IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA

Kari Lake, *et al.*, Plaintiffs, v. Katie Hobbs, Arizona Secretary of State, *et al.*, Defendants.	)	No. 2:22-cv-00677-JJT

DECLARATION OF WALTER C. DAUGHERITY

WALTER C. DAUGHERITY declares, under penalty of perjury, pursuant to 28 U.S.C. § 1746, that the following is true and correct.

Introduction

1. I am a Senior Lecturer Emeritus in the Department of Computer Science and Engineering at Texas A&M University and also a computer consultant to major national and international firms, as well as to government agencies, including classified work.

2. Prior to my retirement in 2019, I taught computer science and engineering at both the undergraduate and graduate levels for 37 years, the last 32 years being at Texas A&M University. Courses I developed and taught include courses in artificial intelligence, expert systems, programming and software design, quantum computing, and cyberethics.

3. I have published 26 research articles related to expert systems, fuzzy logic, noise-based logic, and quantum computing from over $2.8 million in funded research projects, plus conference papers and other publications.

4. As a computer expert I have consulted for major national and international firms, including IBM Federal Systems Division, *New York Times*, *Washington Post*, *Los Angeles Times*, Southwestern Bell Telephone, Fulbright & Jaworski (Houston), and Phonogram B.V. (Amsterdam), and also for government agencies such as Cheyenne and Arapaho Tribes of Oklahoma, Texas Department of Agriculture, U. S. Customs Service, and classified work.

5. Further details about my qualifications are included in my Curriculum Vitae attached as Exhibit A.

6. I analyzed the Cast Vote Records ("CVR") for numerous counties in the United States, including Pima County and Maricopa County in Arizona. The CVR collects in spreadsheet format the selections contained on each ballot in the order recorded through the tabulator machines without any information that would identify the voter (i.e., no name, address, Social Security number, driver's license number, voter registration number, etc.).

7. My analysis below of the CVR data shows, in my expert opinion, that in the November 2020 election for which the CVR data was made available, ballots in Maricopa County and Pima County were artificially processed through the tabulators tracking a Proportional-Integral-Derivative (PID) type control function in a closed-loop feedback system. A PID controller or variations of it is a software coded algorithm to maintain a measured process variable (that is, an outcome, such as a ratio) at a pre-specified desired setpoint.

8. PID controllers are used everywhere, from cruise control in automobiles to Category III autoland for an aircraft making a landing when the runway is completely fogged in, to industrial automation of all kinds, such as robots, refineries and other chemical plants, manufacturing quality control, and self-driving cars.

9. An analysis of the actual cumulative ratios of the vote tallies for early mail-in and in-person votes prior to Election Day ("early votes") for the ten races analyzed in Maricopa County and the seventeen races in Pima County shows a significant and systematic decline in the cumulative ratio as counting progresses. For example, the graph in ¶ 18 below shows the first block of ballots being 75% for a candidate, the next block of ballots being 74% for the candidate, the next block of ballots being 73%, and so on, systematically declining all the way to Election Day.

10. This near straight-line decrease in the cumulative ratio falls within a narrow band for the races analyzed in Maricopa County and in Pima County. Such a uniform and predictable pattern is so statistically implausible that it would not occur without artificial manipulation.

11. As detailed below, my analysis shows to a reasonable degree of scientific and mathematical certainty that vote counting by electronic voting machines used in Maricopa County, Pima County, and other counties throughout the United States that I have examined was manipulated and tightly controlled to reach predetermined outcomes. This manipulation could have been performed manually or by computer, but for reasons described below it is unlikely to have been performed manually.

Early Vote Counting Was Manipulated In Pima County, Arizona

12. In the November 2020 General Election there were numerous contests on the ballot in Pima County, Arizona, from the office of the Presidency down to local county races, and judicial retention questions, propositions, etc.

13. After the election I received the CVR public record report for Pima County, Arizona, from Benny White, one of the candidates for office in Pima County.

14. My analysis of the CVR demonstrates a PID function at work in all 17 races I analyzed.

15. For the November 3, 2020, election 526,319 ballot records are listed in the "2020 General Election Post Election CVR (Cast Vote Record) Aggregate" file, with CVR sequence numbers 1 through 526,332. (Thirteen of those numbers do not appear, confirming that the total number of Cast Vote Records is 526,319, which equals 526,332 minus 13. The materials that I reviewed did not explain why these 13 entries were stricken.)

16. Since the early votes were not sorted and batched by precincts[1] before Election Day as Election Day votes were, by looking to see where in the CVR file consecutive ballots are all from the same precinct we can determine the point at which Election Day counting began. The first batch of ballots with consecutive precinct numbers starts with CVR# 413,241 for precinct 208, so the early votes are CVR# 1 through 413,239 (since CVR# 413,240 is one of the 13 missing numbers).

17. Graphing the CVR public record report data as the cumulative Democrat/Republican ratio in the data's CVR sequence shows that the CVR entries are not independent of each other or of their order in the CVR, which they should be. In other words, knowing one block of votes was 75% for a candidate should not allow one to predict whether the next block would be a higher or lower percentage, much less to predict that it would be 74% (instead of 63% or 85% or some other value).

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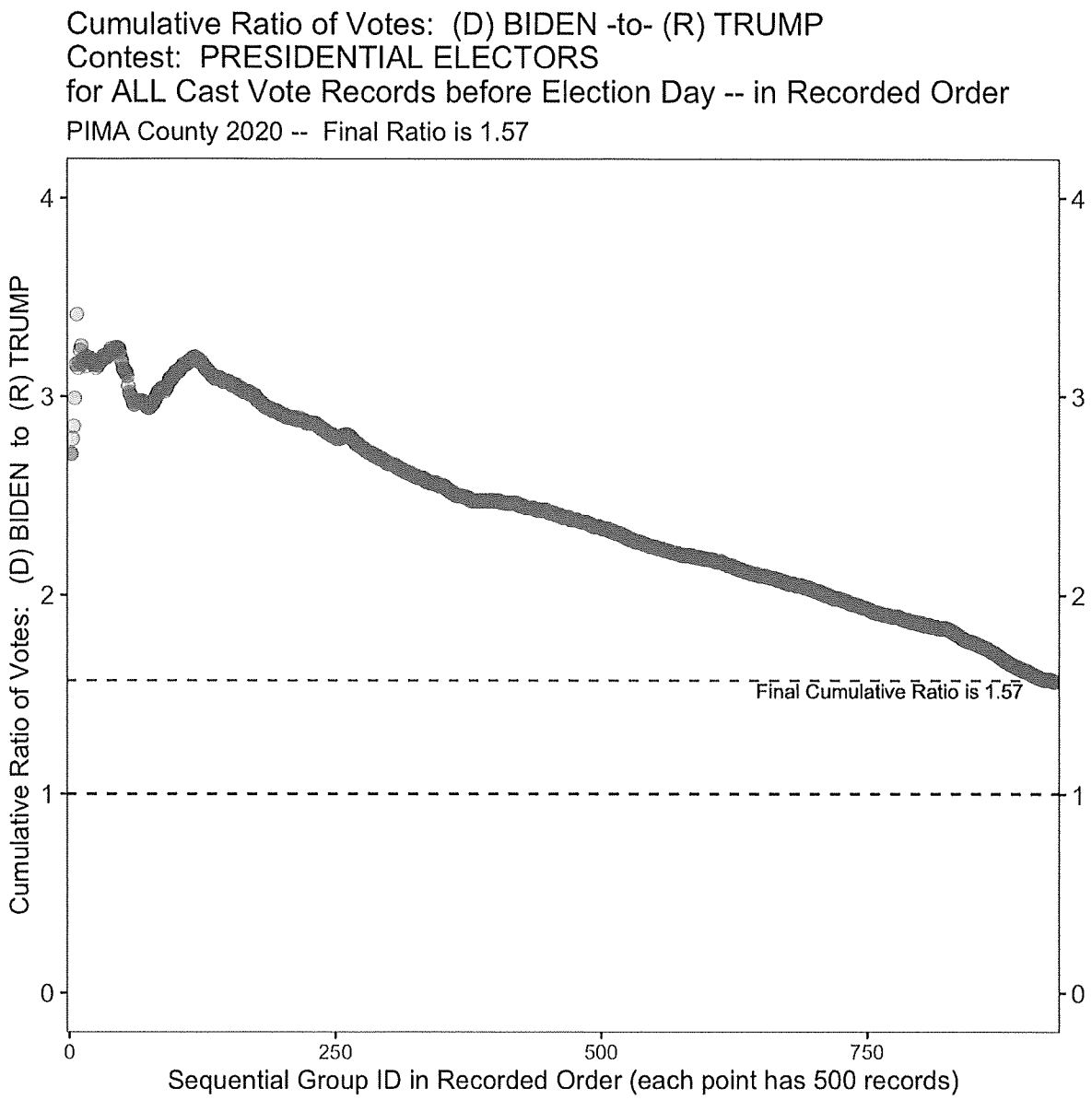
[1] Technically, the "precinct number" 1 to 249 in the CVR file is a *voting district* which is determined by actual precinct, U. S. House district, state Senate district, Board of Supervisors district, school district, etc.; each voting district requires a unique ballot. However, following common usage, we will also call these voting districts "precincts".

