



**Florida High Tech  
Corridor Council, Inc.**

**Annual  
Report  
1999-2000**

# Looking To A Better Future. . .

## Dear Friends:

Being selected as a university president is an honor and an exciting challenge for any academic administrator. Being selected president of the University of South Florida carries special meaning, because this is one of only a few universities in America so focused on building partnerships ... partnerships with industry, partnerships with community, and most important, a partnership with the University of Central Florida.

I came here after having been involved in New York State's high technology community and related economic development. Perhaps the most attractive element of the USF challenge is our role in Florida's High Tech Corridor. The region's commitment to attracting, retaining and growing high tech industry is truly amazing. I don't know of a program anywhere in the country that compares with what the Corridor Council is doing.

I am personally committed to this partnership and to working with my friend President John Hitt at the University of Central Florida to forge a better future for the region our universities serve.



Sincerely,

A handwritten signature in cursive script that reads "Judy Genshaft".

Judy Genshaft, President  
University of South Florida

## Dear Friends:

Florida's investment in high technology economic development through the University of Central Florida and the University of South Florida continues to pay great dividends. We now have independent verification of the return on investment to state and local government from our efforts. You will also see in this annual report the growing impact on our economy from the innumerable industry partnerships with our universities.

The Florida High Tech Corridor has become a model for university partnerships. We are asked on a weekly basis to share the secret of our success with peer institutions from around the country. The message I give to them is quite simple:

- You must have a supportive political infrastructure.
- You must be willing to give. This, like any investment, pays dividends only after you have provided your own resources.
- You must have industry partners who are committed to help higher education in order to enhance their company goals.
- You must have a community of economic development professionals willing to share the task of attracting new industry and keeping existing companies.

We are fortunate to have all those and more. The past year has been another exceptional success, based largely upon the involvement of many people who are committed to this cause. With their continued support, the future looks even brighter.

Cordially yours,

A handwritten signature in cursive script that reads "John C. Hitt".

John C. Hitt, President  
University of Central Florida



# It's All About Quality Of Life. . .

## Dear Colleagues:

What an exciting time for our region! Growth of high technology companies and high tech employment continues to establish this sector of our economy as one of opportunity now and in the future.

The work that high tech companies are doing in partnership with our universities is helping to create not only useable data and marketable products, but is building a workforce for the future that is trained right here at home.


In the past year it has been demonstrated that this is an excellent investment for Florida, returning \$3 in tax revenue for every dollar of state funding. As well, for the first time we have embarked on research that quantifies high tech employment, with more than 100,000 high tech jobs identified in our five sectors with more than 6,000 employers.

In the end, what we are doing through the Florida High Tech Corridor Council is all about Quality of Life. We know that a college education translates to significantly higher lifetime earning potential. We also know that having career opportunities here in our region once our students have completed their education means they will be more likely to stay and prosper here.

We are proud of the fact that 99% of the money the State of Florida invests in this program through UCF and USF goes directly into high technology research and development programs with corporate and institutional partners providing equal or greater matching funds. The other one percent not only funds the Corridor Council's efforts to market the region to high tech industries, but has provided significant funding for programs in concert with our region's community colleges.

Please join me in thanking and congratulating all those who are working to make that possible ... including those companies and individuals that have given literally tens of thousands of hours of volunteer effort to our cause.

Sincerely,



Randy Berridge  
President



# It's Working. . .

The stated mission of the Florida High Tech Corridor is clear: "attract, retain and grow high tech industry." Attaining our goal of a robust high technology corridor that spans the central part of the state involves a variety of programs and the support of both public and private sectors.

One indication of our success is the increasing recognition at national levels... in high tech industry circles, as well as in the nation's trade and business media... that, in fact, this is a region of important technology clusters.

The most important sign of success is in the form of jobs: jobs that have been created through expansions by existing employers, in startup and spin-off companies and companies attracted here by the resources of our universities, the caliber of our workforce and the commitment of our state and local governments to build a climate good for high tech business.

Conservative estimates by the University of South Florida Office of Economic Development indicate there are more than 100,000 high-tech jobs throughout the Corridor. These workers are employed by more than 6,000 companies in five key sectors ... semiconductors, lasers and optics, medical technology, simulation and training, and information technology.

