

Gary S. Goldman, PhD Computer Scientist



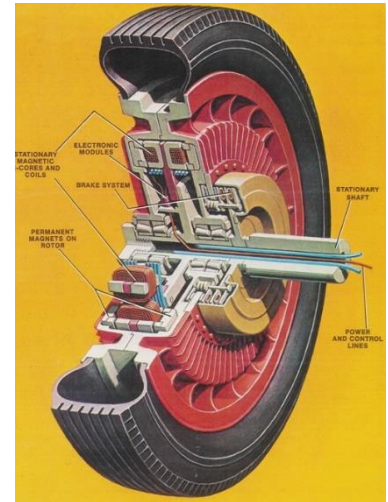
Gary S. Goldman earned a PhD in Computer Science from Pacific Western University in Los Angeles (1982). He graduated with honors in 1977 from California State University, Fullerton (CSUF) with a double major: B.S. in Engineering (Electronic emphasis) and B.S. in Computer Science. His academic excellence earned him membership in The Honor Society of Phi-Kappa-Phi, and in 1976 he received the Outstanding University Engineering Student Award by the Orange County Engineering Education Council (OCEC).

During his time at CSUF, Goldman worked as a computer consultant providing technical support to faculty and staff. At graduation he was recognized for his outstanding academic achievement, receiving three of the four awards presented to graduates who demonstrated exceptional scholarly commitment. Dr. Goldman also served as a part-time assistant professor in the Engineering and Quantitative Methods departments instructing both graduate and undergraduate courses in subjects such as statistics, programming, digital simulation, and digital logic design and switching theory.



Goldman, V.P. Cascade Graphics Dev.
with first CAD System, 1980

In 1980, as Vice-President of Systems Development of Cascade Graphics Development, he led the development of the first microcomputer-based computer-aided drafting (CAD) system (see figure). This system, developed before the well-known *AutoCad* product, used an *Apple IIe* for user inputs and a *Motorola 68000* micro-processor for real time graphics processing. Dr. Gilbert D. McCann, professor emeritus of Caltech and a pioneer of nuclear magnetic resonance—NMR (or magnetic resonance imaging—MRI), served on the the board of directors of Cascade Graphics Development.



Patented “Power Wheel”

Dr. Gary S. Goldman has had a distinguished career in computer consulting, with international tours spanning South Africa, Germany, Holland, England and Canada. He holds a U.S. patent (#4223255, granted September 1980) for the “Power Wheel,” a micro-programmed, high-efficiency motor-in-a-wheel designed for use in electric vehicles. This innovative invention was featured on the cover of *Science and Mechanics* in the Fall of 1980 (see figure).

In the early 1980s, Goldman’s company, Cascade Graphics Development, was acquired by an international petrochemical company. During this time, he played a pivotal role with the integrating advanced graphic systems and voice input technology. This product, which was ahead of its time, enabled individuals with disabilities to generate high quality drawings and be productive in ways previously thought impossible. One notable example of this innovation was the hiring of a young man with quadriplegia, who was able to produce fulfilling and productive work using this system.

While at Cascade Graphics, Goldman was responsible for automating the design of vertical cylindrical heaters, including the required convection coil design and piping tube-wall thickness calculations. He also developed a heuristic program for designing earth-retaining walls, with and without traffic loads. This program not only generated a complete materials list but also produced finished drawings for the project. In fact, Goldman's software was capable of designing a 100-foot-long retaining wall over any terrain in just five minutes—an accomplishment that would have taken a team of engineers an entire week to complete. Goldman also developed a specialized curve fitting routine, used by renowned pilot Burt Rutan for aircraft wing design, further demonstrating his versatility in engineering and technology.



Gary S. Goldman, Vice-President
Cascade Graphics Development

Additionally, Goldman and Heidi Blake co-developed the Goldman/Blake Remediation Program. This program, aimed at helping children with specific visual processing deficits, was used in a pilot study at the Hope-Haven Hospital in Florida, contributing to advancements in therapeutic techniques for children with learning challenges.

Earlier in his career, Goldman was a key member of the development team that created the first Interactive Graphics Terminal, IGT-100, at CalComp (California Computer Products, Anaheim, CA) in 1976. This system allowed users to edit drawings prior to electronically plotting them.