18. This manipulated systematic decline is illustrated in the graph[2] below of this ratio in the Presidential race:



19. This graph and the graphs of this ratio in 16 additional contests all show a consistent pattern that would not exist in independent data without artificial manipulation. After an initial fluctuation due to the small number of votes counted at first, the cumulative

[2] All graphs were prepared at my direction by Cynthia Butler, a professional statistician.

Democrat/Republican ratio over time as additional votes were recorded in the CVR public record report closely followed a downward sloping line. For the Presidential race this decline was from over 300% down to 157% by Election Day.[3]

20. Very small deviations from a downward sloping straight line indicate tight (strong) control, whereas wide deviations indicate weak or no control.

21. Since the effect of each additional vote on the cumulative ratio decreases as the number of votes increases, the deviation from a negative linear slope must be weighted in inverse proportion to the number of votes counted so far.

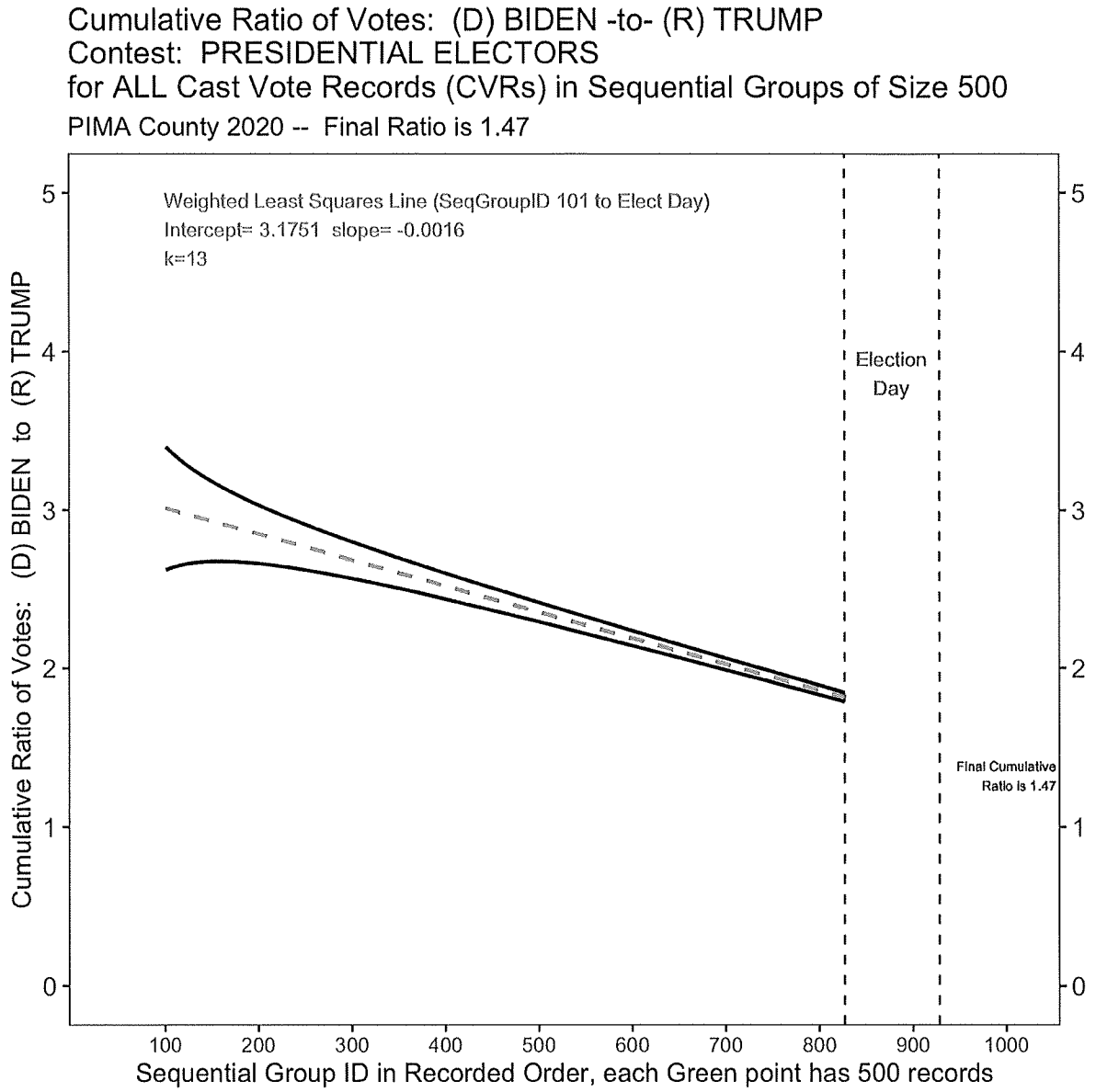
22. Also, to avoid the initial fluctuations due to the small number of votes at first, the following analysis begins after 50,000 votes, which is approximately 12% of the number of early votes recorded prior to November 3, 2020.

23. For the Presidential race, the least-squares linear regression trend line (the red dashed line in the following graph) has the equation

$$y = -0.0016x + 3.1751$$

where x is the sequential Group ID number.

[3] The common opinion that Democrats vote earlier than Republicans would not explain the lack of independence between the data in the CVR graph.



24. Note how closely the actual CVR data (in green) follows the red trend line. To determine exactly how closely, we add the black boundary "curbs" (which must be weighted as described in ¶ 21) and find the narrowest curbs that contain all the green points. Also, as stated above, to avoid the initial fluctuations due to the small number of votes at first, the following analysis begins after 50,000 votes.

25. As in the graph in ¶ 18, ballots are grouped sequentially in batches of size 500 (Group 1 contains ballots 1-500, Group 2 contains ballots 501-1000, etc., in exactly the same

order as recorded in the CVR records), so the last Group before Election Day is Group 826. (See ¶ 16 for how it was determined that there were approximately 413,239 early votes counted prior to Election Day.)

26. To quantify the degree of control, the pair of narrowing black boundary lines in this graph shows a fixed percentage of deviation above and below a linear slope, weighted by the number of votes counted so far.

27. The boundary line equations are

$$y = (-0.0016x + 3.1751)\left(1 \pm \frac{k}{x}\right)$$

making $\frac{100k}{x}$ the percentage of deviation above and below a negative linear slope weighted by the number of votes counted so far. By testing integral values of ***k***, it was determined that setting ***k*** = 13 is the minimum value such that the black boundaries include *all* the green data points, making the maximum percentage deviation at Election Day only $\frac{100 \cdot 13}{826} = 1.57\%$, an extremely close fit.

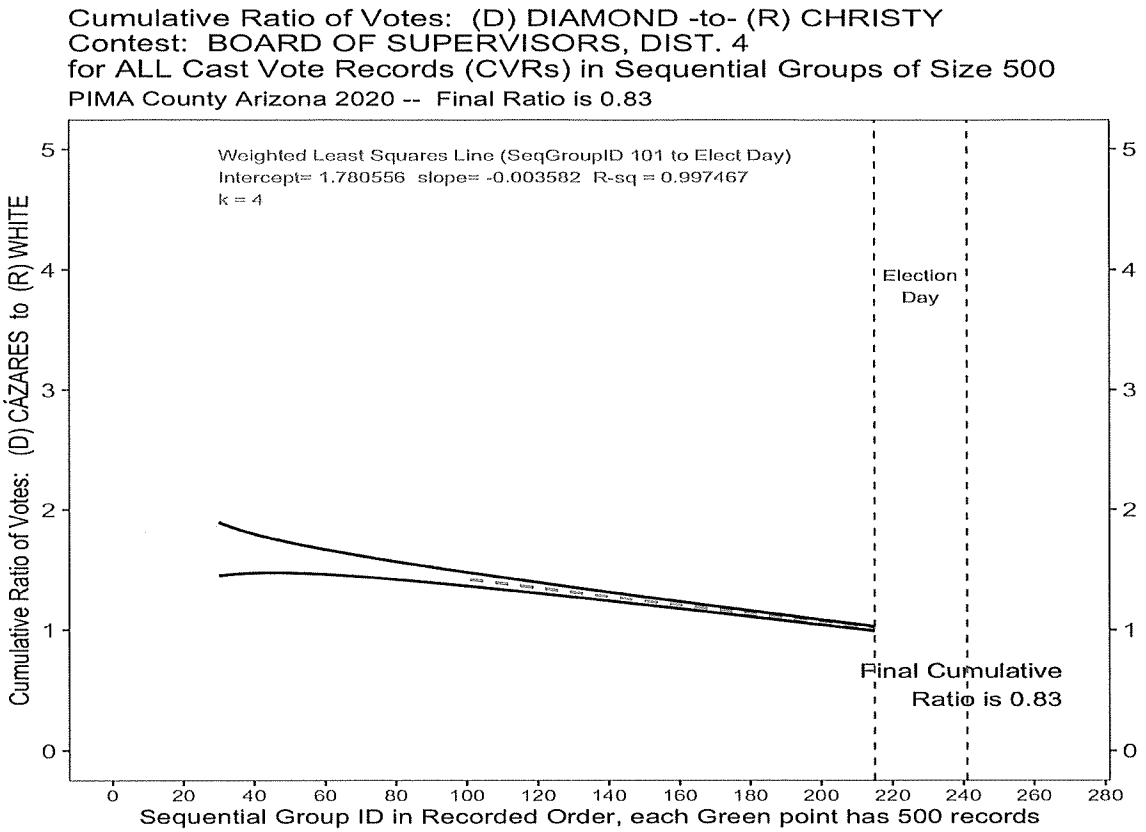
28. In statistical terms, the R^2 value for the red dashed line is 0.993, meaning that 99.3% of the total variation in the cumulative ratio is accounted for by the sequential Group number.

