

RONALD A. COX

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EDUCATION

Ph.D. (1989), Aerospace Engineering, Iowa State University, Ames, IA
Dissertation title: Navier-Stokes solutions of 2-D transonic flow over unconventional airfoils

M.S. (1983), Aerospace Engineering, University of Texas at Arlington, Arlington, TX
Thesis title: Utilization of a modified linear theory code as an economical approach to transonic wing design

B.S. (1979), Aerospace Engineering (with distinction), Iowa State University, Ames, IA

9/75-5/77, Engineering, Loras College, Dubuque, IA

PROFESSIONAL EXPERIENCE

Principal, Midwest Workforce Strategies, Ames, IA 50010 (8/22-present)

Conduct research on workforce shortages and solutions, provide keynote talks at conferences, and lead strategic planning workshops for organizations' boards of directors and executive teams. Have presented to and worked with over 1,000 companies, ranging in size from sole-proprietorships to Fortune 100 companies. Work in numerous industries, including manufacturing, healthcare, construction, government, education, transportation, finance, and insurance.

Iowa State University, Ames, IA 50011

Director, CIRAS (2/01-1/23)

Provided leadership as Director of the Center for Industrial Research and Service (CIRAS), the engineering and business outreach arm of the College of Engineering. Co-reported to the Dean of the College of Engineering, the Vice President for Economic Development and Business Engagement, and the Vice President for Extension and Outreach.

The mission of CIRAS is to improve the quality of life in Iowa by enhancing the performance of industry through applied research, education, and technology-based assistance. CIRAS conducted applied research to understand issues affecting Iowa industry, operated three federal business outreach programs (DOC-NIST Manufacturing Extension Partnership, DOD-DLA Procurement Technical Assistance Program, and DOC-EDA University Center program), and managed the State of Iowa Technology Assistance Program. Until recently, CIRAS had also managed the national BioPreferred program for USDA.

The CIRAS budget was approximately \$9 million, which included funding from the university, the State of Iowa, grants, contracts, and fees. Center operation requires the management of \$3 million in matching funds from within the CIRAS budget and from a dozen contractual partners. Funding agencies have included the Department of Defense (DOD), the Economic Development Administration (EDA), the Department of Energy (DOE), the Department of Health and Human Services (DHHS), the National Institute of Standards and Technology (NIST), the United States Department of Agriculture (USDA), the Iowa Department of Transportation, the Iowa Energy Center, the Iowa Economic Development Authority, among others. Responsibilities included oversight of 40 staff and 5-25 students who provided assistance to Iowa's 10,000 manufacturing, construction, IT, and professional and scientific services companies. Staff possessed expertise in various areas, including strategic planning, enterprise leadership, business growth, productivity, and technology.

Accomplishments included the development of a total of six strategic plans for CIRAS and two other ISU outreach programs; management (PI or Co-PI) of nearly \$40 million of grants and contracts while at ISU; development of standardized industry contracts for capstone design projects; design and development of an all-inclusive client, program, and staffing database that is tied to a performance evaluation system (now Salesforce based); development of an equity and diversity plan, which was used as a model for Cooperative Extension at ISU; successful merger of three different units and two industry advisory boards, while cutting administrative staff in half; growth of median staff salaries 1% per year above inflation adjusted values, despite state budget reductions; co-development of PIE² (the Partnership for Industrial Energy Efficiency), a partnership between utilities and ISU units involved with energy education; co-development of a Board of Regents Biobased Industry Center, which received pledges of \$1.1 million of industry funding in the first year of operation; management of Iowa efforts to develop industry sub-sector strategic plans; and design of the CIRAS website.

CIRAS team accomplishments included the development of a student employee handbook that has been used as a model in several ISU centers; creation of a rapid-response system to respond to businesses impacted by disasters, which was implemented during the 2008 Iowa flood; completion of a system-wide risk assessment analysis; development of a new staff orientation and mentoring process; implementation of an employee engagement survey and continuous improvement system; creation of standard operating procedures for core business processes; development of contractual partnerships with more than a dozen entities, including ISU centers and institutes, community colleges, Iowa Farm Bureau, the Iowa Association of Business and Industry, the Iowa Innovation Corporation, and the Iowa Area Development Group; design of a new economic development model based on the financial, social, and environmental health of a community and key business drivers; leadership in the creation of BIOWA, a biobased industry association; co-authoring of a book on biodiesel manufacturing and an associated workshop that drew international participants; strategic development, operational management, and biobased research for the national USDA BioPreferred program, which located 3,500 U.S. companies that sold 28,000 end-use biobased products; ISO certification for the ISU portion of the BioPreferred program; and co-leadership with USDA for the development of the USDA Certified Biobased Products Labeling program. CIRAS staff and partners serve over 1,500 distinct clients annually, generating more than \$600 million in client-documented economic impact, including the creation and retention of more than 5,000 jobs. Staff members have won numerous national awards for their accomplishments.

