enrollment growth and/or decline.

Class size												
	Fall 2017			Fall 2018			Fall 2019			Fall 2017-2019 % Change		
*	Student Level			Student Level			Student Level			Student Level		
Department	LW	UP	GR	LW	UP	GR	LW	UP	GR	LW	UP	GR
Computer Science												
Lecture Course Count	12	9	11	9	9	11	8	13	10	-33.3%	44.4%	-9.1%
Mean Class Size	22.0	13.6	14.5	20.7	12.3	11.2	27.8	11.6	11.3	26.1%	-14.3%	-21.8%
Median Class Size	23.5	10.0	12.0	20.0	12.0	7.0	30.5	9.0	5.5	29.8%	-10.0%	-54.2%
Lab Course Count	3	0	0	3	0	0	6	0	0	100.0%	N/A	N/A
Mean Class Size	21.7	-	-	26.7	-	-	16.5	-	-	-23.9%	N/A	N/A
Median Class Size	23.0	-	-	35.0	-	-	10.5	-	-	-54.3%	N/A	N/A

For the UG LW, we do have a decrease in the enrollment, but we do have about the same mean and median increase. For the UG UP, we do have a larger enrollment, but both the mean and median are slightly under 0(zero). We will monitor and analyze the UG numbers. There are no upper divisions

Labs. As for the GR, all three metrics are negative due to the low enrollment and other reasons that we aware. We are aggressively promoting both UG and GR programs, the most effective way of advertising is "the word of mouth".

As for the Lab classes, the only numbers that matter are for UG LW because there are not Labs at the UG UP and GR levels. We'll continue to monitor and analyze these numbers accordingly. As required by ABET, we acquire periodically new computer equipment and software, so that our Labs are outstanding and on-track with the technological developments. Our eight Labs have different designated machines and purpose, 208 – Game Machines - Cardinal ESports, 212A Nvidia VGA Parallel machines – CUDA Learning Center, 213 – Windows Java Development Lab, 212B – Windows/Matlab Laboratory, 214 – Solaris/Mac/Apple machines, 215 – 24 Oracle Windows Studio Lab, 216 – Computer Architecture Lab, 218 – Alienware Stations for Game Development program.

7. Institutional Effectiveness Plans—Summarize how your unit is doing in setting, evaluating and using data to revise, maintain, add or eliminate topics or courses.

   Due to our ABET accreditation, we are required to offer the courses from the "ACM Body of Knowledge". Since in 2018, the ACM Body of Knowledge included cybersecurity and distributing computing, we had to offer courses related to these topics. Hence, we created the elective courses CPSC 4361 Secure Software Engineering and CPSC 4363 Cybersecurity. As far as eliminating courses from our core course, we did removed COSC 4307 Compiler Design course from our degree plan. We have a very active departmental curriculum committee whose main task is to revise, maintain, add or eliminate topics or courses for our programs.

8. Number students employed, by type, (hourly, TA, GA, etc.) cost per hour and total cost for semester and the year. * (Budget Manager)
   How do you use these employees and a rationale for assignments?

   As required by ABET, we need Graders for our offered courses. We are also required to engage students in our research efforts.

Student Worker

SPRING 2019

Undergraduate Students	How Utilized?	Graduate Students	How Utilized?	GRAND TOTAL
	Office Assistant	2	Office Assistant	2464.00
	Webmaster	1	Webmaster	1,820.00
	Research	2	Research Assistants	700.00
2	Technicians	2	Technicians	7,560.00
1	Graders	22	Graders	28,686.00
			Total	**41,230.00**

SUMMER 2019

Undergraduate Students	How Utilized?	Graduate Students	How Utilized?	GRAND TOTAL
	Office Assistant	1	Office Assistant	1,980.00
	Webmaster	1	Webmaster	800.00
2	Technicians/Tutor		Technicians/Tutor	1,800.00
	Graders	8	Graders	2,900.00
	Research Assistants	1	Research Assistants	1,300.00
			Total	**8,780.00**

FALL 2019

Undergraduate Students	How Utilized?	Graduate Students	How Utilized?	GRAND TOTAL
	Office Assistants	1	Office Assistants	3,510.00
	Webmaster	1	Webmaster	2,080.00
4	Technicians/Tutor		Technicians/Tutor	5,775.00
3	Graders	21	Graders	19,537.66
	Research Assistants	1	Research Assistants	1,350.00
			Total	**32,252.66**

Department of Computer Science

Is your budget enough for student workers? If not, provide a plan of action that indicates the needs of your department, estimated costs and benefits.