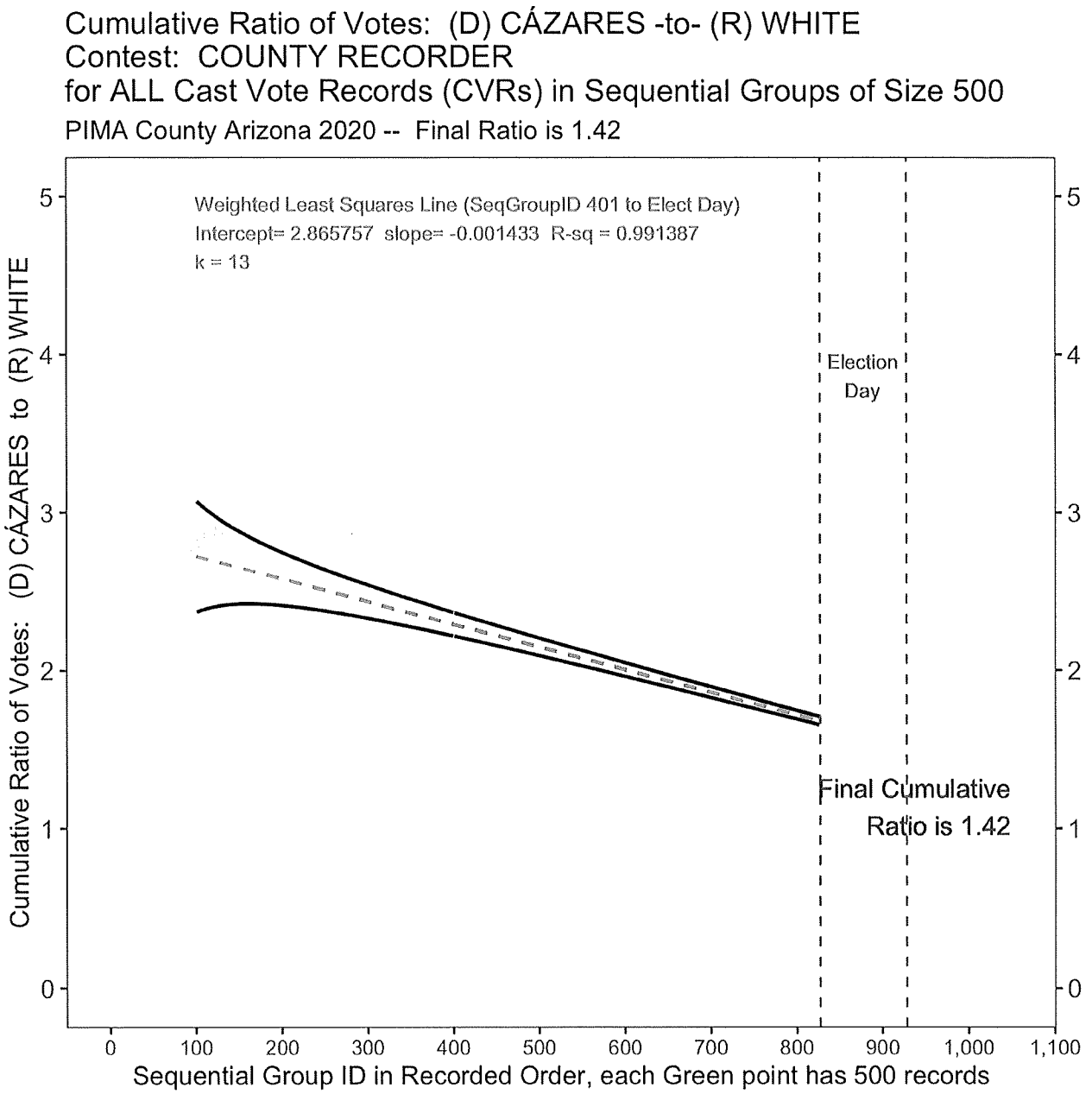
29. This means that after 50,000 votes out of a total of 413,239 early vote ballots have been counted, the cumulative Democrat/Republican ratio then follows a straight sloping line so closely that it must have been controlled.

30. Put another way, after about 12% of the early votes are recorded, the next block of ballots is 75% for the Democrat candidate, the next block after that is 74%, the next block 73%, and so on, systematically declining all the way to Election Day.

31. After approximately the first twelve percent of votes are tabulated, the early votes are predictable and dependent in the relationship between one block of votes and the next. Such predictability and dependence would not occur without artificial manipulation. Achieving such predictability requires what should be independent votes to be artificially manipulated to form the downward sloping line for the cumulative vote ratio. In my expert opinion such predictability is so statistically improbable as to be impossible without manipulation or control and thus demonstrates to a reasonable degree of scientific and mathematical certainty that the tabulation of these ballots was artificially controlled.

32. For confirmation, below are two additional graphs, one for Board of Supervisors District 4, and one for County Recorder, which are similarly predictable. The boundary curbs were also added, and the R^2 values for the red dashed lines are 0.997 and 0.991, respectively, confirming that over 99% of the total variation in the cumulative ratio is accounted for by the sequential Group number in both races.


Cumulative Ratio of Votes: (D) DIAMOND -to- (R) CHRISTY
Contest: BOARD OF SUPERVISORS, DIST. 4
for ALL Cast Vote Records (CVRs) in Sequential Groups of Size 500
PIMA County Arizona 2020 -- Final Ratio is 0.83
Weighted Least Squares Line (SeqGroupID 101 to Elect Day)
Intercept= 1.780556 slope= -0.003582 R-sq = 0.997467
k = 4
Election Day
Final Cumulative Ratio is 0.83
Cumulative Ratio of Votes: (D) CÁZARES to (R) WHITE
Sequential Group ID in Recorded Order, each Green point has 500 records
0
1
2
3
4
5
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280



33. Note that neither the current Arizona statutory election audit procedures[4] nor the various forms of risk-limiting audits used by other states would have detected this controlled manipulation, since they do not take into account the sequence that votes are recorded.

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[4] Arizona Revised Statutes Title 16. Elections and Electors § 16-602.

Proportional-Integral-Derivative (PID) Controller

34. The standard method of producing such control as described above is to use a Proportional-Integral-Derivative (PID) controller in a closed-loop feedback system. As noted above, PID controllers are used everywhere, from cruise control in automobiles to Category III autoland for an aircraft making a landing when the runway is completely fogged in, to industrial automation of all kinds, such as robots, refineries and other chemical plants, manufacturing quality control, and self-driving cars.

