

**EDUCATION**

Over seven years of formal coursework providing a broad foundation in interdisciplinary problem solving with emphasis on structures, materials, and fluids. Strong computing background in numerical methods and mathematical modeling.

Considerable depth in applied mathematics with upper level and graduate coursework in multivariate calculus, vector analysis, linear algebra, complex analysis, partial differential equations, and graph theory.

Ph.D. degree, Civil and Environmental Engineering  
 University of South Florida, Tampa, FL, 1998

M.S.C.E. degree, Civil Engineering and Mechanics  
 University of South Florida, Tampa, FL, 1993

B.S.C.E. degree, Civil Engineering and Mechanics  
 minor in mathematics, summa cum laude  
 University of South Florida, Tampa, FL, 1987

**PUBLICATIONS**

Davis, T. G. (1999). "Total least-squares spiral curve fitting." *J. Surv. Engrg.*, ASCE, 125(4), 159-176.

Davis, T. G. (1998). "Total least squares curve fitting," Ph.D. dissertation, University of South Florida, Tampa, Fla.

Davis, T. G., and Lin, S. (1996). "Discussion of 'Intersection of spiral curve with circle,' by Olcay Öztan, Orhan Baykal, Oguz Müftüoğlu, and Muhammed Sahin." *J. Surv. Engrg.*, ASCE, 122(4), 181-183.

Davis, T. G. (1996). "Discussion of 'Survey distance units: a better way,' by Larry E. Stanfel." *J. Surv. Engrg.*, ASCE, 122(1), 42.

Davis, T. G. (1994). "Finite-element volumes." *J. Surv. Engrg.*, ASCE, 120(3), 94-114.

Davis, T. G. (1993). "Finite element volumes," Master's thesis, University of South Florida, Tampa, Fla.

**CERTIFICATION**

Professional Surveyor and Mapper No. 5177, Florida, 1993

Professional Engineer No. 43261, Florida, 1990

3Com Ethernet dealer certification, Atlanta, GA, 1987

AutoCAD dealer certification, Sausalito, CA, 1986

**EXPERIENCE**

More than twenty years of progressively responsible experience in the support and management of business and technical systems emphasizing geometric design and automation.

Extensive experience in the application of mathematical analysis and computer programming to problems in civil engineering and land surveying.

**Metzger & Willard**, Tampa, FL

**Vice President of Surveying**, 2004-Date

Direct the field and office activities involved in surveying, monumenting, and mapping in order to establish property lines, rights-of-way, and government land corners, and ensure the proper placement of engineering projects such as streets, bridges, sewers, and drainage improvements. Supervise, coordinate, and assign work to survey crew leaders. Supervise and authorize all surveys. Research, recommend, and implement new techniques and technologies in the practice of land surveying.

**EXPERIENCE  
(continued)****University of South Florida, Tampa, FL****Instructor, Civil and Environmental Engineering, 1998-2004**

Teaching responsibilities included courses in mechanics, graphics, surveying, and numerical methods. Strong involvement in ABET/SACS accreditation process and NCEES exam review.

Projects included 3-parameter lognormal curve fitting of simulated earthquake data, geometric DXF data extraction for geotechnical applications, 3D plane fitting using singular value decomposition for finite element mesh generation, and total least squares cylinder fitting.

**CLM/Systems, Tampa, FL****Applied Mathematician, 1990-1998**

Designed and coded CEAL (Civil Engineering Automation Library) command modules in F90 and C under DEC VAX/VMS and MS-DOS. Performed procedural and mathematical analysis of 3-dimensional, superelevated bridge deck geometry for steel detailing. Provided consulting on multilayered quantities computation for tunneled, bridged, and ramped interstate highway reconstruction. Conducted research into spiral splines, Boolean combinations of polygons, 3D coordinate transforms, and conformal map projections. Designed and coded VB applications for digital terrain modeling using Intergraph GeoMedia API under Win 95/98/NT.

Algorithms included orthogonal least squares line, circle, parabola, and spiral curve fitting; constrained least squares parabolic curve fitting; constrained vertical curve constructions; finite element volumes; tapered offset profile constructions; compound spiral curve intersection, projection, tangent, offset, and tapered offset constructions; circular, parabolic, and spiral curve graphics rendering optimization; and Helmert coordinate transformations.

**Tallamy, Van Kuren, Gertis & Associates, NY, PA, FL****Systems Engineer, 1987-1990**

Reported directly to controller and general manager of 150-employee firm. Supervised support personnel in New York and Pennsylvania. Devised and implemented firm-wide microcomputer training programs. Established firm-wide office automation procedures and CADD standards. Planned and purchased all computing hardware and software. Performed direct output of civil engineering/land surveying product as needed.

Supported all areas of office automation, CADD, and civil engineering/land surveying computation including management information, sales & marketing, photogrammetry, hydrographic surveying, route surveying, site planning, hydraulics, and hydrology.

Designed and coded a series of translators, formatters, and other custom software written in dBASE, BASIC, LISP, and macro languages to provide data paths between hardware devices including survey data recorders, and software products including AutoCAD, Softdesk (DCA), Microstation, HydroPro, ArcInfo, CEAL, KYPIPE, BRN (Basin Routing Network), and ICPR (Interconnected Channel and Pond Routing).

**EXPERIENCE  
(continued)****Advanced Microcomputer Solutions, Tampa, FL****Systems Analyst, 1985-1987**

Designed and installed hardware/software systems for CADD, coordinate geometry, stormwater hydrology, desktop publishing, accounting, office automation, and management applications in civil consulting/land surveying disciplines. Gained thorough familiarity with LAN applications emphasizing CADD and relational database management. Representative projects included the sale (design, installation, configuration, and support) of CADD, project management, and accounting LANs to both public and private sector clients.

Designed technical software involving Romberg integration, least squares regression, Taylor series expansion, and finite difference calculus for applications in hydraulics, hydrology, earthworks, and coordinate geometry.

**Eastes & Associates, Tampa, FL****Survey Technician, 1982-1985**

Conducted survey data processing including boundary determination, section subdivision, state plane coordinate conversion and control, horizontal and vertical field data reduction and adjustment, subdivision design and coordination, and preparation of legal descriptions and record plats.

Designed and maintained custom software for coordinate geometry, text processing, spreadsheet, and relational database applications including client billing and employee payroll. Coordinate geometry algorithms included section breakdown, three-point curves, inverse side shot, curve data tables, and chord-arc solutions of horizontal curves.

**Sprinkle Consulting Engineers, Lutz, FL****Civil Technician, 1979-1982**

Analyzed and designed hydraulic and hydrologic systems. Created microcomputer algorithms for storage indication reservoir routing with a variety of FDOT IDF and SCS derived inflow hydrographs. Conducted research into the automation of stormwater facilities design and computation of prismatic volumes. Designed earthworks and commercial and residential subdivision coordinate geometry.

Coded system level utilities in 6502, 8080, and Z80 assembler. Designed and authored client billing and management information system written in dBASE II running under UCSD p-System hosted CP/M.

**HONORS**

SHPE True Leadership Award, USF, 2004  
 ASCE Instructor of the Year, USF, 2002, 2004  
 Phi Kappa Phi Graduate Scholarship, USF, 1997  
 University Graduate Fellowship, USF, 1995, 1996  
 Graduate Council Fellowship, USF, 1980  
 Member ASCE, 2000  
 Member Tau Beta Pi, USF, 1978  
 Member Phi Kappa Phi, USF, 1978