Total Costs/Semester and Year

Total Cost for Spring 2019:	41,230.00
Total Cost for Summer 2019:	8,780.00
Total Cost of Fall 2019:	32,252.66
2019-2020 Total:	**82,262.66**

We struggle every semester to pay the student workers and this academic year there was large number of qualified students willing to work for the department. We maintain a balance between helping students, instructors, and at the same to preserve the quality of our program. We will consider approaching the Higher Administration for a budget adjustment, if needed.

Budget
What were your major capital expenditures this year?

Capital Expenditures for 2019	
B & H Foto & Electronics Corporation	3206.15
Beaumont Trophies	207.3
CDW Government Inc	663.73
Chartwells	1677.95
Coburn Supply Co	436.42
Dell/Summus	1127.45
Dynamism	9874.87
Educational Testing Service	840.00
Function 4 LLC	876.00
Graybar Electric Co.	853.75
Hernandez Office Supply Inc	2170.63
Laminating and Binding Solutions Inc	200.46
MAC Pizza Management Inc	72.45
Procard Purchase	840.00
Purdue University	180.00
Spark Fun Electronics Inc	598.85
Tele-Communication, Inc	24.35
Grand Total	**23,850.36**

Faculty Productivity Measures
1. Please identify your departmental research or creative activity agenda(s): (Please indicate with a (ug) if the activity includes undergraduate students and a (g) for graduate students)
    a. Department of Computer Science Career Forum, February 27, 2019 (ug + g)
    b. Spring 2019 Advisory Board Conference, March 6, 2019 (ug + g)
    c. First Year Student Success, Fall 2019 (ug)
    d. ACM Programming Contest, November 2, 2019 (ug + g)

2. Publications, Exhibits, etc.
    a. __6___# of Manuscripts submitted not yet published

    1. Ni, Jianyuan, Monica L. Bellon-Harn, Jing Zhang, Yueqing Li, and Vinaya Manchaiah. "Twitter Usage Using Common Reference to Tinnitus." American Journal of Audiology (2020): 1-12.
    2. Alam, Md Morshedul, Zanbo Zhu, Berna Eren Tokgoz, Jing Zhang, and Seokyon Hwang. "Automatic Assessment and Prediction of the Resilience of Utility Poles Using Unmanned Aerial Vehicles and Computer Vision Techniques." International Journal of Disaster Risk Science 11, no. 1 (2020): 119-132.
    3. Bu, Qirong, Gang Yang, Xingxia Ming, Tuo Zhang, Jun Feng, and Jing Zhang. "Deep transfer learning for gesture recognition with WiFi signals." Personal and Ubiquitous Computing (2020): 1-12.
    4. T. Roden, "A Vision System for an Ambient Office Agent", International Journal of Pattern Recognition and Artificial Intelligence, World Scientific Publishing Company, 2019.
    5. Ramya Kannan and S. Kami Makki, A comparative study of Sentiment Mining algorithms using Statistical and Supervised Learning approach, submitted for publication.
    6. Kartheek Golla and S. Kami Makki, Deep Learning-Based Approach for Demand Forecasting, under preparation.