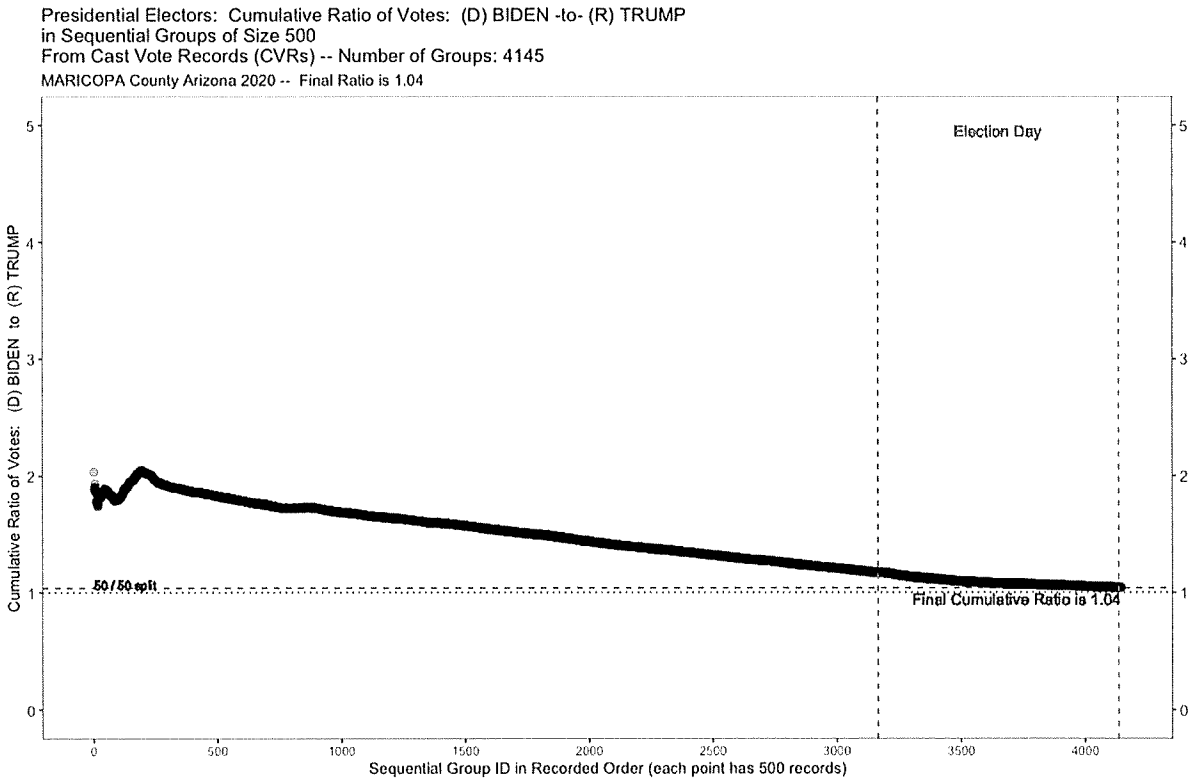
35. By using all three factors (Proportional, Integral, and Derivative), a PID controller is the simplest (and therefore the most widely-used) design which controls both steady-state and transient responses, that is, it is able to reach and maintain a predetermined setpoint (outcome) despite unplanned disturbances. For example, in a Category III autoland situation when the airport is completely fogged in, the PID controller aims the aircraft for the start of the runway on a 3° glide slope, but if a sudden gust of wind pushes the nose down, the PID controller will activate the control surfaces to increase attitude and get back on the desired glide slope.

36. As a proof of concept I programmed a PID controller with a linearly-ramping decreasing setpoint (the red dashed line) to produce the observed cumulative ratio and obtained good convergence after tuning the PID parameters to $K_p = 0.070$, $K_i = 0.300$, and $K_d = 0$. The system was not optimum (it was underdamped) but it was stable (with no unbounded oscillation) and closely tracked the continuing downward setpoint change along the red dashed line. Since the other 16 races had the same inexplicable downward slope, they would also match the same PID controller using their corresponding linearly-ramping decreasing setpoints.

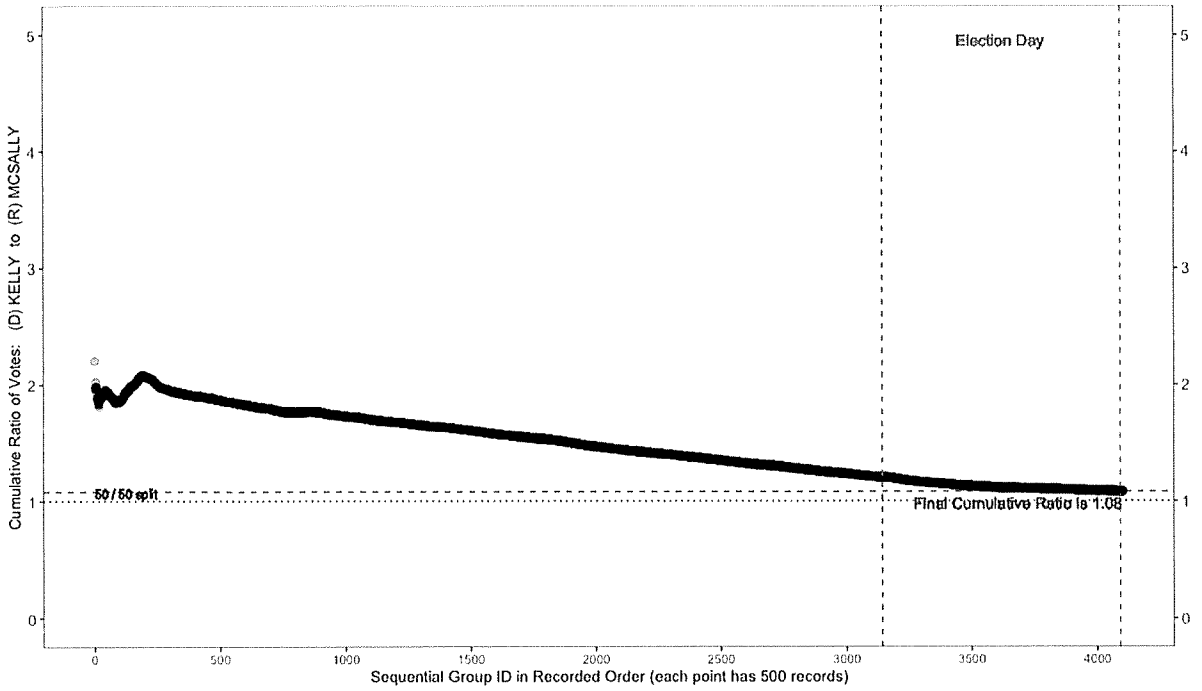
Early Vote Counting Was Manipulated In Maricopa County, Arizona

37. CVR data for all 10 federal races in Maricopa County, Arizona, was also received. However, since most of U.S. Representative District 1 lies outside Maricopa County, it was excluded from the following.

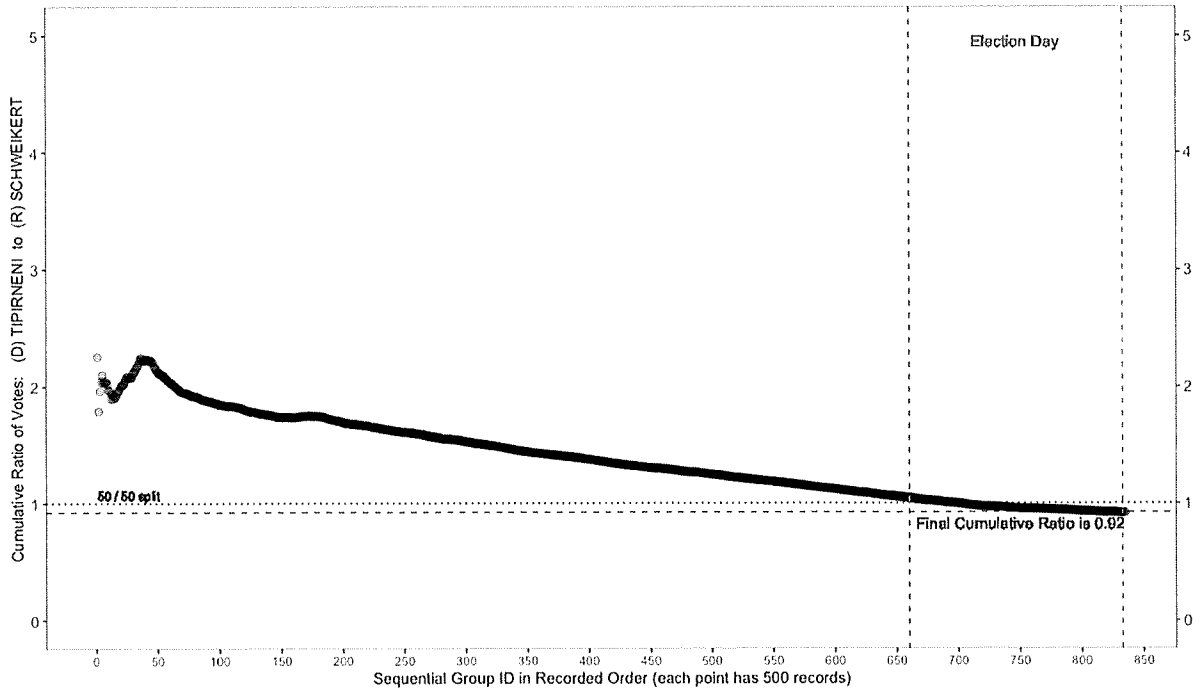
38. The same analysis as described above in ¶ ¶ 12-32 was performed on the remaining 9 federal races. Here are the graphs of the cumulative Democrat/Republican ratio for three of those races:



US Senate: Cumulative Ratio of Votes: (D) KELLY -to- (R) MCSALLY
in Sequential Groups of Size 500
From Cast Vote Records (CVRs) -- Number of Groups: 4100
MARICOPA County Arizona 2020 -- Final Ratio is 1.08



US Rep Dist 6: Cumulative Ratio of Votes: (D) TIPIRNENI -to- (R) SCHWEIKERT
in Sequential Groups of Size 500
From Cast Vote Records (CVRs) -- Number of Groups: 835
MARICOPA County Arizona 2020 -- Final Ratio is 0.92



39. Note that not only are the graphs almost identical to one another in shape, but they are also almost identical to the graphs from Pima County in ¶ 18 and ¶ 32, down to the twin peaks at the beginning and the "hiccup" when about 25% of the early votes have been counted.