Adjunct Associate Professor, Department of Industrial and Manufacturing Systems Engineering (4/17-3/22)

Provided support to the Department of Industrial and Manufacturing Systems Engineering, as requested.

Adjunct Associate Professor, Department of Aerospace Engineering (6/02-3/22)

Provided support to the Department of Aerospace Engineering, as requested. Graduate faculty member (11/07-3/22). Ranked 2nd out of 292 College of Engineering faculty and staff in research expenditures in FY2013.

Associate Dean for Corporate Engagement (8/10-9/17)

Provided leadership as Associate Dean for Corporate Engagement, reporting to the Dean of the College of Engineering. The College had a base budget of more than \$100 million and research expenditures exceeding \$80 million.

Responsibilities included the development and implementation of the College's corporate strategic engagement plan and oversight of outreach units that reported to the Dean's office. Engineering Career Services was responsible for the placement of more than 9,000 students in summer, internship, co-op, and full-time positions. Engineering-LAS Online Learning (ELO) was a partnership with the College of Liberal Arts and Sciences that provided online, for-credit courses to LAS undergraduates and COE graduate students who were predominantly off-campus. ELO also provided online pedagogy and technology support for on-campus students and developed non-credit educational programs for industry. Engineering K-12 Outreach led statewide Project Lead the Way (PLTW) programming, FIRST LEGO League programs, and STEM summer camps for youth. Additional responsibilities included designing and implementing improved corporate engagement processes, supporting the Dean's Industry Advisory Council, and serving on the Dean's executive team. Responsible for overseeing as many as 30 staff members and dozens of student employees who provide assistance to more than 1,000 distinct companies each year.

Responsibilities also included college facilities planning, college IT planning, management of the central college IT staff, representation on the Big 12 Consortium for undergraduate course sharing, representation for the Dean's office on the faculty Conflict of Interest and Commitment committees, IAWIND board representation, and development of methods to enhance industry engagement with senior design classes.

Accomplishments included the design of a college corporate engagement strategic plan; design of a university economic development strategic framework; redesign of the college IT governance and operations structure; completion of an in-depth analysis of distance education costs using an activity-based costing approach; transition of the leadership structure of online education to a Professor-In-Charge and unit director model; development of a data warehouse to pull corporate data from across campus; completion of a detailed use analysis of the college's one million square-foot facilities; design of a preliminary plan to absorb 25,000 sq-ft of college activities into existing space due to the creation of the Student Innovation Center; and update of all college committee charges and deliverables.

The corporate team's accomplishments included management of one of the largest engineering career fairs in the country, in-profession placement of more than 95% of students within six months of graduation, a 12% annual growth in online graduate courses, a 22% annual growth in PLTW sites, and a 30% annual growth in FIRST LEGO League teams.

Interim Assistant Vice President for Extension and Outreach (1/12-12/13)

Served on the executive team of the Vice President for Extension and Outreach. Extension and Outreach (EO) puts the land-grant mission to work by applying university research and evidence-based practices across the state to help the citizens of Iowa. ISU EO had an ISU and county extension budget of \$98 million and more than 1,200 staff. Responsibilities included developing new growth, operations, and HR strategies; creating business plans; implementing lean process improvements; overseeing EO operations; supporting 4-H budgeting and strategic planning; and managing special projects for the Vice President. Responsible for managing 50 staff members in the EO operations units, which encompassed finance, IT, human resources, communications, publications distribution, and conference planning and management.