    b. __20_(ug + g)__# Manuscripts published this year

        i. __20_(ug + g)__ Refereed

    1.   M-Mahdi Naddaf-Sh, SeyedSaeid Hosseini, Jing Zhang, Nicholas A. Brake, and Hassan Zargarzadeh, "*Real-Time Road Crack Mapping Using an Optimized Convolutional Neural Network*," Complexity, vol. 2019, 17 pages, 2019. (IF: 2.591)
    2. Zhu, Zanbo, Ruobing Zhao, Jianyuan Ni, and Jing Zhang. "*Image and Spectrum Based Deep Feature Analysis for Particle Matter Estimation with Weather Informatio*n" In *2019 IEEE International Conference on Image Processing (ICIP)*, pp. 3427-3431. IEEE, 2019.
    3. Xingxia Ming, Hongwei Feng, Qirong Bu, Gang Yang, Tuo Zhang, Jing Zhang, "*HumanFi: WiFi-Based Human Identification Using Recurrent Neural Network*", The 16th IEEE International Conference on Ubiquitous Intelligence and Computing, Leicester, UK 2019.
    4. Md Morshedul Alam, Berna Eren Tokgoz, Zhu Zanbo, Jing Zhang, Seokyon Hwang "*Resilience Enhancements of Power Distribution Lines Using Computer Vision Technology*", Proceedings of the 2019 Institute of Industrial and System Engineers (IISE) Annual Conference, 2019.
    5. Zanbo Zhu, Jing Zhang, Md Morshedul Alam, Berna Eren Tokgoz, and Seokyon Hwang, "*Automatic Utility Pole Inclination Angle Measurement Using Unmanned Aerial Vehicle and Deep Learning*", Proceedings of the 2019 Institute of Industrial and System Engineers (IISE) Annual Conference, 2019.
    6. LeAnn J. Chisholm and Xingya Liu, "Using Modeling and Role-Modeling Theory as a Framework for Research in Creating Internet of Things Solutions to Promote Preventative Healthcare for Older Adults in Rural East Texas," Proceedings of International Conference on Society for the Advancement of Modeling and Role-Modeling (SAMRM), Bemidji, MN, 2020.

7. Yera Greg and Xingya Liu, "An Anti-sniffing Protocol for Location-based Services in Wireless Networks," Proceedings of IEEE International Conference on Computing, Networking, and Communications (CNC), Big Island, Hawaii, 2020.

8. R. Banerjee, K. Elgarroussi, S. Wang, A. Talari, Y. Zhang, and C. F. Eick, "K2: A Novel Data Analysis Framework to Understand US Emotions in Space and Time", *International Journal of Semantic Computing*, 13(01):111-133, 2019.

9. S. Ge, J. Zhang, S. Wang, Q. Xu, T. Ho, "New Insight of Ozone Pollution Impact from Flare Emissions of Chemical Plant Start-up Operations", *International Multidisciplinary Journal of Environmental Pollution*, 245, 873-882, 2019.

10. H. Qu, S. Wang, Q. Xu, "Integrated Proactive and Reactive Scheduling for Refinery Front-end Crude Movement with Consideration of Unit Maintenance", *Industrial & Engineering Chemistry Research*, 58, 12192-12206, 2019.

11. S. Ge, J. Zhang, S. Wang, Q. Xu, and T.C. Ho, "New Insight of Ozone Pollution Impact from Flare Emissions of Chemical Plant Start-up Operations", *Environmental Pollution*, 245, 873-882, 2019.

12. Fei Gao, Ashutosh Khandelwal, Jiangjiang Liu, "Mining Frequent Itemsets Using Improved Apriori On Spark," The 3rd International Conference on Information System & Data Mining (ICISDM 2019), Houston, TX, April 6 – 8, 2019, pp. 87-91.

13. Fei Gao and Jiangjiang Liu, "Face Recognition Using Segmentation Technology," the 18th International Conference on Computing and Big Data (ICMLA 2019), Boca Raton, FL, Dec. 16 – 19, 2019, pp. 545-548.

14. Isha Vyas, Lawrence Osborne: Analysis of Botnets and Their Communication Patterns. The 2019 Association of Computer Educators in Texas (ACET 2019), LoneStar College, Montgomery. Texas, November 1-2.

15. Qin Qian, Bo Sun, Xianchang Li, Frank Sun, Che-Jen Lin, Liping Jiang, (2019), "Water Quality Evaluation on an Urban Stormwater Retention Pond Using Wireless Sensor Networks and Hydrodynamic Modeling", J. Irrig. Drain Eng., 145(12),2019. DOI:10.1061/(ASCE)IR.1943-4774.0001434.