40. For the Presidential race the ratio declined from about 1.9 down to 1.2 by Election Day.

Consistency with Pima County Whistleblower's Allegations

41. My analysis above is based on the data that I reviewed, and not on any consideration of specific allegations of fraud. It was brought to my attention on May 4, 2022, subsequent to the analysis described above, that a Pima County whistleblower's email previously received by Plaintiff Finchem and others included allegations consistent with, and corroborative of, my conclusions. The whistleblower's full email is attached as Exhibit B. My independent analysis stands separate from this email, but the similarity between the allegations in the email and the result of my analysis is interesting.

Conclusions

42. The evidence detailed above overwhelmingly demonstrates to a reasonable degree of scientific and mathematical certainty that the sequence of the CVR data in both Maricopa County and Pima County shows artificial control.

43. Such control could be implemented by manual means or by a computer algorithm, such as a PID controller or some equivalent mathematical procedure. However, the alternating oscillations above and below the trend line, with decreasing deviations from the trendline, would require a prohibitive amount of calculation to accomplish by hand, not to mention the careful manual sorting of many thousands of batches of ballots to achieve the actual curves

observed in the 26 races analyzed. This means that some type of computer algorithm is indicated, and a PID controller is the simplest control function that would exhibit following a trend line with alternating oscillations above and below the trend line with decreasing deviations from the trendline.

44. Note that this same type of manipulation occurred both in Pima County, Arizona, which used ES&S voting machines (as did most other counties in Arizona), and also in Maricopa County, Arizona, which used Dominion voting machines (as did 23 other states), indicating that the same (or similar) software was responsible. Such manipulating software could be installed in a variety of ways, including vendor programming, operating system components, open-source or commercial off-the-shelf libraries, remote access, viruses or other malware, etc.

45. Unless and until future proposed electronic voting systems (including hardware, software, source code, firmware, etc.) are made completely open to the public and also subjected to scientific analysis by independent and objective experts to determine that they are secure from manipulation or intrusion, in my professional opinion as a computer expert, electronic voting systems should not even be considered for use in any future elections, as they cannot be relied upon to generate secure and transparent election results free from the very real possibility of unauthorized manipulation. My professional opinion as a computer expert is therefore that hand-marked hand-counted paper ballots should be used instead.

46. I have personal knowledge of the foregoing and am fully competent to testify to it at trial.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 8, 2022.

Walter C. Daugherity

Walter C. Daugherity

EXHIBIT A

Curriculum Vitae of Walter C. Daugherity

Walter C. Daugherity
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EDUCATION

Ed.D., Mathematical Education, Harvard University, Cambridge, Massachusetts, 1977. Dissertation: "On the Ordering of Topics in the Teaching of Mathematics." Advisor: Marc Lieberman.

M.A.T., Mathematics, Harvard University, Cambridge, Massachusetts, 1967 (age 20).

B.S., Mathematics, Oklahoma Christian College, Oklahoma City, Oklahoma, 1966 (3 years). Minors: Physics and chemistry, German.

EXPERIENCE

1973 to present	Daugherity Brothers, Inc., (Computer consultants), Bethany, Oklahoma. Co-founder, chairman, and president. Clients include IBM Federal Systems Division, New York Times, Washington Post, Los Angeles Times, Cheyenne and Arapaho Tribes of Oklahoma, Southwestern Bell Telephone, Fulbright & Jaworski (Houston), Texas Department of Agriculture, Phonogram B.V. (Amsterdam), and U. S. Customs Service.
1987 to present	Texas A & M University, College Station, Texas. Visiting Assistant Professor/Senior Lecturer/Senior Lecturer Emeritus, Departments of Computer Science and Engineering and Electrical and Computer Engineering, College of Engineering.
1989-91	Texas A & M University System, College Station, Texas. Director, Knowledge Systems Research Center, Computer Science Division of the Texas Engineering Experiment Station.

1984-87	Blinn College, Brenham, Texas. Computer science instructor. Part-time 1984-86, full-time 1986-87.
1978-80	Rose State College, Midwest City, Oklahoma. Data processing instructor (part-time).
1971-73	ECRM, Bedford, Massachusetts. Systems programmer.
1970-71	Harvard Computing Center, Cambridge, Massachusetts. Telecommunications specialist.
1969-70	Computer-Aided Instruction Laboratory, Harvard University, Cambridge, Massachusetts. Systems programmer.
1968-70	Harvard University, Division of Engineering and Applied Physics, Cambridge, Massachusetts. Teaching fellow (for George Mealy and Thomas Bartee).
1967	Driscoll Junior High School, Brookline, Massachusetts. Mathematics teacher.
1967	University of Oklahoma Medical Center Computing Facility, Oklahoma City, Oklahoma. Programmer.
1966	University of Central Oklahoma Data Processing Center, Edmond, Oklahoma. Programmer.
1965	Oklahoma Christian University of Science and Arts, Oklahoma City, Oklahoma. Statistical programmer.
1963	University of Oklahoma Computer Center, Norman, Oklahoma. Lab instructor.

RESEARCH AND DESIGN

1. Refereed Publications

Daugherity, W. C., and Kish, L. B., "More on the Reference-Grounding-Based Search in Noise-Based Logic," *Fluctuation and Noise Letters*, Vol. 21, No. 3, 2250023, 2022.

Kish, L. B., and Daugherity, W. C., "Entanglement, and Unsorted Database Search in Noise-Based Logic," *Applied Sciences*, Vol. 9, No. 15, 3029, 2019.

Kish, L. B., and Daugherity, W. C., "Noise-Based Logic Gates by Operations on the Reference System," *Fluctuation and Noise Letters*, Vol. 17, No. 4, 1850033, 2018.

Daugherity, W. C., and Coulson, R. N., "Knowledge Engineering for Sustainable Agriculture Management," *Proceedings of ICAST 2001 Conference* (Beijing, China, November 2001), 2:266, 2001.

Coulson, R. N., Saarenmaa, H., Daugherity, W. C., Rykiel, E. J., Saunders, M. C., and Fitzgerald, J. W., "A Knowledge System Environment for Ecosystem Management," book chapter in Klopatek, J. and Gardner, R. (eds.), *Landscape Ecological Analysis: Issues and Applications*, Springer-Verlag, 57-79, 1999.

Coulson, R. N., Daugherity, W. C., Rykiel, E. J., Saarenmaa, H., and Saunders, M. C., "The Pragmatism of Ecosystem Management: Planning, Problem Solving and Decision Making with Knowledge-Based Systems," *Proceedings of Eco-Informa '96 Global Networks for Environmental Information Conference* (Lake Buena Vista, Florida, November 1996), 10:342-50, 1996.

Coulson, R. N., Fitzgerald, J. W.*, Daugherity, W. C., Oliveria, F. L., and Wunneburger, D. F., "Using Spatial Data for Integrated Pest Management in Forest Landscapes," *Proceedings of the 11th Conference on Geographic Information Systems: Integrating Spatial Information Technologies for Tomorrow* (Vancouver, British Columbia, Canada, 1997).

Daugherity, W. C.; Harris, C. E., Jr.; and Rabins, M. J., "Introducing Ethics and Professionalism in REU Programs," *Proceedings of the 1995 World Conference on Engineering Education* (Minneapolis, Minnesota, October 1995).

Coulson, R. N., Daugherity, W. C., Vidlak, M. D.*, Fitzgerald, J. W.*, Teh, S. H.*, Oliveria, F. L., Drummond, D. B., and Nettleton, W. A., "Computer-based Planning, Problem Solving, and Decision Making in Forest Health Management: An Implementation of the Knowledge System Environment for the Southern Pine Beetle, ISPBEX-II," *Proceedings of the IUFRO Symposium on Current Topics in Forest Entomology* (Maui, Hawaii), 1995.

Yen, J., Daugherity, W. C., Wang, H.*, and Rathakrishnan, B.*, "Self-Tuning and Self-Learning Fuzzy Systems," book chapter in Yen, J., Langari, R., and Zadeh, L. (eds.), *Industrial Applications of Fuzzy Logic and Intelligent Systems*, IEEE Press, 1995.

* Graduate Research Assistant I funded

Daugherity, W. C., Video review of *Introduction to Biological and Artificial Neural Networks for Pattern Recognition,* by Steven K. Rogers, in *IEEE Transactions on Neural Networks*, Vol. 5, No. 5, 1994.

Teh, S. H.*, Daugherity, W. C., and Coulson, R. N., "A User-Centric Methodology for Building Usable Expert Systems," *Proceedings of the 7th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems* (Austin, Texas, May-June 1994), 45-48, 1994.

Daugherity, W. C., "A Neural-Fuzzy System for the Protein Folding Problem," *Proceedings of the Third International Workshop on Industrial Fuzzy Control & Intelligent Systems (IFIS `93)* (Houston, Texas, December 1993), 47-49, 1993.

Daugherity, W. C., "A Partially Self-Training System for the Protein Folding Problem," *Proceedings of the World Congress on Neural Networks (WCNN `93)*, (Portland, Oregon, July 1993). Invited paper.