Accomplishments included the development of an improved EO policy library mirroring the ISU policy library; completion of the first complete analysis of EO-wide business and economic development assistance in Iowa (EO assisted 24,107 distinct businesses in 2013); completion of business plans for each of the operations units; elimination of numerous inefficient operations reports; development of a structured and transparent budgeting process; development of service-level budgets for the operations units to determine which service areas were overstaffed and/or under-charging; analysis and recognition that EO administration was subsidizing counties for more than 3% of their total budget; centralization of fiscal services to bring consistency to all extension program units; development of a standardized employee separation system; initiation of a standardized, online, annual goal setting and performance evaluation system; reorganization of support units to aggregate like skills, reduce duplication, and build backup capability; right-sizing and redesign of the communications unit to resolve a \$200k deficit; development of a new communications structure between central- and program-unit operations staff; analysis and recognition of sustainability issues within the publications unit; design of a strategic financial framework for the publications unit; recognition of duplicative event management systems within EO; and renegotiation of the conferencing contract between ISU and the Ames Convention and Visitors Bureau.

Team accomplishments included the successful resolution of six internal audit findings; support for the development of MOUs with the county extension service and the 4-H Foundation; generation of annual savings of nearly \$1 million due to continuous improvement initiatives, reorganization of support units, and development of new funding streams; movement of duplicative fiscal operations to other finance units at ISU; development of fiscal standard operating procedures; development of an improved system to collect 4-H program fees from the counties; implementation of a number of fiscal changes within the 4-H program to bring it into alignment with university guidelines; recognition of numerous concerns with the fiscal operation of the 4-H Foundation; recognition of numerous concerns with the operation of the 4-H camping center; development of a near-sustainable budget model for the 4-H camping center; support for the development of a new county MOU that included a reduction of subsidies within a five-year period; conversion of the high-level EO webpages to Drupal; development of an IT disaster recovery plan; transition to secure credit card transactions across EO; creation of an EO HR lean process plan; initiation of new publication

shipping and handling charges; implementation of lean publication ordering processes for counties; implementation of new lean warehousing processes; elimination of publication/warehousing subsidies and services to off-mission entities; elimination of 75% of the publication warehouses and 67% of hardcopy publications, which included transition to on-line versions; development of a new cost structure for events; implementation of an event evaluation process; and implementation of a new conference registration and event management system.

Assistant Dean for Economic Development (10/09-7/10)

Served on the Dean of Engineering's executive team. Provided College leadership for state economic development activities. Provided support for strategy development and process improvements.

Interim Director, Iowa Manufacturing Extension Partnership (10/04-12/05)

Provided leadership to the five center staff and numerous partners associated with the NIST-affiliated Manufacturing Extension Partnership program in Iowa. The mission of the Iowa MEP was to enhance and strengthen the global competitiveness of Iowa manufacturing by providing information, decision support, and implementation assistance to manufacturing firms in adopting new, more advanced manufacturing technologies, techniques, and best business practices. Managed a budget of \$1.9 million of NIST/MEP funds and \$3.7 million of matching funds. Led the effort to merge the program with CIRAS.

Interim Director, Engineering Distance Education (3/03-7/05)

Provided leadership to a team of five staff members and 20 students in the College of Engineering's distance education unit, which delivered graduate engineering courses to 800 off-campus students. Managed a budget of \$600,000.

Industrial Specialist, CIRAS, Iowa State University (3/97-2/01)

Provided manufacturing assistance to Iowa manufacturers for the Center for Industrial Research and Service of Iowa State University Extension. Industrial Specialist responsibilities included management of a seven-county territory near Mason City, Iowa. Provided technical assistance in the areas of product design, testing, productivity, industrial ventilation, and quality systems. Developed workshops on *Investigative Techniques* and *Product Design and Development*. Managed a Total Assessment Audit (TAA) project funded by the Iowa Energy Center, as well as various Iowa Incentive Program-funded engineering projects with manufacturers. Managed the state of Iowa's *Industries of the Future* program funded by the Department of Energy. This work included the development of a Bioeconomy Vision and Roadmap for the State of Iowa. Chaired the CIRAS Grants Committee.

Vice President of Engineering, Tower Tech, Inc., Chickasha, OK 73018 (1/95-2/97)

Directed design and manufacturing engineering efforts of fiberglass cooling tower line with gross sales of \$12 million per year. Responsible for research and development of new products and the development of design, analysis, and marketing software. Involved with issues associated with numerous manufacturing materials and processes, including concrete, fiberglass, extrusion, injection molding, rotational molding, and pultrusion. Developed and implemented the company's quality

assurance and productivity programs. Sales and stock value grew fourfold during my tenure with the company.