16. Qin Qian, Bo Sun, Xianchang Li, Frank Sun, and Che-Jen Lin, "Water quality modeling with data collected by wireless sensor networks (WSNs) in an experimental pond: A case study", 19th Mainland-Taiwan Environmental Protection Conference (MTEPC), Tianjin, China, May 17-21, 2019.

17. Sujing Wang, Stefan Andrei, Otilia Urbina, Dorothy Sisk. "A Programming Academy for 6th Grade Females to Increase Knowledge and Interests in Computer Science", in Proceedings of 2019 IEEE *Frontiers in Education (FIE) International Conference*, October 16-19, 2019, Cincinnati, OH, USA.

18. Rashmina Upreti, Neliya Gurung, Vinaya Manchayah, Monica Harn, Ashley Dockens, Jamie Azios, Elizabeth Long, Abigail Dueppen, Stefan Andrei: Design and Developing a Digital Health Learning Platform-iManage. *ACET Journal of Computer Education and Research*, 2019

19. Sayeda Farzana Aktar, Stefan Andrei: An E-Stethoscope-Based Heart Sound Method for Heart Disease Detection, *ACET Conference*, November 2, 2019

20. Rashmina Upreti, Neliya Gurung, Vinaya Manchayah, Monica Harn, Ashley Dockens, Jamie Azios, Elizabeth Long, Abigail Dueppen, Stefan Andrei: Developing a Digital Health Learning Platform-iManage. *ACET Conference*, November 2, 2019

    ii. __0___ Non-refereed

3. Professional Presentations or Performances

a.   __6 (ug + g) ___ Local presentations

1. Xingya Liu, "Introduction to ACM and Cybersecurity B.S. Program", Lamar University, *First Year Success Computer Science Cardinal Community Faculty Talk*, Sep 23, 2019
2. Xingya Liu, "Get to Know Cybersecurity", *Follow-up workshop on Cam Code for Girls*, Feb 23, 2019
3. Xingya Liu, "Join the Computer Science Department @ Lamar University", *Invited Talk for High School Programming Contest*, Jan 25, 2019
4. S. Wang, "Data Science and Big Data", *Office of Undergraduate Research*, Lamar University, June 28, 2019.
5. Hieu N Nguyen, Nicholas A Mugleston, Mentor: Dr. Jane Liu, "Regional Convolutional Neural Network", 7th Annual Science, Technology, Engineering, Mathematics (STEM) Conference 2019.
6. Chandler Barrow, Mentor: Dr. Jane Liu: "Mapping Lamar using Geolocation," 7th Annual Science, Technology, Engineering, Mathematics (STEM) Conference 2019.

a.   __4 (ug + g) ___ State / Regional

1. Isha Vyas, Lawrence Osborne: Analysis of Botnets and Their Communication Patterns. The 2019 Association of Computer Educators in Texas (ACET 2019), LoneStar College, Montgomery. Texas, November 1-2.
2. Rashmina Upreti, Neliya Gurung, Vinaya Manchayah, Monica Harn, Ashley Dockens, Jamie Azios, Elizabeth Long, Abigail Dueppen, Stefan Andrei: Design and Developing a Digital Health Learning Platform-iManage. *ACET Journal of Computer Education and Research*, 2019
3. Sayeda Farzana Aktar, Stefan Andrei: An E-Stethoscope-Based Heart Sound Method for Heart Disease Detection, *ACET Conference*, November 2, 2019
4. Rashmina Upreti, Neliya Gurung, Vinaya Manchayah, Monica Harn, Ashley Dockens, Jamie Azios, Elizabeth Long, Abigail Dueppen, Stefan Andrei: Developing a Digital Health Learning Platform-iManage. *ACET Conference*, November 2, 2019

b.   __2___ National

1. Md Morshedul Alam, Berna Eren Tokgoz, Zhu Zanbo, Jing Zhang, Seokyon Hwang "*Resilience Enhancements of Power Distribution Lines Using Computer Vision Technology*", Proceedings of the 2019 Institute of Industrial and System Engineers (IISE) Annual Conference, 2019.
2. Zanbo Zhu, Jing Zhang, Md Morshedul Alam, Berna Eren Tokgoz, and Seokyon Hwang, "*Automatic Utility Pole Inclination Angle Measurement Using Unmanned Aerial Vehicle and Deep Learning*", Proceedings of the 2019 Institute of Industrial and System Engineers (IISE) Annual Conference, 2019.