Yen, J., Wang, H.*, and Daugherity, W. C., "Design Issues of Reinforcement-Based Self-Learning Fuzzy Control," *Proceedings of the World Congress on Neural Networks (WCNN `93)*, (Portland, Oregon, July 1993).

Daugherity, W. C., "Characterizations of Fuzzy Operations," *Proceedings of the Second International Workshop on Industrial Fuzzy Control & Intelligent Systems* (College Station, Texas, December 1992), 234, 1992.

Yen, J., Wang, H.*, and Daugherity, W. C., "Design Issues of a Reinforcement-Based Self-Learning Fuzzy Controller for Petrochemical Process Control," *Proceedings of North American Fuzzy Information Processing Society* (Puerto Vallarta, December 1992), 1992.

Yen, J., Wang, H.*, and Daugherity, W. C., "An Adaptive Fuzzy Controller with Application to Petroleum Processing," *Proceedings of IFAC Workshop on Intelligent Manufacturing Systems* (Dearborn, October 1992), 1992.

Yen, J., Daugherity, W. C., and Rathakrishnan, B.*, "Fuzzy Logic and Its Application to Process Control," *Proceedings of CAPA Technology Conference* (Houston, May 1992), 78-86, 1992.

* Graduate Research Assistant I funded

Daugherity, W. C., Rathakrishnan, B.*, and Yen, J., "Performance Evaluation of a Self-Tuning Fuzzy Controller," *Proceedings of the IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)* (San Diego, March 1992), 1992.

Daugherity, W. C., "An Application of Geometrical Reasoning to a Combinatorial Problem," *Proceedings of the Seventh Annual Conference on Applied Mathematics* (Edmond, Oklahoma, April 1991), pp. 226-232, 1991.

Daugherity, W. C., Review of *Data Communications Dictionary*, by Charles J. Sippl, in *Computing Reviews*, Vol. 17, No. 9, pp. 335-336, 1976.

Daugherity, W. C., "Circuits for Dial-up and Local Use of a Stand-alone PDP-8," *Proceedings of the Digital Equipment Computer Users Society*, Vol. 2, No. 2 (Los Angeles, December 1975), pp. 413-414, 1976.

Daugherity, W. C., Review of *Effective Use of ANS COBOL Computer Programming Language*, by Laurence S. Cohn, in *Computing Reviews*, Vol. 16, No. 10, p. 441, 1975.

Manwell, T., Daugherity, W., Desch, S., and Stolurow, L., "Tom Swift and His Electric Bilingual Grandmother," *ACM SIGCUE Bulletin*, Vol. 7, No. 1, pp. 5-17, 1973.

Daugherity, W. C., "A Telephone Amplifier," *Transactions of the Oklahoma Junior Academy of Science*, Vol. IV, pp. 130-132, 1961.

* Graduate Research Assistant I funded

2. Other Publications

Daugherity, W. C., "Honors Section," in Rabins, M. J., and Harris, C. E. Jr. (eds.), *Engineering Ethics Teaching Manual*, 1997.

Daugherity, W. C., "Honors Section," in Rabins, M. J., and Harris, C. E. Jr. (eds.), *Engineering Ethics Teaching Manual*, 1996.

Allen, G. D., Nelson, P., Jarvis, R. D., and Daugherity, W. C., "System Impact of Hit Assessment Capability for NPB Discrimination: Analysis of the Case of No-Hit Assessment," *Weapons Lab/TALN Technical Report*, Kirtland Air Force Base, May, 1990.

3. Other Conference Papers and Presentations

Coulson, R. N., and Daugherity, W. C., "A Knowledge Engineering Approach for Ecosystem Management," 11th Annual Landscape Ecology Symposium, International Association for Landscape Ecology - Integration of Cultural and Natural Ecosystems Across Landscapes: Applications of the Science, Galveston, Texas, 1996.

Coulson, R. N., and Daugherity, W. C., "Decision Support Systems for Forest Pests: Where Do All the Knowledge-Based Systems Go?", North American Forest Insect Work Conference, San Antonio, Texas, 1996.

Daugherity, W. C. and Coulson, R. N., SPBEBE (Economic and Environmental Impact Assessment for Southern Pine Beetle Suppression Projects), computer code, developed for the USDA Forest Service, Forest Health Protection, 1996-1997.

Coulson, R. N., and Daugherity, W. C., "Knowledge System Environment for Ecosystem Management," Global Studies Seminar, Battelle Pacific Northwest Laboratories, Richland, Washington, 1995.

Daugherity, W. C. and Coulson, R. N., ISPBEX-II (Integrated Southern Pine Beetle Expert System), computer code, developed for the USDA Forest Service, Forest Health Protection, 1994.

Daugherity, W. C., and Yen, J., "Tutorial on Neuro-Fuzzy Systems," Third International Workshop on Industrial Fuzzy Control & Intelligent Systems Houston, Texas, December 1993.

Daugherity, W. C., "Introduction to LISP with an On-line Demonstration," Houston Geotech '91, Houston, Texas, 1991.

Daugherity, W. C., "The Universal Classification Problem," South Central Regional Conference of the Association for Computing Machinery, Austin, Texas, 1984.

4. Research Projects

"Remote Laboratory Data Entry and Retrieval System," Texas Department of Agriculture, Walter C. Daugherity, 1986, $3,000 (Daugherity 100%).

"Electrochemical Modeling of a Sinter Plate, Sealed Design Nickel-Cadmium (Ni-Cd) Battery Cell," National Aeronautics and Space Administration, Ralph E. White, Walter C. Daugherity, 1 graduate student, 1989, 25% of my salary 1989-90 (Daugherity 100%).

"Application of Reasoning under Uncertainty to Process Control," Texaco, Walter C. Daugherity and John Yen, 1 graduate student; competitive and peer-reviewed, September 1990, $18,000.

"Design of a Computational Classroom," Texas A & M University, Walter C. Daugherity, September 1990-May 1991, $60,000 (Daugherity 100%).

"Design of a Second Computational Classroom," Texas A & M University, Walter C. Daugherity, January 1991-December 1992, $153,000 (Daugherity 100%).

"Development of Honors Courses in Artificial Intelligence and Analysis of Algorithms," Texas A & M University, Walter C. Daugherity, James Abello and Arkady Kanevsky, 2 graduate students, competitive, September 1991-May 1991, $11,000 (Daugherity 50%).

"Integrated Southern Pine Beetle Expert System"; USDA Forest Service; Robert N. Coulson, Walter C. Daugherity, and Jeffrey W. Fitzgerald; 5 graduate students; competitive and peer-reviewed; 1985-1992, $974,120.

"Distributed Data-Base Support for the ISPBEX Expert System"; USDA Forest Service; Robert N. Coulson, Walter C. Daugherity, and Jeffrey W. Fitzgerald; 1 graduate student; competitive and peer-reviewed; 1992-93; $35,000.

"Integrated Southern Pine Beetle Expert System II"; USDA Forest Service; Robert N. Coulson, Walter C. Daugherity, and Jeffrey W. Fitzgerald; competitive and peer-reviewed; March 1993-February 1994; competitive and peer-reviewed; $170,000.

"Ecological Modelling of Regional Responses to Global Changes: A Knowledge System Environment for Planning, Problem-Solving and Decision Making"; Battelle Pacific Northwest Laboratory; Robert N. Coulson and Walter C. Daugherity; competitive and peer-reviewed; June-December 1995; $39,996.

"Fitness of a Genetically Modified *Gliocladium virens* in Soil and Rhizosphere"; USDA Cooperative State Research Service; Charles M. Kenerley and Walter C. Daugherity; 1 senior associate, 2 graduate students, and 1 undergraduate student; competitive and peer-reviewed; September 1996-August 2001; $254,450 (Daugherity 50%).

"Southern Pine Beetle Biological Evaluation and Economic Evaluation Program Conversion"; USDA Forest Service, Forest Health Protection; Robert N. Coulson (PI) and Walter C. Daugherity (Co-PI); competitive and peer-reviewed; 1996-1997; $16,421.

"The Texas Imported Fire Ant Survey: The Fire Ant Spatial Information Management System (FASIMS)"; Texas Agricultural Experiment Station; Robert N. Coulson (PI) and S. Bradleigh Vinson, Maria D. Guzman, Douglas F. Wunneburger, and Walter C. Daugherity (Co-PI's); competitive and peer-reviewed; January 1998-December 1998; $50,000.

"Special Topics in Computer Science Concepts and Programming"; Academy for Advanced Telecommunications and Learning Technologies; Walter C. Daugherity; competitive and peer-reviewed; June 1998-May 1999; $5,000 (Daugherity 100%).

"Object Modeling Techniques Support for National Simulation Center Tactical Directorate"; U. S. Army through prime contractor Cubic Applications, Inc.; Walter C. Daugherity, James A. Wall, and José Salinas; competitive; September 1998-April 1999; $74,498 (Daugherity 20%).