University of Oklahoma, Norman, OK 73019

Assistant Professor, School of Aerospace and Mechanical Engineering (1/89-12/94)

Research: Initiated and managed the first research workstation network in the College of Engineering. Research included the development of a new, time-accurate Total Variation Diminishing (TVD) scheme for the solution of the solute transport equations, analysis of entropy production associated with finite-difference schemes, development of a device to increase the lift-to-drag ratio of fighter and commercial aircraft, and the optimization of hypersonic vehicles with integrated control surfaces.

Teaching: Emphasis on the incorporation of numerical methods into the curriculum. Initiated a STEM enrichment program for fifth-grade girls from local elementary schools. Developed a UNIX-based (pre-www) approach to disseminating course information to students 24-7. Developed Windows-based CAI software in fluid mechanics.

Undergraduate courses (times taught): Introduction to Engineering (2), Thermodynamics (2), Solid Mechanics (2), Heat Transfer and Fluid Mechanics (3), Fluid Mechanics (1), Numerical Methods for Engineering Computation (6), Aerodynamics (5), Aerodynamics Laboratory (3), and Stability and Control (1).

Graduate courses (times taught): Finite Difference Methods of Engineering Analysis (5), Computational Fluid Dynamics (2), Finite Element Methods in Fluid Dynamics (1), and Viscous Fluid Dynamics (1).

Service: Chair of the Campus Computing Advisory Committee and the College of Engineering Computing Advisory Committee. Member of the School of Aerospace and Mechanical Engineering's (AME) Computer Committee and Graduate Exam Committee. Campus representative for the American Society of Engineering Education (ASEE). Faculty advisor for the Spirit of Oklahoma III solar car aerodynamics team and Sigma Gamma Tau Aerospace Honorary. Director of a campus effort to acquire a Hypersonics Center of Excellence. System administrator for the departmental computer network.

Research Scientist, School of Meteorology (5/91-8/91)

Developed a finite-volume formulation of the density current problem in meteorology.

Iowa State University, Ames, IA 50011

Graduate Research Assistant, Department of Aerospace Engineering (1/84-5/84; 10/85-12/88)

Investigated upwind finite difference schemes and their application to transonic flow around unconventional airfoils. Research funded by NASA.

Instructor, Department of Aerospace Engineering (8/84-5/85; 8/88-12/88)

Undergraduate courses (times taught): Aerodynamics (3), Aerodynamics Laboratory (3), and Introduction to Aerodynamics and Space Flight (1).

**Pre-Doctoral Associate, Applied Mathematical Sciences Group, Ames Laboratory
(5/84-8/84; 5/85-9/85)**

Investigated numerical approaches to solving the direct and inverse wave scattering problems.

**Aerodynamics Engineer, Aeroanalysis Group, General Dynamics/ Fort Worth
Division (now Lockheed Martin), Fort Worth, TX 76101 (8/79-1/83)**

Provided aerodynamic analysis and wing design support for the NAVY VTX trainer and AFTI/F-16 programs. Initiated and led a program to integrate all aerodynamic computer codes into a centralized aerodynamic analysis, optimization, and design package. Program manager for Office of Naval Research contracts totaling \$150,000 to manufacture and conduct transonic wind tunnel tests on a Navy VTX trainer prototype. Principal investigator for Independent Research and Development funds (\$60k) aimed at improving transonic prediction methods for maneuvering fighter aircraft. Security Clearance: Secret

Student Engineer, Boeing Co., Seattle, WA 98124 (6/78-8/78)

Assisted project engineers in testing early versions of the 757 and 767 aircraft at the Boeing Transonic Wind Tunnel.

**GRANTS/ CONTRACTS/ COOPERATIVE AGREEMENTS/ MOU'S/
FOUNDATION GIFTS (ISU PI or Co-PI)**

- Disadvantaged Business Enterprise Support Services Program, Iowa Department of Transportation (Federal DOT flow-through funds), \$133,000, 2021.
- iWIN: Iowa Workforce Innovation Network, University Center Economic Development Program, Economic Development Administration, \$690,000, 2018.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$659,220, 2018.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$600,000, 2017.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$600,000, 2016.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$600,000, 2014.
- University Center Economic Development Program, Economic Development Administration, \$1,250,000, 2013.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$435,911, 2013.
- FIRST LEGO League for the Northeast Iowa STEM Hub, University of Northern Iowa, \$64,620, 2012.
- FIRST LEGO League for the Northwest STEM Hub, Iowa Lakes Community College, \$58,720, 2012.