a.   __10 (ug + g) ___ International

1. Zhu, Zanbo, Ruobing Zhao, Jianyuan Ni, and Jing Zhang. "*Image and Spectrum Based Deep Feature Analysis for Particle Matter Estimation with Weather Informatio*n" In *2019 IEEE International Conference on Image Processing (ICIP)*, pp. 3427-3431. IEEE, 2019.

2. Xingxia Ming, Hongwei Feng, Qirong Bu, Gang Yang, Tuo Zhang, Jing Zhang, "*HumanFi: WiFi-Based Human Identification Using Recurrent Neural Network*", The 16th IEEE International Conference on Ubiquitous Intelligence and Computing, Leicester, UK 2019.
3. Md Morshedul Alam, Berna Eren Tokgoz, Zhu Zanbo, Jing Zhang, Seokyon Hwang "*Resilience Enhancements of Power Distribution Lines Using Computer Vision Technology*", Proceedings of the 2019 Institute of Industrial and System Engineers (IISE) Annual Conference, 2019.
4. Zanbo Zhu, Jing Zhang, Md Morshedul Alam, Berna Eren Tokgoz, and Seokyon Hwang, "*Automatic Utility Pole Inclination Angle Measurement Using Unmanned Aerial Vehicle and Deep Learning*", Proceedings of the 2019 Institute of Industrial and System Engineers (IISE) Annual Conference, 2019.
5. LeAnn J. Chisholm and Xingya Liu, "Using Modeling and Role-Modeling Theory as a Framework for Research in Creating Internet of Things Solutions to Promote Preventative Healthcare for Older Adults in Rural East Texas," Proceedings of International Conference on Society for the Advancement of Modeling and Role-Modeling (SAMRM), Bemidji, MN, 2020.
6. Yera Greg and Xingya Liu, "An Anti-sniffing Protocol for Location-based Services in Wireless Networks," Proceedings of IEEE International Conference on Computing, Networking, and Communications (CNC), Big Island, Hawaii, 2020.
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8. Fei Gao and Jiangjiang Liu, "Face Recognition Using Segmentation Technology," the 18th International Conference on Computing and Big Data (ICMLA 2019), Boca Raton, FL, Dec. 16 – 19, 2019, pp. 545-548.
9. Qin Qian, Bo Sun, Xianchang Li, Frank Sun, and Che-Jen Lin, "Water quality modeling with data collected by wireless sensor networks (WSNs) in an experimental pond: A case study", 19th Mainland-Taiwan Environmental Protection Conference (MTEPC), Tianjin, China, May 17-21, 2019.
10. Sujing Wang, Stefan Andrei, Otilia Urbina, Dorothy Sisk. "A Programming Academy for 6th Grade Females to Increase Knowledge and Interests in Computer Science", in Proceedings of 2019 IEEE *Frontiers in Education (FIE) International Conference*, October 16-19, 2019, Cincinnati, OH, USA.