"The Fire Ant Spatial Information Management System (FASIMS)"; Texas Department of Agriculture, Texas Imported Fire Ant Research and Management Plan; Robert N. Coulson (PI) and Douglas F. Wunneburger, S. Bradleigh Vinson, and Walter C. Daugherity (Co-PI's); competitive and peer-reviewed; 1999-2001; $220,000.

"Evaluating the Impact of Southern Pine Beetle on Ecologically Sustainable Forest Management"; USDA Forest Service; Robert N. Coulson and Walter C. Daugherity; 1 graduate student and 1 undergraduate student; competitive and peer-reviewed; 2000-2003, $90,000.

"Honey Bee Initiative"; State of Texas; Robert N. Coulson (PI), Walter C. Daugherity (Consultant); 2 graduate students; competitive; September 2001-August 2002; $40,000.

"Increasing Computer Science Retention by Developing and Deploying Self-Paced Learning Modules"; State of Texas; Jennifer Welch and Frank Shipman (Co-PI's), Lawrence Petersen, Walter C. Daugherity, and Lauren Cifuentes (Key Personnel); 10 undergraduate students; competitive; June 2002-August 2004; $422,692.

"Facilitating the Transition to Java in High School Computer Programming Classes"; Texas A&M University System Academy for Educator Development; Walter C. Daugherity; 1 graduate student; competitive and peer-reviewed; December 2003-September 2004; $2,966 (Daugherity 100%).

"Instructional Technology Enhancements for Computer Teaching Labs," Texas A&M University, Walter C. Daugherity, competitive, January 2004-August 2004, $20,000 (Daugherity 100%).

"Increasing Computer Science Retention with Peer Teachers and Learning Modules"; State of Texas; Valerie Taylor and Jennifer Welch (Co-PI's), Lawrence Petersen, Walter C. Daugherity, and Joseph Hurley (Key Personnel); undergraduate students; competitive; September 2004-August 2005; $173,158.

Cumulative total: $2,845,801

5. Research Proposals

Note: Funded proposals are listed in section 4 above.

"Automated Support for VLSI Standard Cell Optimization," Texas Advanced Technology Program, Walter C. Daugherity, competitive and peer-reviewed, July 1989, not funded, $233,887.

"Integration of Computer Software Models for NiCd Battery Design," National Aeronautics and Space Administration, Ralph E. White and Walter C. Daugherity, competitive and peer-reviewed, 1990, not funded, $125,000.

"Innovative Use of Supercomputers and Parallel Computers in Grades K-8," Department of Energy, Paul Nelson, Walter C. Daugherity and Bahram Nassersharif, competitive and peer-reviewed, December 1990, preproposal submitted, $885,000.

"Integration of Texas Junior Colleges into State and National Computer Networks," Texas Advanced Technology Program, Walter C. Daugherity and Charles H. Beard, competitive and peer-reviewed, July 1991, not funded, $174,219.

"Adaptive Fuzzy Control for Industrial Processes," Texas Advanced Research Program, John Yen and Walter C. Daugherity, competitive and peer-reviewed, July 1991, not funded, $177,064.

"Development of a Fuzzy Logic Tuner for a PID Controller," Texaco, John Yen and Walter C. Daugherity, 1992-93, not funded, $200,000.

"National Center For Ecological Analysis and Synthesis," National Science Foundation; Robert N. Coulson, Walter C. Daugherity *et al.*, competitive and peer-reviewed, July 1994, not funded, $10,000,000.

"Development of a Fungal Growth Model for Risk Assessment," Texas Advanced Research Program, Charles M. Kenerley and Walter C. Daugherity, competitive and peer-reviewed, July 1995, not funded, $203,792.

"Intelligent Vehicle Navigation System," Texas Advanced Technology Program, Walter C. Daugherity and Jeffrey W. Fitzgerald, competitive and peer-reviewed, July 1995, not funded, $195,058.

"Innovative Programs to Increase the Enrollment in Computer Science," Texas Technology Workforce Development Grant Program, Valerie Taylor and Frank Shipman (co-PI's), Lawrence Petersen, Walter C. Daugherity, and Joseph Hurley (Key Personnel), competitive and peer-reviewed, March 2005, pending, $69,760.

6. New Design Methods, Techniques, or Concepts Developed

Null Modem

I independently invented the null modem in 1969 and constructed one for Harvard University (which is still operational!).

Computer Keyboard National Standard

As a member of the Harvard-MIT Terminal Committee, I participated in the development of the national standard for computer keyboards (*e.g.*, putting braces above brackets for the benefit of programming languages). Nearly every computer terminal and keyboard since then (*e.g.*, VT100, PC) uses this layout.

Integrated User Training

I invented the method of training users about additional features of an application program by integrating the information with the operation of the program (see Manwell, Daugherity, *et al.* under Publications, above). This is now widely adopted, *e.g.*, by Microsoft for its Windows operating systems in the "Getting Started" panel.

Object-Oriented Database

I independently invented and implemented an object-oriented database to support arbitrary combinations of data types.

Self-Organizing Fuzzy Controller

In collaboration with Balaji Rathakrishnan (a Graduate Research Assistant I funded) and John Yen, I developed a new systematic methodology for constructing and tuning fuzzy logic controllers. The research project was funded by Texaco (see the preceding section for details) for use in its refineries.

TEACHING

1. New Courses Developed

CPSC 111/211/311 Java and C-based sequence - Member of curriculum subcommittee, taught 111 and 211
CPSC 210 (Honors) - Data Structures
CPSC 320 (Honors) - Artificial Intelligence
CPSC 489 - Object-Oriented Programming, Systems, and Languages
CPSC 635 - Natural Language Processing (taught by Dr. P. Mayer)
CPSC 689 - Symbolic and Algebraic Computation (not taught)
CSCE 489/PHIL 382 (with Glen Miller [PHIL]) - Ethics and Cybertechnology
ENGR/PHIL 482 (Honors) - Ethics and Engineering
PHIL 282 (with Glen Miller [PHIL]) – Ethics in a Digital Age
PHYS/ELEN 674 (with David Church [PHYS]) - Special Topics in Quantum Computing (the first course at Texas A&M in quantum computing, and, to the best of my knowledge, the first course in quantum computing anywhere in Texas), taught Spring, 2005, for the fifth time.
A Distance Learning section of CPSC 601 - Programming in C and Java, taught Spring, 2003.
Two sections of CPSC 111 - Computer Science Concepts and Programming taught with student peer teachers as assistants, Fall, 2002.
Honors section of CPSC 111 - Computer Science Concepts and Programming taught with student peer teachers as assistants, Fall, 2004.
Developed (with Lawrence Petersen) an intensive summer training program in Java and Software Engineering for high-school computer science teachers, taught Summer, 2003.
Developing an intensive summer training program in Data Structures for high-school computer science teachers, taught Summer, 2004; I was also completely responsible for recruiting teachers, getting them admitted, arranging for housing, and so on.

2. Courses Taught

A. Graduate

CPSC 601	Programming in C and Java
CPSC 602	Object-Oriented Programming, Development, and Software Engineering
CPSC 614	Computer Architecture
CPSC 625	Artificial Intelligence
CPSC 632	Expert Systems
CPSC 681	Graduate Seminar
CPSC 685	Problems

CPSC 691 Research
PHYS/ELEN 674 Quantum Computing (co-teacher)

B. Undergraduate

CPSC 111 Computer Science Concepts and Programming
CPSC 111H Computer Science Concepts and Programming (Honors)
CPSC 120 Programming II
CPSC 120H Programming II (Honors)
CPSC 203 Introduction to Computing
CPSC 206 Structured Programming in C
CPSC 210 Data Structures
CPSC 210H Data Structures (Honors)
CPSC 211 Data Structures and Implementations
CPSC 211H Data Structures and Implementations (Honors)
CPSC 285 Special Topics - Data Structures for Teachers
CPSC 289 Special Topics - Java and Software Engineering for Teachers
CPSC 311 Analysis of Algorithms
CPSC 320/420 Artificial Intelligence
CPSC 320H/420H Artificial Intelligence (Honors)
CPSC 321 Computer Architecture
CPSC 464 Integrated Systems Design Automation
CPSC 485 Problems
CPSC/ELEN 485H Problems (Honors theses)
CPSC 489 Object-Oriented Programming, Systems, and Languages
CSCE 113 Intermediate Programming and Design
CSCE 121 Introduction to Program Design and Concepts
CSCE 121H Introduction to Program Design and Concepts (Honors)
CSCE 315 Programming Studio
CSCE 410 Operating Systems
CSCE 489 Cyberethics (co-teacher)
ENGR 112 Foundations of Engineering II
ENGR 112H Foundations of Engineering II (Honors)
ENGR/PHIL 482H Ethics and Engineering (Honors)

PROFESSIONAL OUTREACH

1. Director, Knowledge Systems Research Center

2. Invited Significant Seminars or Lectures

Daugherity, W. C., "Computers and Privacy," Phi Theta Kappa Honor Society State Convention, Blinn College, Brenham, Texas, 1985.