- FIRST LEGO League for the Southeast Iowa STEM Hub, University of Iowa, \$69,900, 2012.
- FIRST LEGO League for the Southwest STEM Hub, Southwestern Community College, \$62,400, 2012.
- FIRST LEGO League for the South-central STEM Hub, Drake University, \$43,740, 2012.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$600,000, 2012.
- BioPreferred Program, Department of Agriculture, \$523,035, 2012.
- Extension Supporting Military Families Partnership, University of Nebraska, \$79,874, 2012.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$435,911, 2011.
- BioPreferred Program, Department of Agriculture, \$1,184,454, 2010.
- University Center Economic Development Program, Economic Development Administration, \$613,533, 2010.
- Enhancing Energy Education in Iowa, Iowa Office of Energy Independence, \$458,338, 2010.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$428,025, 2010.
- Advanced Metrology for Wind Energy Manufacturing, IAWIND, \$95,000, 2010.
- Iowa Center for Industrial Research and Service, National Institute of Standards and Technology, \$1,859,206, 2009.
- University Center Economic Development Program, Economic Development Administration, \$135,099, 2009.
- BioPreferred Program, Department of Agriculture, \$1,500,000, 2009.
- Iowa Procurement Technical Assistance Center, Defense Logistics Agency, \$510,140, 2009.
- Iowa Center for Industrial Research and Service, National Institute of Standards and Technology, \$1,859,206, 2008.
- University Center Economic Development Program, Economic Development Administration, \$120,000, 2008.
- Biobased Markets Program, Department of Agriculture, \$1,000,000, 2008.
- Biobased Industry Center, \$330,000, membership fees from ADM, Cargill, Ceres, ConocoPhillips, General Motors, Hawkeye Energy Holdings, Monsanto, and West Central, 2008.
- New Delivery System for the Iowa Procurement Outreach Center, Defense Logistics Agency, \$277,328, 2008.
- Sloan Center for the Biobased Products Industry, Sloan Foundation, \$45,000, 2007.
- Sloan Center for the Biobased Products Industry, Pioneer, \$50,000, 2007.
- Iowa EDA University Center Program, Economic Development Administration, \$110,000, 2007.
- Iowa Center for Industrial Research and Service, National Institute of Standards and Technology, \$1,859,206, 2007.
- Development of a Biobased Products Evaluation, Labeling, and Outreach Program, Department of Agriculture, \$1,844,500, 2007.
- New Delivery System for the Iowa Procurement Outreach Center, Defense Logistics Agency, \$277,328, 2007.
- Advanced Manufacturing: Enhancing the Competitiveness of Iowa's Small Manufacturers, Iowa Department of Economic Development, \$100,000, 2006.
- Initial Assessment of Iowa O'Neal Steel Plant, University of Alabama, \$3,000, 2006.
- Evaluation of the Emerging Biobased Economy – Phase II, Department of Agriculture, \$150,000, 2007.