## **Research Reaps Rewards**

Since 1996 the High Tech Corridor Council's Research Initiative Program has provided \$19.2 million to more than 186 joint research projects involving the University of South Florida, the University of Central Florida and more than 100 industry partners. This investment has resulted in the attraction of more than \$46.6 million in matching funds for a total of \$64 million invested in Corridor research projects. We also enjoy a variety of patent applications and royalty agreements that are paying big dividends back to the schools.

## **Projects Paying Dividends**

Examples of projects with long-term potential for both our industry partners and UCF and USF include:

**Virtual Interface Networks** - Schwartz Electro Optics and Erol Gelenbe, director of UCF's School of Electrical Engineering and Computer Science have partnered in the creation of a new venture called Giganet, Inc., which provides Virtual Interface Networks to the network attached storage (NAS) and database markets.

**Photo Thermal Refraction** - Light Processing and Technologies, Inc. and Dr. Leon Glebov, Center for Research and Education in Electro Optics and Lasers (CREOL) have developed new photo-thermal-refractive glass that is the basis for a new company, Light Processing and Technologies, Inc. The UCF Research Foundation is an equity partner in this program and holds a royalty agreement.

### **Medical Technology Facilities -**

Partnerships with USF have resulted in the establishment of branch research locations for two leading medical technology companies in Tampa. Layton Bioscience is an early stage bioscience company developing novel diagnostics and therapeutics for disorders of the central nervous system. CO.DON Tissue Engineering is a leader in the discovery, development, marketing and distribution of tissue-engineered products, cell-based therapeutics and devices for the regeneration and repair of human tissue.



**Electric Neighborhood Vehicle** – USF faculty member Lee Stefanakos, along with the Rivolta Group, has developed the Rivolta Isigo, an electric “city car.” Production of the vehicle is being considered for Rivolta’s Sarasota, Florida facility.



### **Study Finds Investments Paying Off**

In response to a request made by the Office of Tourism, Trade and Economic Development (O.T.T.E.D.), a Task Force comprised of representatives from O.T.T.E.D., the Florida Senate and House, Florida TaxWatch, USF, UCF, and the Council. This task force was assigned the responsibility of evaluating the benefits of investment programs that support the development of high-tech industry clusters.

Initial results of this study support cluster investment as an effective use of tax money and show the importance of high-tech industry growth to Florida. Findings include:

- *For every tax dollar invested in infrastructure, research and industry partnerships with UCF and USF, approximately three dollars were generated in Florida’s economy.*

Since its inception in 1996, the Council has allotted \$19.2 million in state funding to research partnerships between UCF, USF and local technology-based industries. The study has shown that this investment has had a tremendous impact. In the first year alone, between \$15.7 and \$18.1 million was generated.

- *For every tax dollar invested in semiconductor industry research and development, 15 dollars were generated in Florida’s economy.*

The Task Force also evaluated the impact that the Cirent Semiconductor/Bell Laboratories silicon technology expansion has had on the Florida economy. With approximately \$91 million in city, state and county investments, the return will be more than \$1.3 billion, and will result in the creation of more than 2,700 new jobs over the next six years.

### **Council Members: The True Success Story**

Florida’s High Tech Corridor Council is made up of a host of individuals and companies that all have the same goal...to help attract, retain and grow high tech industry.

Representatives of dozens of companies contribute countless hours of volunteer service. Their hard work and dedication has resulted in success story after success story. While it is impossible to tell every story, we highlight here two examples from the many significant contributions that our members have made.

- George Mezo of Oracle and Owen Wentworth, a retired AT&T executive, have been the driving force behind the creation of an interactive web-based survey system that will serve to facilitate communication regarding information technology training needs between High Tech Corridor employers, area educators, and the current and potential workforce. This Florida High Tech Corridor Competency Model will provide a description of the knowledge, skills, capabilities and behaviors required to perform various jobs or functions in the Information Technology sector. As well, it will allow students and employees to perform a self-assessment of their current skills, and will connect them to available education programs and employment opportunities based on this assessment.
- A fundamental key to the Council’s mission of attracting, retaining and growing high-tech industry is the development of a highly trained workforce. The Tech 4 Consortium, an initiative of the Florida High Tech Corridor Council, is working with representatives from UCF, USF and the community colleges to fill this need. One program, called Chip Camp, is under the leadership of Dr. Jeff Bindell and Vicki Morelli from Cirent Semiconductor. The camp, educates math and science teachers and guidance counselors about high-quality jobs available in the semiconductor industry. During the last two years this team has conducted 10 Chip Camps and involved more than 450 participants from across the Corridor. Due to this success, the Tech 4 team plans to expand the program to a variety of locations across the Corridor. The first of these “mobile” Chip Camps was successfully conducted by Manatee Community College in Venice, Florida.