From January 1995 until his resignation in October 2002, Dr. Gary S. Goldman served as the sole Research Analyst for the Varicella Active Surveillance Project (VASP) in Antelope Valley, collaborating with the Centers for Disease Control and Prevention (CDC) in Atlanta, GA. During this eight-year period, Dr. Goldman developed a model that quantified the seasonal variation of chickenpox based on school enrollment patterns (clustering) and high ambient air temperatures. He also created a

comprehensive database and data entry programs to track several hundred demographic and clinical variables related to chickenpox and shingles. This included developing algorithms to detect duplicate cases, which was essential for applying capture-recapture methods, and linking cases originating from the same household.

Dr. Goldman played a key role in expanding the project's scope, supplying both initiative and background material for the successful proposal to include shingles in the active surveillance program. His contributions to the varicella project were extensive, including conducting a range of statistical analyses:

- (a) Second Varicella Infections (with findings later published in a peer-reviewed medical journal)
- (b) Varicella Susceptibility (presented at a symposium and published later outside VASP)
- (c) Transmission of Varicella in Households
- (d) Vaccine Efficacy by year (published later outside VASP),
- (e) School Outbreaks
- (f) Cost-Benefit Analysis of universal varicella vaccination taking into account the closely related herpes zoster epidemiology (published later outside VASP),
- (g) Capture-Recapture Methodology to measure reporting completeness of chickenpox cases to the surveillance project, publishing the results in the *Journal of American Medical Association (JAMA)*.

Furthermore, he computed the true incidence rate of shingles among children with previous (wild-type) chickenpox histories and vaccinated children, contributing to a deeper understanding of shingles trends in a community under moderate to widespread varicella vaccination (published later outside VASP).

Currently, Dr. Goldman serves as a consulting computer scientist and serves on the board of directors for *Pearblossom Private School, Inc.* which provides distance education to over 1,500 independent study students annually in grades K-8 across the U.S. (www.PearblossomSchool.com) He has passed the Praxis Mathematics exam for credentialed teachers and authored a prealgebra textbook that highlights (https://drive.google.com/file/d/1INDwphGcUpLYQ2_QkEkAy7s8inlBJMd0/view?usp=sharing) emphasizing practical applications of the mathematical concepts. Dr. Goldman also provides technology updates and programs for *Pearblossom Academy, Inc.* to support high school students and the accredited curricula (www.PearblossomAcademy.com).

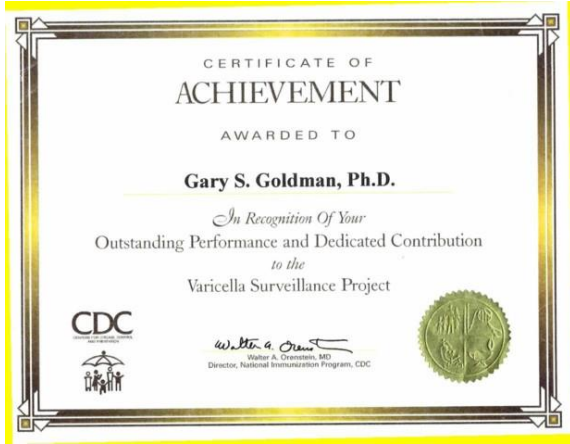
From 2004 to 2010, Dr. Goldman was Editor-in-Chief of *Medical Veritas: The Journal of Medical Truth* (www.MedicalVeritas.com), a peer-reviewed journal advancing medical knowledge. Under his leadership, the journal published 200 vaccine-related studies and articles, collaborating with top scientists, researchers, and physicians. Dr. Mohammed A. Al-Bayati, a key contributor, used the journal to educate the judicial system on differential diagnosis, particularly regarding vaccines and their role in the misdiagnosis of shaken baby syndrome. His reports were used in courts across multiple countries, helping to clarify medical evidence and challenge wrongful convictions (http://www.pearblossomschool.com/MV_and_Medical-Legal.pdf). *Medical Veritas* became a key platform for evidence-based discourse, solidifying its role in advancing scientific truth..