- Iowa Center for Industrial Research and Service, National Institute of Standards and Technology, \$1,704,271, 2006.
- Development of a Biobased Products Evaluation, Labeling, and Outreach Program, Department of Agriculture, \$1,770,000, 2006.
- University Center Program, Economic Development Administration, \$95,000, 2006.
- Evaluation of the Emerging Biobased Economy – Phase I, Department of Agriculture, \$146,450, 2006.
- New Delivery System for the Iowa Procurement Outreach Center, Defense Logistics Agency, \$277,328, 2006.
- Development of a Biobased Products Evaluation, Labeling, and Outreach Program, Department of Agriculture, \$1,968,384, 2005.
- University Center Program, Economic Development Administration, \$95,000, 2005.
- Iowa Manufacturing Extension Partnership, National Institute of Standards and Technology, \$1,859,206, 2005.
- New Delivery System for the Iowa Procurement Outreach Center, Defense Logistics Agency, \$277,328, 2005.
- Assessment and Strengthening Program of Rural Iowa Manufacturing, Economic Development Administration, \$250,000, 2004.
- University Center Program, Economic Development Administration, \$95,000, 2004.
- Demand Side Management Energy Efficient Motor, Interstate Power and Light Company, \$71,200, 2004.
- Development of a Biobased Products Evaluation, Labeling, and Outreach Program, Department of Agriculture, \$875,000, 2004.
- Iowa Manufacturing Extension Partnership, National Institute of Standards and Technology, \$535,829, 2004.
- University Center Program, Economic Development Administration, \$21,250, 2004.
- A New Delivery System for the Iowa Procurement Outreach Center, Defense Logistics Agency, \$277,328, 2004.
- Extension to Internal MOU: NIST-ISU Cooperative Agreement, Iowa Manufacturing Extension Partnership, \$42,500, 2004.
- Snowplow Impact Reduction System, Snowman Snowplow, \$7,776, 2003.
- Development of a Biobased Products Evaluation, Labeling, and Outreach Program, Department of Agriculture, \$1,000,000, 2003.
- Game Controller, Thomas Enterprises, \$9,645, 2003.
- A New Delivery System for the Iowa Procurement Outreach Center, Defense Logistics Agency, \$277,328, 2003.
- Industries of the Future, Iowa Energy Center, \$20,000, 2003.
- Iowa Industries of the Future: Water/Wastewater, Iowa Department of Natural Resources, \$50,000, 2003.
- Cooling Tunnel Design: Phase 1, Schebler Company, \$5,859, 2003.
- University Center Program, Economic Development Administration, \$85,000, 2003.
- Design of the System Required to Control the Operation of the Hide Folding Machine, Denison Engineering Corporation, \$16,002, 2003.
- Industries of the Future, \$15,000, Iowa Energy Center, 2003.
- Industries of the Future 03, Iowa Department of Natural Resources, \$90,909, 2003.

- Extension to Internal MOU: NIST-ISU Cooperative Agreement, Iowa Manufacturing Extension Partnership, \$150,000, 2003.
- Incorporation of the Flexion Component on the Control System of the Galaxy Ultimate Chiropractic Table, Lloyd Table Company, \$5,336, 2002.
- Development of a Biobased Products Evaluation, Labeling, and Outreach Program, Department of Agriculture, \$900,000, 2002.
- Iowa Procurement Outreach Center, Iowa Department of Economic Development, \$62,000, 2002.
- Design and Analysis of Jumpshot Basketball Game, Kangaroo Recreation Company, \$4,788, 2002.
- Disk-Harrow Finite Element Analysis, E-Ject Systems, \$3,600, 2002.
- Iowa Procurement Outreach Center, Defense Logistics Agency, \$148,170, 2002.
- Developing a Universal Design Kitchen, Department of Health and Human Services, \$197,400, 2002.
- University Center Program, Economic Development Administration, \$85,000, 2002.
- Internal MOU Amendment #6: NIST-ISU Cooperative Agreement, Iowa Manufacturing Extension Partnership, \$150,000, 2002.
- Bottom Freezer Automatic Ice Dispenser System Phase II: Prototype Development, Maytag Appliances, \$17,762, 2001.
- Lloyd Table Analysis Summary: Phase I Automated Chiropractic Table Controls System, Lloyd Table Company, \$15,221, 2001.
- Iowa Procurement Outreach Center, Iowa Department of Economic Development, \$41,262, 2001.
- Hog Watering System Product Development Project Phase II, Ritchie Industries, \$56,934, 2001.
- Propy Angle Development, B. Randolph, \$10,770, 2001.
- Feasibility Study and Testing of VibraComm Device, Genisus Systems, \$34,211, 2001.
- Bottom Freezer Automatic Ice Dispenser System Phase I – Design Development, Amana Refrigeration, \$8,800, 2001.
- Bottling Machine Product Development Project, Phoenix Manufacturing, \$3,605, 2001.
- Hog Watering System Product Development Project, Ritchie Industries, \$3,533, 2001.
- New Hair Styling Tool Product Development Project, Casual Cuts, \$2,595, 2001.
- Iowa Procurement Outreach Center, Defense Logistics Agency, \$148,170, 2001.
- University Center Program, Economic Development Administration, \$90,000, 2001.
- IA Industries of the Future, Iowa Energy Center, \$15,000, 2001.
- 2001 State Energy Program Special Project – Iowa Industries of the Future Phase II, Iowa Department of Natural Resources, \$181,818, 2001.
- Extension-Based Information Dissemination to Accelerate IOF Implementation, Department of Energy, \$50,000, 2001.
- Stoyles Printing, Iowa Energy Center, \$34,493, 2001.
- Internal MOU Amendment #5: NIST-ISU Cooperative Agreement, Iowa Manufacturing Extension Partnership, \$388,287, 2001.
- Product Design Workshop for Manufacturers, Department of Commerce – Economic Development Administration, \$50,000, 2000.
- Development of Multi-Capillary Electrophoresis Detector, Combisep, \$43,314, 2000.
- Industries of the Future, Iowa Energy Center, \$16,400, 2000.