    b.   __22___ Total #

3. Research Grants (indicate name, title and amount) (R- Requested; F – Funded) *

_____ Internally Funded – Lamar University or TSUS

Grant Title	Amount
Dr. Kami Makki (Co-PI), Research Enhancement Grant, Lamar University, Dr. Mary Vasefi (PI) **Title** – Alzheimer's Disease Advancement Prevention	$15,000

by Utilizing Artificial Intelligence Techniques, April 2018 – August 2019.	
Clustering Algorithm for Big Spatio-temporal Data Analysis, Program: LU Research Enhancement Grant (REG), Sujing Wang (PI), Duration: 09/01/2018 - 08/31/2019.	$14,963
Paul Latiolais (PI), Stefan Andrei (co-PI), Nicholas Brake, Srinivas Palanki, Monica Harn, Donna Meeks, Kevin Dodson, Jeff Dyson, Craig Escamilla, Toni Mulvaney, Henry Venta. Lamar University Visionary Initiative Grant "*Interdisciplinary Freshman Experience at Lamar University*", 2016 – 2019	$120,000
Monica Harn (PI), Stefan Andrei (co-PI), Vinaya Manchaiah (co-PI), Ashley Dockens (co-PI), Jamie Hartwell Azios (co-PI), Elizabeth Long (Senior Personnel). Lamar University Visionary Initiative Grant "*A Center for Applications of Digital Technologies in Health and Disability*", 2016 – 2019	$240,000
Dr. Sujing Wang, Co-PI, Title: The Office of High-Performance Computing Science and Technology Building, Program: Lamar University, Duration: 03/04/2019 - present.	$5,000
Dr. Jing Zhang: Monitoring the Health Conditions of Utility Poles and Vegetation Clearance Using Unmanned Aerial Vehicle and Deep Learning Neural Network, PI, Awarded, Center for Innovation, Commercialization & Entrepreneurship (CICE), Lamar University, 2019	$3,800
Dr. Jing Zhang: Towards Advanced Digital Rice System Through Innovative Artificial Intelligence Techniques, PI, Awarded, Research Enhancement grant (REG), grant writing, Lamar University, 2019	$11,850
Dr. Sujing Wang, PI: The Edge Computing Laboratory (ECL) Science and Technology Building, Program: Lamar University, Duration: 03/04/2019 - present.	
Dr. Sujing Wang, Co-PI, Title: Bernard Harris Summer	$5,000

Science Camp, Program: National Math and Science Initiative (NMS), Duration: 5/1/2019 - 8/31/2019.	
Total	$415,613

_____ Externally Funded – (identify source)

Grant Title	Amount
2018-2019: Stefan Andrei (PI), Sujing Wang (co-PI), Otilia Urbina (co-PI) for *Camp Code for Girls* grant awarded by Texas Workforce Commission. More details are presented at https://www.lamar.edu/news-and-events/news/2018/07/gender-gap-in-programming-focus-of-all-girls-coding-camps.html and https://www.lamar.edu/arts-sciences/computer-science/news/index.html	$89,753
Dr. Sujing Wang (Co-PI), Real-time Routing optimization for Hazardous Material Transportation under Uncertainties, Program: Texas Hazardous Waste Research Center (THWRC), Sujing Wang (Co-PI), Duration: 04/01/2018 - 07/15/2019.	$15,000
Dr. Sujing Wang (Co-PI), Impact of Chemical/Petrochemical Plant Turnaround on Regional Air Quality, Program: Texas Air Research Center (TARC), Duration: 04/01/2018 - 07/15/2019.	$23,500
Dr. Jing Zhang: Develop A Collaborative Unmanned System to Enhance Port Security in Unconstrained Environment, Co-PI, Awarded, Center for Advances in Port Management (CAPM), Lamar University, April-July 2019	$15,000.00
Total	$143,253

Compared to 2018 AY where we were awarded with $161,753 in external funding, we got a slight decrease as one grant completed in 2018.