Dr. Goldman has served as a reviewer for the following Medical Journals:

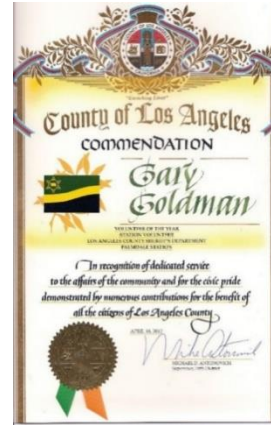
- *Journal of the American Medical Association (JAMA)*
- *Human and Experimental Toxicology (HET)*
- *Vaccine*
- *The American Journal of Managed Care (AJMC)*
- *Expert Review of Vaccines (ERV)*
- *Expert Review of Dermatology (ERD)*
- *British Medical Journal (BMJ)*
- *Journal of Medical Internet Research (JMIR)*
- *Journal of the European Academy of Dermatology and Venereology (JEADV)*
- *Epidemiology and Infection*
- *The Open Allergy Journal*
- *BioMed Research International (Biomed Res Int)*
- *Epidemiology & Infection*
- *Therapeutic Advances in Vaccines and Immunotherapy*

Dr. Goldman also serves as a consultant to the nonprofit *Physicians for Informed Consent* (physiciansforinformedconsent.org) and participates on the editorial boards of *Orthomolecular Medicine News Service* (OMNS—orthomolecular.org) and *Research and Reviews in BioSciences* (<https://tsijournals.com/journals/research-reviews-in-biosciences.html>).

Awards/Certificates



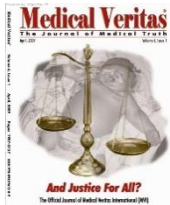
1995 Certificate from Walter A. Orenstein, MD
Director, National Immunization Program, CDC



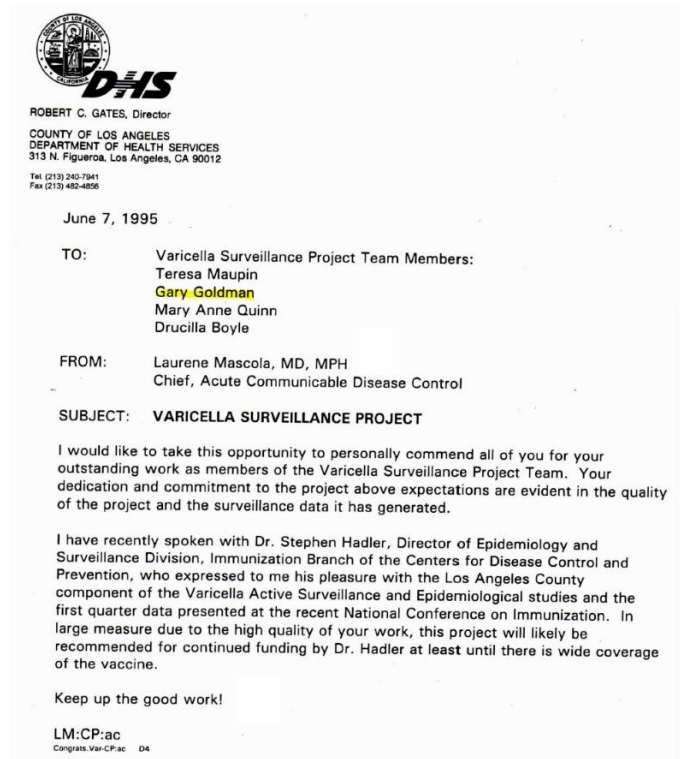
April 18, 2012 Volunteer of the Year
Los Angeles County Sheriff's Department
Presented by Michael D. Antonovich, Supervisor



2024 Cureus Laureate—recognized for outstanding contributions in publishing peer-reviewed medical research. This honor highlights high-quality work, often based on readership, citations, or editorial excellence to the advancement of medical knowledge.



2009 Mom's Choice Award: Silver Recipient for Medical Veritas Journal in the area of Health, Nutrition, Fitness, & Safety



June,7 1995 Commendation Letter, Acute Communicable Disease Control Unit

Summary Statement

Dr. Gary S. Goldman has dedicated over five decades to applying his computer science skills and analytical expertise across diverse fields, including epidemiology and public health. His research has identified significant adverse effects of vaccines, contributing to a critical reassessment of vaccine safety. Through peer-reviewed publications, Dr. Goldman has consistently challenged prevailing narratives, advocating for a more nuanced understanding of vaccine risks ([Link to Response to AJOC](#)).