# USF Projects. . .

**By all accounts, the past year was a successful one for the University of South Florida. Its \$3.32 million in State funding was matched by more than \$4 million in private sector support and \$2 million in Federal research awards for a total of \$6 million. . . a more than 181 percent return on the State's Investment.**

## **Gene Expression During Cartilage Repair**

*Project Leader: Joachim Sasse*

*Industry Partners: co.don, Inc.*

A new tissue engineering technology called Autologous Cartilage Transplantation (ACT) has been developed that takes cultured chondrocytes, cells taken from a patient's cartilage, and reproduces them using a process known as in vitro growth. The new cartilage is then returned to the patient's damaged cartilage site.

The goal of this project is to use gene technology to identify the non-aged cells, which are most appropriate for in vitro growth.

According to Karl-Gerd Frisch, M.D., Ph.D., co-CEO of co.don A.G., "This research project has high merits from both scientific and applied viewpoints. Because of the Corridor project, Tampa is a leading candidate as a location for establishing co.don's U.S. research center and cell production facility. Collaboration with Dr. Joachim Sasse and USF has afforded co.don Tissue Engineering several key pieces of new information to consider in effecting cartilage repair."

*Total Allocated Funds: \$225,000 (Total Project Costs)*

*Corridor Investment: \$75,000*

*Private Match: \$150,000 In-Kind*

## **Improved Telecommunications Performance of Existing Satellite Systems**

*Project Leader: Rudy Henning*

*Industry Partners: Custom Manufacturing and Engineering (CME)*

Funded by more than \$1 million of in-kind support from the Department of Defense, this project focuses on developing a more cost and performance effective way of avoiding premature outdated of equipment and extension of equipment life.

"Dr. Rudolph Henning's work conducted at USF has been very successful," said Fred Munroe, Director of Government Programs for CME. "Partly due to Dr. Henning's contribution, CME was recently awarded a Phase II contract for an Air Force SBIR. We expect the technology resulting from those two projects, when fully implemented in future military acquisitions and production programs, to significantly impact the growth of our company revenues and employment."

*Total Allocated Funds: \$1.135 million (Total Project Costs)*

*Corridor Investment: \$100,000*

*Private Match: \$1 million In-Kind, \$35,000 Cash*

## **A Media Gateway Control Protocol (MGC) Implementation for Video and Voice-over Packets Networks**

*Project Leader: Wilfrido Moreno*

*Industry Partners: Telenix Corporation*

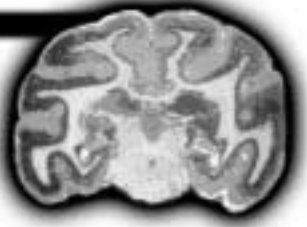
Using proprietary hardware and embedded software, this project will develop an easily portable Media Gateway Control Protocol stack and a Telenix VoIP card that will work well with European standards.

The project also includes studying current video IP standards for video transmission over wide area networks.

Convergent telecommunications networks of the future will consist of elements with various functions: voice, computer, television, servers, terminals and more.

This project investigates the underlying protocol that will enable each one of these elements to communicate with each other





through a common language, for the purpose of real-time distribution of video over networks.