- Iowa Industries of the Future, Iowa Department of Natural Resources, \$181,818, 2000.
- Internal MOU Amendment #4: NIST-ISU Cooperative Agreement, Iowa Manufacturing Extension Partnership, \$404,466, 2000.
- Test of Holland Dolly Design, Ron Holland House Moving, \$1,688, 1999.
- Evaporator Soldering Process Design – Phase III, IMI Cornelius, \$2,093, 1998.
- Evaporator Soldering Process Design – Phase II, IMI Cornelius, \$3,125, 1998.

AWARDS/ HONORS/ SCHOLARSHIPS

- ISU Award for Achievement in Economic Development in Iowa, 2018.
- Legend in Manufacturing Award, Iowa Association of Business and Industry, 2017.
- (Team) University Economic Development Association Talent Development Award finalist, 2015.
- (Team) Professional and Scientific Council: Sweeney Building Fire, 2014.
- (Team) Economic Development Association University Center Business Assistance Award, 2009.
- (Team) MEP Medallion Award, NIST Manufacturing Extension Partnership, 2009.
- (Team) Best Paper award, Manufacturing Division, ASEE Annual Conference, 2008.
- (Team) Vice Provost's Special Citation - ISU University Extension, Budget Committee, 2004.
- First recipient of the Mason City Youth Task Force Asset Builder Award, 2000.
- Recipient of the Tom J. Love Most Outstanding Professor Award, University of Oklahoma, 1994.
- (Team) Engineering Open House award for most active engineering society - Sigma Gamma Tau, University of Oklahoma, 1990 and 1993.
- Recipient of the Tom J. Love Most Outstanding Professor Award, University of Oklahoma, 1992.
- Recipient of the University of Oklahoma Student Association Outstanding Engineering Professor Award, 1992.
- (Team) Faculty Advisor for the University of Oklahoma's SAE Aero Design '90 team. (National competition results: 1st-Place Design, 2nd-Place Overall).
- University of Oklahoma Junior Faculty Research Fellowship, 1990.
- NASA CFD Trainee Fellowship, Iowa State University, 1983.
- First Place Award, AIAA National Student Paper Competition, undergraduate division, 1980.
- Graduated with distinction from Iowa State University, 1979.
- First Place Award, AIAA Regional Student Paper Competition, undergraduate division, 1979.

UNIVERSITY COMMITTEES/ COUNCILS/APPOINTMENTS (Select)

- ISU Graduate Faculty member (2007-2022)
- ISU Associate Deans for Distance Education (2013-2016)

- ISU ITLC; formerly Information Technology Advisory Committee (2012-2015)
- ISU University Budget Advisory Committee (2012-13)
- ISU Extension and Outreach County Cost Share Committee (2004, 2013)
- ISU Research and Economic Development Council (2001-2012)
- ISU Future of Research Task Group (2011)
- ISU Extension Database Taskforce - Chair (2009-10)
- ISU Extension Reorganization Team (2009)
- ISU Provost Search Committee (2006)
- ISU Vice Provost for Extension Search Committee (2005)
- ISU Distance Education Council (2003-05)
- ISU Task Force on Centers and Institutes (2003-04)
- ISU Extension Director of Budget & Finance Search Committee - Chair (2003)
- ISU University Extension Budget Committee (2002)
- ISU CIRAS Grants Committee - Chair (1999-01)
- OU Faculty Advisor for the Sigma Gamma Tau Aerospace Honorary (1989-96)
- OU School of Aerospace and Mechanical Engineering Graduate Exam Committee: Fluids - Chair (1992-94)
- OU Campus Computing Advisory Committee - Chair (1992-93)
- OU College of Engineering Computing Advisory Committee - Chair (1991-92)