Daugherity, W. C., and DeSoi, J. F., "Objected-Oriented Programming," Second Annual Texaco Artificial Intelligence Symposium, Houston, Texas, 1989.

Daugherity, W. C., "A Self-Tuning Fuzzy Controller," ARRI Conference on Fuzzy Logic, Arlington, Texas, March 1992.

Daugherity, W. C., Yen, J., and Langari, R., "Tutorial on Fuzzy Logic," Second International Workshop on Industrial Fuzzy Control & Intelligent Systems, College Station, Texas, December 1992.

Daugherity, W.C., "A Partially Self-Training System for the Protein Folding Problem," World Congress on Neural Networks, Portland, Oregon, July 1993.

Daugherity, W.C., "Neuro-fuzzy Systems," Third International Workshop on Industrial Fuzzy Control & Intelligent Systems, Houston, Texas, December 1993.

Daugherity, W.C. and Harris, C.E., "Ethics and Engineering," NSF Research Experience for Undergraduates, College Station, Texas, Summer 1994.

Daugherity, W.C. and Harris, C.E., "Ethics and Engineering," NSF Research Experience for Undergraduates, Austin, Texas, Summer 1994.

Daugherity, W.C. and Harris, C.E., "Ethics and Engineering," NSF Research Experience for Undergraduates, College Station, Texas, Summer 1995.

Daugherity, W.C. and Harris, C.E., "Ethics and Engineering," NSF Research Experience for Undergraduates, Austin, Texas, Summer 1995.

Daugherity, W.C., "Public-Key Cryptography Meets Quantum Computing: Why Secret Agencies are Quaking in their Boots." Quantum Computing Seminar, Texas A&M University, April 9, 2001.

Daugherity, W.C., "Quantum Computing 101: How to Crack RSA." DefCon X, Las Vegas, NV, August 4, 2002.

Daugherity, W.C., "Computer Ethics." ENGR 482 Ethics and Engineering, Texas A&M University, April 14-16, 2003.

Daugherity, W.C., "Incorporating Computer Ethics into an Engineering Ethics Course." University of Texas Ethics Conference, Austin, Texas, April 16, 2004.

Daugherity, W.C., "Computer Ethics." ENGR 482 Ethics and Engineering, Texas A&M University, November 8-10, 2004.

Daugherity, W.C., "[My] 53 Years of Computing History," CSCE 681 Open Graduate Seminar, Texas A&M University, November 18, 2015.

3. Consulting

St. Joseph's Hospital, Bryan, Fall 1990, at no charge.
Other clients include IBM Federal Systems Division, New York Times, Washington Post, Los Angeles Times, Cheyenne and Arapaho Tribes of Oklahoma, Southwestern Bell Telephone, Fulbright & Jaworski (Houston), Texas Department of Agriculture, Phonogram B.V. (Amsterdam), and U. S. Department of the Treasury.

HONORS AND AWARDS

Oklahoma Junior Academy of Science, elected to membership, 1961, Oklahoma State University
National Science Foundation, Institute for High Ability Secondary School Students, 1962, University of Oklahoma
Westinghouse, Science Talent Search national finalist, 1963
National Merit Scholarship test, highest score in Oklahoma, 1963 Frontiers of Science, scholarship, 1963, Oklahoma City, Oklahoma
Engineering Club of Oklahoma City, award, 1963, Oklahoma City, Oklahoma Oklahoma Christian College, full scholarship (top entering freshman), 1963, Oklahoma City, Oklahoma
National Science Foundation, Undergraduate Research Participation Program, 1965, University of Oklahoma, Norman, Oklahoma
Alpha Delta Tau, National Honor Society, 1966
Who's Who in American Colleges and Universities, 1966 Graduate Record Exam in Mathematics, scored 800, 1966 Harvard University, Prize Fellowship, 1966
National Science Foundation, Academic Year Institute, 1967 Phi Delta Kappa, National Honor Society, 1967
Harvard University, Class Marshal for the Graduate School of Education, 1967 Harvard University, Bowdoin Prize, bronze medal and cash award for outstanding writing, 1973

Association for Computing Machinery, selected as a reviewer for *Computing Reviews*, 1975

Association for Computing Machinery, Outstanding Regional Intercollegiate Programming Contest Director Award, 1993, Indianapolis, Indiana

World Congress on Neural Networks, Neural Systems Session Co-chair, 1993, Portland, Oregon

Graduate Student Council, 1997 Outstanding Graduate Faculty Award citation: "For your time and dedication to graduate students at Texas A&M."

Named by the TAMU System to The Academy for Educator Development, a major component of The Texas A&M University System's Regents' Initiative for Excellence in Education, 2003 (one of only two faculty members selected from the entire College of Engineering).

Winner, $500 cash prize, Texas A&M University Academic Integrity Week Essay Competition (Faculty Category), 2004.

Texas A&M University, Department of Computer Science & Engineering, 2009 Undergraduate Faculty Award citation: "In grateful appreciation of dedicated service, exemplary attitude, and significant contribution."

Qualified for American MENSA, 2015.

Oklahoma Christian University, Department of Mathematics and Computer Science, 2015

Distinguished Alumnus Award citation: "For outstanding vision, dedication, and commitment to excellence."

EXHIBIT B

From: Brian Watson <brianwatson70002@gmail.com>
Sent: Thursday, November 12, 2020 2:33 PM
To: Sylvia Allen; Sonny Borrelli; Paul Boyer; Kate Brophy McGee; Heather Carter; Karen Fann; David Farnsworth; Eddie Farnsworth; David Gowan; Rick Gray; Sine Kerr; Vince Leach; David Livingston; J.D. Mesnard; Tyler Pace; Frank Pratt; Michelle Ugenti-Rita; John Allen; Nancy Barto; Leo Biasiucci; Walter Blackman; Shawnna Bolick; Russell Bowers; Noel Campbell; Frank Carroll; Regina Cobb; David Cook; Tim Dunn; John Fillmore; Mark Finchem; Travis Grantham; Gail Griffin; John Kavanagh; Anthony Kern; Jay Lawrence; Becky Nutt; Joanne Osborne; Kevin Payne; Warren Petersen; Steve Pierce; Tony Rivero; Bret Roberts; Thomas T.J. Shope; Bob Thorpe; Ben Toma; Kelly Townsend; Michelle Udall; Jeff Weninger
Subject: Fwd: Meeting held by Pima County Democrats (Voter Fraud Planning meeting)

asking you to void all elections in the state! This includes local, county, state and federal elections! Each ballot contains all these races in it!

The State Legislature has the power to null and void all Nov 3rd election results if AZSOS and the county recorder and elections office will not provide full transparency.
See forwarded message!

---------- Forwarded message ---------
From: **Brian Watson** <brianwatson70002@gmail.com>
Date: Tue, Nov 10, 2020 at 9:38 AM
Subject: Meeting held by Pima County Democrats (Voter Fraud Planning meeting)
To: <Criminal.Division@usdoj.gov>

US Department of Justice,

This is anonymous reporting and do not want to be included in this investigation! Thank you!

Please be advised that Pima County Recorder, located at 240 N Stone Ave, Tucson, AZ 85701 in Pima County Arizona and the Democratic Party added "fraud votes" in the initial count to the Vote-By-Mail (VBM) totals released at 8pm on Nov 3rd 2020.

There were approximately 35,000 fraud votes added to each democrat candidate's vote totals. Candidates impacted include county, state and federal election candidates. Through the utilization of the automated ballot count machines in Pima County Elections, my understanding is that 35,000 was embedded into each democrat candidate's total votes.

Below are the meeting notes:

In a meeting I was invited to by the democrat party in Pima County Arizona on Sept 10th 2020, no phones or recording devices were allowed, a presentation was given including detailed plans

to embed 35,000 in a "spread configured distribution" to each democrat candidate's vote totals.

When I asked "how in the world will 35,000 be kept hidden or from being discovered", it was stated that "spread distribution will be embedded across the total registered voter range and will not exceed the registered voter count, and the 35,000 was determined allowable for pima county based on our county registered voter count". It was also stated that "total voter turnout versus total registered voters determine how many votes we can embed. The embedding will auto adjust based on voter turn-out." Because the "embed votes are distributed sporadically all embedded votes will not be found, if audited, because the embeds are in groups of approximately 1,000. This is so the county recorder can declare an orversite issue or error as a group of 1,000 is a normal and acceptable error." "Maricopa County's embed totals will be substantially higher than Pima due to embeds being calculated based on the total number of registered voters."

When I asked "has this ever been tested? and how do we know it works?" The response was "Yes, this has been testing and has shown significant success in Arizona Judicial Retention Elections since 2014 even undetectable in post audits because no candidate will spend the kind of funds needed to audit and contact voters to verify votes in the full potential of total registered voters which is more then 500,000 registered voter. This year our Secretary of State has removed precinct level detail for election night releases so canidates can't see precinct over-votes".

This is what I have from this meeting.
Just thought I'd report this. Not sure if you can do anything since I was unable to have a recording device at this meeting...

Thank you!
B.Watson