Dr. Goldman's commitment to advancing public health and medical knowledge is unwavering. In his correspondence with Dr. Philip R. Krause, Head Scientist of the FDA's Center for Biologics Evaluation and Research, Dr. Goldman expressed that when health authorities suppress deleterious outcomes of vaccine research, this is "deeply disturbing, contrary to accepted scientific norms, and undermines professional ethics." His legal victory over the CDC ([Legal Link](#)), which sought to block his research publications, further highlighted his commitment to advancing scientific inquiry. Dr. Goldman's work emphasizes that some childhood vaccines may contribute to cycles of treatment and illness, urging a more thorough consideration of their long-term effects.

Educational/Documentary Videos

- IPAK-edu (Institute for Pure and Applied Knowledge, James Lyons-Weiler, PhD—Founder) 2023 Science Webinar: *Outcome Reporting Bias in Vaccine Studies* <https://rumble.com/v37fkyv-outcome-reporting-bias-in-vaccine-studies-guest-speaker-gary-s.-goldman.html>
- August 30, 2017 Inaugural Meeting Address for Physicians for Informed Consent, Costa Mesa, CA (Dr. Shira Miller, Founder): *Misadventures with the Chickenpox Vaccine* <https://youtu.be/9owLjgItcJU>
- 2024 *Cureus*, peer-reviewed journal indexed in PubMed.gov since 2015 (Dr. John R. Adler Jr. & Dr. Alexander Muacevic, Editors-in-Chief): *How Vaccine Study Outcomes Shape Public Health* https://youtu.be/gMjlkOn_RsM?si=tiab8rMdIRT4ttAB

Adverse Vaccine Reaction Documentaries:

- 2015 *Bought*—The hidden story behind vaccines, big pharma and your food (Jeff Hays Films; A Bobby Sheehan Film). https://drive.google.com/file/d/1M8u3AIPU bif3-UCkx BsFm3i5YBeY-BI/view?usp=drive_link
- 2017 *Vaccines Revealed*—Know the truth, Understand Your Options, Be Confident in Your Decision Episode One (Andrew Wakefield, Gary Goldman, Toni Bark) https://drive.google.com/file/d/161pO Fr4RgG JiNTDkQXq4moBvMx1AXwOr/view?usp=drive_link
Episode Five (Influenza Vaccine) https://drive.google.com/file/d/1rdLBdx3ztgBN6TJ51-00Ocqofg5RWhMYo/view?usp=drive_link
- 2022 Project 180 Vaccine Documentary Videos:
Gary Goldman Bio <https://youtu.be/7DCgJTm8VfA>
Varicella Vaccination: Part I <https://youtu.be/llf-rSZlJbk>
Varicella Vaccination: Part II <https://youtu.be/-7YplcEjewU>
2009/10 Pandemic Influenza Vaccine https://drive.google.com/file/d/1-E_1B8fJBRR99zTKdODz2hQ0qok87nFP/view

- 2024: Chickenpox Vaccine Research highlighted by Robert F. Kennedy Jr. on NewsNation Town Hall (at 4-min. mark): <https://drive.google.com/file/d/1LknTkBJ3dbOZJePLRTIzVDoOkhwOyQxs/view?usp=drivesdk>

Recent Medical Publications and CDC Presentations/Abstracts, etc.