Nationally Funded

Grant Title	Amount
REU: MRI: *Acquisition of a High-Performance Computing Cluster for Research and Education at Lamar University*, Program: National Science Foundation (NSF REU), Jing Zhang (PI), Sujing Wang (co-PI), Duration: 10/1/2018 - 9/30/2019.	$24,000
National Science Foundation Grant (2012-2019) "*Addressing the Gulf Coast Region's Graduation Rate Crisis in Mathematics and Computer Science*", Award No. DUE-1154606 (PI: Kumer Das, co-PIs: Dr. Lawrence Osborne, Dr. Daniel Dale, Dr. Stefan Andrei)	$583,096
"CC*DNI Networking Infrastructure: Data Driven Network Infrastructure Upgrade for Lamar University Research", 2016-2019, NSF 1541242, Priscilla Parsons (PI), Patrick Stewart (Co-PI), Lawrence J. Osborne (Co-PI), Stefan Andrei (Senior Personnel).	$376,917
National Science Foundation, "Acquisition of Equipment to Develop an Ubiquitous Wireless Sensor Network for Measurement, Modeling, and Prediction in Water Resource Management", Dr. Bo Sun (PI) and Dr. Qin Qian (co-PI), 2016-2019.	$216,000
Total	$1,200,013

4. Teaching/Program Grants* (indicate name, title, amount and indirect cost)
   (R – Requested; F – Funded)

_____ Internally Funded – Lamar University or TSUS

Grant Title	Amount

_____ Externally Funded (identify source)

Grant Title	Amount

5. Faculty holding office in national/international professional organization - **Only**

Faculty	Organization	Office
Stefan Andrei	Senior ACM member (international award)	www.acm.org

6. Faculty Honors

Faculty	Honors
Peggy Doerschuk	University Professor, 2011 TSUS Star Award, 2013
Jane Liu	University Professor, 2017

7. What is your departmental service agenda?
  a. Our Faculty will continue to serve in departmental Assessment Committee, including the ABET yearly review;
    b. Our Faculty will continue to serve in departmental Curriculum Committee;
    c. Our Faculty will continue to serve in various other committees necessary for our department.

8. Student Honors and Accomplishments

Does your Department have Mirabeau Scholars? If so, please indicate how many? _____6_____

If yes, please state their involvement and progress to date.

Student Name	Honors/Accomplishments
Jason Allen Chambliss	President's List
David Joseph Garcia, II	President's List
Farooq Abdul	Dean's List

Kirk Alden Blood	President's List
Jackson Bryce Gray	Dean's List
Nicholas Wade	President's List

9. Development activities undertaken by you or your faculty.

All faculty do student mentoring and advising in Graduate Project class, course projects, research projects, and more. Most of our faculty have publications co-authored with undergraduate and/or graduate students.
STAIRSTEP, coordinated by Dr. Sujing Wang, is our impressive research undergraduate program which has a positive attitude in the department and LU in general.
The first-year success program leaded by Dr. Jane Liu, is a very effective way to make the freshman students aware of Computer Science and its applications.

10. HEAF summary* (goals accomplished, dollars spent and major goal for next year)

HEAF Items	Dollars Spent
DNS Servers (2) and CS Web Server, replacement, purchased 2008	$4,531.80
Laptop, replacement, purchased 2015, out of warranty	$2,311.34
E-Sports Lab, Desks and Chairs for E-Sports Lab (17)	$21,182.40
Total:	**$28,025.54**

Major HEAF goals accomplished for last year and anticipated for next year:

Goals for next year	Dollars to be Spent
10 Appl iMacs for Unix lab room	$11,950.00
Renovation of lab 214	$20,000.00
EinScan Pro 2X Plus with single seat license for Solid Edget Shining 3D OEM Edition Software	$6,209.10
Form 3 Printer, Extended Complete Package. Package includes: Form 3 Printer, Resin Tank, Build Platform, Finish Kit, 1 L Standard Resin (Clear), Form Wash, Form Cure, 2 Year Pro Service Plan, Extended Warranty.	$5,393.07

3 Laptops: Replace Dr. Suiing Wang, Bo Sun, Pingping Chiou.	$8772.72
Total:	**$52,834.89**

12.   Evaluation of accomplishments of your unit this year.

1. The overwhelming majority of the Department of Computer Science Faculty are involved in research, publishing papers and writing grants.
2. All of the Department of Computer Science Faculty are involved in teaching, improving their courses and revising their online courses.
3. All Faculty submitted their assessment materials, necessary for the ABET yearly assessment. We completed the yearly ABET assessment of our Bachelor in Computer Science program.
4. In addition, Faculty uploaded their assessment results in the CS website.
5. All Faculty reviewed and/or published publications including journals, books, and conferences.
6. We got some of the Computer Equipment we requested in 2019 (9 Dell Computer Workstations, 7 Dell Alienware out 15 requested).
7. We cooperated and helped each other to fulfil students, staff, faculty, and higher Administrators requests.
8. We cooperated with other departments from the college and university as well as other universities and professional associations.