AFFILIATIONS/ COUNCILS/ BOARDS

- Iowa Economic Development Authority's Iowa Innovation Council Advanced Manufacturing Working Group (2015-2022)
- Iowa Alliance for Wind Innovation and Novel Design (IAWIND) (2010-2011)
- Iowa Innovation Council: Advanced Manufacturing Committee (2009-11)
- Best of Iowa Coalition (2010)
- Alliant Energy Performance Contracting Advisory Committee (2007-2010)
- Iowa Department of Economic Development Commercialization Committee (2006-2009)
- Iowa Advanced Manufacturing Research and Collaboration Cluster (2006-2009)
- Regional Strategic Workforce Sector Board in Advanced Manufacturing (2007-2009)
- American Industrial Extension Alliance (Vice President, 2002-2005; President, 2006-2008)
- Technology Association of Iowa Board Member (2004-2006)
- Tau Beta Pi Engineering Honor Society
- Phi Kappa Phi Honor Society
- Sigma Gamma Tau Aerospace Honor Society

PATENTS

Concealable Flap-Actuated Vortex Generator, U.S. Patent No. 5,253,828 (issued 10/19/93).

PUBLICATIONS, PRESENTATIONS

Congressional Reports

Cox, R. A., et al., *Biobased Economy Indicators, A Report to the U.S. Congress*, USDA Office of the Chief Economist, 2011.

Book Chapters

Bhateley, I. C. and Cox, R. A., "Application of Computational Methods to Transonic Wing Design," from *Transonic Aerodynamics*, edited by D. Nixon, Vol. 81, Progress in Astronautics and Aeronautics, New York, 1982.

Refereed Journals

Chen, J. C. and Cox, R. A., "Value Stream Management for Lean Office – A Case Study," *American Journal of Industrial and Business Management*, Vol. 2, No. 2, 2012.

Chen, K., Chen, J. C., Cox, R. A., "Real Time Facility Performance Monitoring System Using RFID Technology," *Assembly Automation*, Vol. 32, Iss. 2, 2012.

Chen, J. C., Li, Y., and Cox, R. A., "Taguchi-based Six Sigma approach to optimize plasma cutting process: an industrial case study," *International Journal of Advanced Manufacturing Technology*, Vol. 41, No. 7-8, 2009.

Cox, R. A., "A Quick Look at Prandtl's Lifting-Line Theory," *Computers in Education Journal*, September, 1996.

He, X., Rasmussen, M. L., and Cox, R. A., "Waveriders with Finlets," *Journal of Aircraft*, Vol. 31, No. 5, 1994.

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“What Does it Take to ‘Renew Rural Iowa?,’ Iowa Farm Bureau Annual Meeting, Des Moines, 2010.

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“The Future of Manufacturing at the Local, State, National and International Level,” Third Annual DavenportOne Existing Industries Luncheon, Davenport, 2004.

“Strengthening Regional Economies Through University-led Approaches,” Regional EDA Economic Development Forum - Competing Globally, Growing Regional Economies, Creating Jobs, Sioux City, 2004.

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Cox, R. A., “The Workforce Hype Cycle,” Department of Agricultural and Biological Systems Engineering Industry Advisory Council, 2025

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Cox, R. A., “The Midwest Workforce Hype Cycle,” Des Moines Area Community College Board of Directors, Ankeny, 2025.

Cox, R. A., “The Midwest Workforce Hype Cycle,” Shape the Future of Manufacturing Event, Minneapolis, 2025.

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Cox, R. A., “The Workforce Skirmishes,” Presentation given at over 100 conferences, Chamber of Commerce meetings, Rotary clubs, company leadership team meetings, and company board of directors meetings across Iowa, Missouri, and South Dakota, 2021-2022.

Cox, R. A., “Engaging Engineering Students with Iowa’s Manufacturers,” University Economic Development Association Annual Conference, Anchorage, 2015.

Cox, R. A., Hurd, G. M., and Meyers, M. E., “Meetups, Money and Measures - Building a Better Environment for Entrepreneurs,” University Economic Development Association Annual Conference, Anchorage, 2015.

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- *Writing a Marketing Plan*, American Management Association, 2011.
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- *Strategic Planning Workshop*, Iowa State University College of Business, 2005.
- *Goodrich/Turbine Fuel Technologies Leaders in Action*, Tero International, 2002-2003.
- *Joint COPs/USDA/CSREES New Director/Administrator Orientation*, National Association of State Universities and Land-Grant Colleges (NASULGC), 2002.
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