- [1] Assessing the Impact of Vaccination on the Incidence of Vaccine Preventable Diseases via Harmonic Regression. Presented May 23, 2000 by John W. Glasser (CDC). GS Goldman, JW Glasser, TJ Maupin, CL Peterson, . Mascola, RT Chen, and JF Seward.
- [2] The impact of vaccination on varicella incidence, conditional on school attendance and temperature, in Antelope Valley, CA. Goldman GS, Glasser JW, Maupin TJ, Peterson CL, Mascola L, Chen RT, and Seward JF. Presentation by J.W. Glasser at 16th International Conference on Pharmacoepidemiology (ICPE); Barcelona, Spain; August 22, 2000; Pharmacoepidemiology and Drug Safety; 9(Suppl 1):S67.
- [3] Varicella active surveillance: use of capture-recapture methods to assess completion of surveillance data. Peterson CL, Maupin T, Goldman G, Mascola L. 37th Interscience Conference on Antimicrobial Agents and Chemotherapy. September 28 - October 1, 1997, Toronto, Canada; Abstract H-111, page 233.
- [4] Decline in varicella incidence and hospitalizations in sentinel surveillance areas in the United States, 1995-2000. Seward J, Watson B, Peterson C, Mascola L, Pelosi J, Zhang J, Jumaan A, Maupin T, Goldman G, Perella D, Waites C, Tabony L, Wharton M. The 4th International Conference on VZV, March 3-5, 2001, Oral Presentation, La Jolla, California. VZV Research Foundation in partnership with Columbia University College of Physicians and Surgeons.
- [5] Breakthrough varicella cases since vaccine licensure in the Varicella Active Surveillance Project. April 2001 Supplement of Pediatric Research, Presented April 28-May 1, 2001 Pediatric Academic Societies Meeting, Baltimore, Maryland. Galil K, Watson B, Peterson C, Mascola L, Pelosi J, Seward J, Zhang J, Maupin T, Goldman G, Perella D, Waites C, Tabony L, Wharton M. Publication no. 843.
- [6] Knowledge, attitudes, and practices of healthcare providers regarding varicella vaccination in sentinel surveillance area, 1996, 1997, and 1999. Maupin T, Goldman G, Peterson C, Mascola L, Seward J. Poster Session, April 28-May 1 2001, Pediatric Academic Society Annual Meeting, Baltimore, Maryland.
- [7] Varicella Epidemiology: six years of active surveillance data following implementation of the varicella vaccination program. Peterson C, Mascola L, Maupin T, Goldman G, Seward J, Presented at the 39th Annual Meeting of the Infectious Diseases Society of America (IDSA), Abstract 943, October 25-28, 2001; San Francisco, California.
- [8] Varicella disease after introduction of varicella vaccine in the United States, 1995-2000. Seward JF, Watson BM, Peterson CL, Mascola L, Pelosi JW, Xhang JX, Maupin TJ, Goldman GS, Tabony LJ, Brodovicz KG, Jumaan AO, Wharton M. *JAMA* 2002; 287(5):606–11. DOI: 10.1001/jama.287.5.606
[PubMed Link](#)
- [9] Second varicella infections: are they more common than previously thought? Hall S, Maupin T, Seward J, Jumaan AO, Peterson C, Goldman G, Mascola L, Wharton M. *Pediatrics*. 2002 Jun;109(6):1068–73. DOI: 10.1542/peds.109.6.1068
[PubMed Link](#)
- [10] Varicella susceptibility among adolescents in an active surveillance site. Maupin T, Goldman G, Peterson C, Mascola L, Seward J, Jumaan A, 36th National Immunization Conf. of the CDC, 05/01/02, Denver, CO.
- [11] Varicella susceptibility and incidence of herpes-zoster among children and adolescents in a community under active surveillance. Goldman G. *Vaccine*, 2003 Oct. 1; 21(27-30):4238–42. DOI: 10.1016/s0264-410x(03)00461-4
[PubMed Link](#)
- [12] Incidence of herpes-zoster among children and adolescents in a community with moderate varicella vaccination coverage. Goldman G. *Vaccine*, 2003 Oct. 1; 21(27-30):4243–9. DOI: 10.106/s024-410x(03)00459-6
[PubMed Link](#)
- [13] Using capture-recapture methods to assess varicella incidence in a community under active surveillance. Goldman G. *Vaccine*, 2003 Oct 1; 21(27-30):4250–55. DOI: 10.1016/s0264-410x(03)00458-4
[PubMed Link](#)
- [14] Cost-benefit analysis of universal varicella vaccination in the U.S. taking into account the closely related herpes-zoster epidemiology. Goldman G. *Vaccine*, 2005 May; 23(25):3349–55. DOI: 10.1016/j.vaccine.2003.10.042
[PubMed Link](#)
- [15] An investigation of the association between MMR vaccination and autism in Denmark. Goldman G, Yazbak EF, *Journal of Association of American Physicians and Surgeons*, Fall 2004; 9(3):70–5.
[PDF Link](#)
- [16] Response to Letter to Editor by Jumaan: Goldman’s role in the Varicella Active Surveillance Project. Goldman GS. *Vaccine*, 2004 Sep 3; 22(25-26):3232–6. DOI: 10.1016/j.vaccine.2004.07.001
[PubMed Link](#)