13.   Report any Centers in your department (*goals accomplished, problems, and major goals for next year*).

N/A

14.   Report of activities/accomplishments of the Endowed Chairs in your department.

N/A

15.   Report any other initiatives undertaken this year by your unit.

a) Our department organized the Spring 2019 Advisory Board on March 3, 2019. All Advisory Board members, students, faculty and participating staff appreciated the event.
b) Aside from these initiatives, we had on February 27, 2019 our Fourth Computer Science Career Forum at Lamar University. It was a very successful event for students, faculty and industry.
c) In addition, our students got approval of an E-Sports Chapter at LU mentored by Dr. Tim Roden. Two of the students got awarded by a national scholarship of $1,250 each.

16.   Identify special projects or initiatives you plan for next year.

a) We shall continue to involve students in undergraduate and graduate research, programming competitions, and other academic activities.

   b) We shall maintain our programs accreditation (e.g., ABET, SACS), continuing our new programs (e.g., Computer Game Development, Cybersecurity) and improve our effective recruitment and retention practices.
   c) We shall continue to cooperate for getting support from the higher administration, advisory board, industry, and collaborate with other academic departments.
   d) We shall continue to submit proposals to funding agencies.
   e) We shall continue our cooperation with high schools and community colleges from Golden Triangle and Harris County.
   f) We intend to increase the involvement in organizing (virtual) academic events with high school from the area, Cypress Mauriceville, and more (outreach events, collegiate programming competitions, etc).
   g) We shall organize the Spring 2020 Advisory Board Conference, too.
   h) In addition, we shall continue co-organizing the Computer Science Career Forum, 2020 edition.
   i) We will continue designing online courses (8 weeks – when possible; otherwise 15 weeks).

17.   Any **BRAG** points not identified in the above.

N/A

18.   For each faculty member, please complete information on workload for Fall 2019, Spring 2020 and proposed Fall 2020.

We had two colleagues leaving us, and we had to assign the following overloads for the remaining Faculties:

Fall 2019
1. Andrei CPSC 4361/5361 Secure Software Engineering, COSC 2336 Data Structures
2. Bo Sun COSC 5302 Advanced Operating Systems
3. Chiou COSC 3320 Web Design-XHTML
4. Frank Sun COSC 1371 Microcomputers
5. Liu COSC 4310 Computer Architecture
6. Makki COSC 1174 Programming Lab 2, COSC 5100 Graduate Seminar, CPSC 4340 Database Design
7. Mott COSC 1172 Think, Speak, Write
8. Roden COSC 1336 Programming Fundamentals 1
9. Wang COSC 1336 Programming Fundamentals 1, COSC 5325 Computer Graphics
10. Yera COSC 1337 Programming Fundamentals 2, COSC 1174 Programming Lab 2

Spring 2020
1. Andrei COSC 3302 Intro to Computer Theory, COSC 3325 Computer Law and Ethics
2. Chiou COSC 3320 Web Design-XHTML
3. Frank Sun COSC 1371 Microcomputers, CPSC 4315 Network System Administration

4. Makki COSC 4304 Foundations of Programming, COSC 5100 Graduate Seminar, COSC 1174 Programming Lab 2
5. Mott COSC 1172 Think, Speak, Write
6. Roden
7. Wang COSC 1336 Programming Fundamentals 1
8. Yera COSC 1337 Programming Fundamentals 2, COSC 1174 Programming Lab 2
9. Zhang COSC 1336 Programming Fundamentals 1

We'll know the exact overloads for the Fall 2020 when the schedule will be completed. Until we hire two more colleagues, it will look similar to Spring 2020 list of overload courses.

The data for the items with an asterisk will be provided from the College