- [17] Annual Summary, Each year 1995 through 2001, Antelope Valley Varicella Active Surveillance Project (VASP), Los Angeles County Department of Health Services (LACDHS); Centers for Disease Control and Prevention (CDC) Cooperative Agreement No. U66/CCU911165-10; Maupin T, Goldman G, Peterson C, Mascola L.
- [18] Universal varicella vaccination: Efficacy trends and effect on herpes-zoster. Goldman GS. *International Journal of Toxicology*, 2005 July-Aug.;24(4):205–13. DOI: 10.1080/10915810591000659
[PubMed Link](#)
- [19] The Case against Universal Varicella Vaccination. [Commentary] Goldman GS. *International Journal of Toxicology*, 2006 Sept.-Oct.;25(5):313–17. DOI:10.1080/10915810600870591
[PubMed Link](#)
- [20] Infant mortality rates regressed against number of vaccine doses routinely given: Is there a biochemical or synergistic toxicity? Miller NZ, Goldman GS. *Hum Exp Toxicol.*, 2011 Sept.; 30(9):1420–8. DOI: 10.1177/0960327111407644
[PubMed Link](#)
- [21] Relative trends in hospitalizations and mortality among infants by number of vaccine doses and age, based on the Vaccine Adverse Event Reporting System (VAERS), 1990-2010. Goldman GS, Miller NZ. *Hum Exp Toxicol* 2012 Oct; 31(10):1012–21. DOI:10.1177/0960327112440111
[PubMed Link](#)
- [22] Comparison of VAERS fetal-loss reports during three consecutive influenza seasons: Was there a synergistic fetal toxicity associated with the two-vaccine 2009/10 season? Goldman GS. *Hum Exp Toxicol* 2012 Oct;31(10):1012–21. DOI:10.1177/0960327112455067
[PubMed Link](#)
- [23] Review of the United States universal varicella vaccination program: Herpes zoster incidence rates, cost-effectiveness, and vaccine efficacy primarily based primarily on the Antelope Valley Varicella Active Surveillance Project data. Goldman GS, King PG. *Vaccine* 2012; 31(13):1680–94. DOI: 10.1016/j.vaccine.2012.05.050
[PubMed Link](#)
- [24] Vaccination to prevent varicella: Goldman and King's response to Myers' interpretation of Varicella Active Surveillance Project data. Goldman GS, King P. *Hum Exp Toxicol.*, 2014 Aug. 33(8):886–93. DOI: 10.1177/0960327113512340
[PubMed Link](#)
- [25] Case Study: Varicella Vaccine and the Suppression of Data. Miller NZ, Goldman GS. *Journal of American Physicians and Surgeons*, Spring 2022; 27(1):15–20.
[PDF Link](#)
- [26] Insights on the impact of external and internal boosting on varicella-zoster virus reactivation based on evidence from the first decade of the United States universal varicella vaccination program. Goldman GS. *Cureus*, 2021 Aug. 6; 13(8):e16963. DOI: 10.7759/cureus.16963
[PubMed Link](#)
- [27] Interview with Gary Goldman, Ph.D., on CDC suppression of undesirable vaccine data. Miller NZ.
[PDF Link](#)
- [28] Examples of output reporting bias in vaccine studies: illustrating how medical consensus can impede progress in public health. Goldman GS. *Cureus*, 2022 Sep. 21; 14(9):e29399. DOI: 10.7759/cureus.29399
[PubMed Link](#)
- [29] Reaffirming a positive correlation between number of vaccine doses and infant mortality rates: a response to critics. Goldman GS, Miller NZ. *Cureus* 2023 Feb. 2; 15(2):e34566. DOI: 10.7759/cureus.34566
[PubMed Link](#)
- [30] Neonatal, infant, and under age five vaccine doses routinely given in developed nations and their association with mortality rates. Miller NZ, Goldman GS. *Cureus* 2023 Jul. 20; 15(7):e42194. DOI: 10.42194/cureus.42194
[PubMed Link](#)

Engineering and CAD Publications

- [1] Artificial Intelligence, abstract published and presented at the 4th Annual ACM (Association of Computer Machinery) Computer Science Conference, Feb 12, 1976 Anaheim, CA.
- [2] PRISM: An Educational Aide to Symbolic Differentiation and Simplification of Algebraic Expressions, COED (Computers in Education, Division of ASEE), Transactions, Vol. IX, No. 2, 1977, pages 13-32; also presented and published at the WESCON (Western Electric Show and Convention), Los Angeles Convention Center, September 17, 1976. [Abstract Link](#)
- [3] A FORTRAN IV Implementation for the Numerical Determination and Mohr Diagram Representation of the Triaxial State of Stress at Point, COED (Computers in Education, Division of the American Society of Engineering Education), Application Note No. 42, 1977.
- [4] Constructing Stylish Characters on Computer Graphics Systems, Computers in Education Division of ASEE (COED); Vol. XII, No. 11, 1980, pages 111-122. [Abstract Link](#)

- [5] Computer Aided Design Analysis of Safety Factors Based on Theories of Failure, 1977 Symposium on Application of Computer Methods in Engineering.
- [6] IGL (Interactive Graphics Language) Reference Manual, CalComp Systems Division, Manual No. 116e, Nov., 1978.
- [7] IGL (Interactive Graphics Language) Procedures Library, CalComp Systems Division, Manual No. 1164, Nov., 1978.
- [8] The power wheel--Elimination of energy consuming drive components, IEEE (Institute of Electrical and Electronics Engineers) Region V Annual Conference, "Energy 1978", Tulsa, Oklahoma, April 15-17, 1978; IEEE Cat. No. 78Ch1283-1, pp. 95-99. [Abstract Link](#)
- [9] The power wheel--Electromotive torque for vehicular applications, 28th IEEE Vehicular Technology Conference, pp. 119-132, March 22-24, 1978; Denver, CO. [Abstract Link](#)
- [10] Wheel Hub Motors Applied to Electric Vehicle Propulsion, 14th Intersociety Energy Conversion Engineering Conference (IECEC), published by American Chemical Society, Volume 1, pp. 632-636, Aug. 5-10, 1979; Boston, MA
- [11] Field Study of the Goldman-Blake Remediation System and Its Effectiveness with Visually Impaired Children, Hope Haven Association/The Florida School for the Deaf and Blind, 1979.
- [12] A Heuristic Algorithm for Intersection Cleanup--Implemented in IGL, Copyright 1979, Computers in Education, Division of the American Society for Engineering Education (COED), P.O. Box 308, West Long Branch, NJ 07764; Also published in Proceedings of COMPSAC79, The IEEE Computer Society's Third International Computer Software & Applications Conference, IEEE Catalog No. 79CH1515-6C, pp. 757-762, Nov. 6-8, Chicago, IL. [Abstract Link](#)
- [13] The Power Wheel, front cover feature in the Fall, 1980 issue of the journal Science and Mechanics.
- [14] MDAS: Mechanical Design Application Software, Copyright ©1981 by Cascade Graphics Development.
- [15] A New Era in Computer Aided Drafting, Copyright ©1982 by Cascade Graphics Development.
- [16] PGL: Pascal Graphics Library, Programmer's Guide, Copyright ©1983 by Cascade Graphics Development.
- [17] Cascade V/X Reference Manual, Copyright ©1984 Cascade Graphics Development; User's Manual complete with glossary, description of graphics tasks, and tutorial.
- [18] ASAP: Architectural Software Application Package, Copyright ©1984 by Cascade Graphics Development.
- [19] Micro-based CAD: A Production Tool for Manufacturing Engineering, Computer Graphics Applications for Management and Productivity (CAMP), West Berlin, Germany Sept. 25-26, 1984, 4(4):287-300. Also, Microprocessor Seminar Proceedings of the American Production and Inventory Control Society (APICS), Jan. 30-Feb. 1, 1984, pp. 74-83. [Abstract Link](#) or [Full PDF](#)