*Total Allocated Funds: \$410,479 (Total Project Costs)*  
*Corridor Investment: \$75,479*  
*Private Match: \$300,000 In-Kind, \$35,000 Cash*

#### **ADDITIONAL PROJECTS BY SECTOR:**

### **MICROELECTRONICS/SEMICONDUCTOR MANUFACTURING AND DEVELOPMENT**

#### **Cirent/USF Engineering Education Interactive Program**

*Industry Partner: Cirent Semiconductor*  
*Total Allocated Funds: \$614,000 (Total Investment)*  
*Corridor Investment: \$307,000*  
*Private Match: \$307,000*

#### **USF Center for Microelectronics Research (CMR) to Support Metrology, Silicon Technology and Micro-Fabrication**

*Total Allocated Funds: \$430,000 (Total Investment)*  
*Corridor Investment: \$430,000*

#### **Design of Cleanroom/Laboratory for the New USF Engineering Complex (ENG3)**

*Total Allocated Funds: \$271,000 (Total Investment)*  
*Corridor Investment: \$271,000*

#### **High Technology Outreach Office for the Development of Engineering and Private Sector Partnerships**

*Total Allocated Funds: \$105,343 (Total Investment)*  
*Corridor Investment: \$105,343*

#### **On-Water Metrology for 100 Ghz Microelectronics**

*Project Leader: Lawrence Dunleavy*  
*Industry Partners: Raytheon, Alliant, Lockheed Martin, GGB Industries, Maury Microwave, Noise/Com, Anritsu*  
*Total Allocated Funds: \$532,770 (Total Investment)*  
*Corridor Investment: \$145,000*  
*Private Match: \$224,144 Cash, \$72,946 Equipment, \$90,680 In-Kind*

## **TELECOMMUNICATIONS**

### **Analysis of Digital Cellular Protocols for the Software Development/Hardware Implementation of Dual-Mode Pre-paid Cell Communications**

*Project Leaders: Lawrence Dunleavy, Ken Buckle*  
*Industry Partners: SATX/Debitfone, Inc.*

*Total Allocated Funds: \$242,278 (Total Investment)*  
*Corridor Investment: \$61,278*  
*Private Match: \$25,000 Cash, \$126,000 Equipment, \$30,000 In-Kind*

### **Wideband Wavelet-based Orthogonal Multipurpose Signaling for Broadband Wireless Communications**

*Project Leader: Vijay Jain*  
*Industry Partners: Intersil Corporation*

*Total Allocated Funds: \$45,000 (Total Investment)*  
*Corridor Investment: \$15,000*  
*Private Match: \$30,000 Cash*

### **Creating a Simulation Environment to Build and Test Very Large Telecommunications Databases**

*Project Leader: Rafael Perez*  
*Industry Partners: Computer Systems and Services*

*Total Allocated Funds: \$128,310 (Total Investment)*  
*Corridor Investment: \$41,180*  
*Private Match: \$13,130 Cash, \$18,000 Equipment, \$56,000 In-Kind*

### **Digital Resampling at Intermediate Frequencies**

*Project Leader: Arthur Snider*  
*Industry Partners: Intersil Corp.*

*Total Allocated Funds: \$30,000 (Total Investment)*  
*Corridor Investment: \$10,000*  
*Private Match: \$20,000 Cash*

### **Micromachined Components and Packaging for a K-Band Receiver**

*Project Leader: Thomas Weller*  
*Industry Partners: Raytheon*

*Total Allocated Funds: \$75,000 (Total Investment)*  
*Corridor Investment: \$25,000*  
*Private Match: \$25,000 Cash, \$25,000 In-Kind*

**Continued next page. . .**



## **OPTICS AND LASERS**

### **Strategic Planning Document on Florida's Laser and Optics Cluster by USF Office of Economic Development (OED) for Corridor EDO's and the Corridor Council**

*Total Allocated Funds: \$25,000 (Total Investment)*

*Corridor Investment: \$25,000*

### **Development of Transparent Electrode for Mercuric Iodide Photo-Detectors**

*Project Leader: Chris Ferekides*

*Industry Partners: Constellation Technology*

*Total Allocated Funds: \$174,000 (Total Investment)*

*Corridor Investment: \$58,000*

*Private Match: \$46,000 Cash, \$70,000 Equipment*

### **Development of Radiation Resistant Optical Fiber Polymers**

*Project Leader: Julie Harmon*

*Industry Partners: Honeywell, Inc.*

*Total Allocated Funds: \$55,500 (Total Investment)*

*Corridor Investment: \$19,500*

*Private Match: \$36,000*

## **OTHER TECHNOLOGIES/PROJECTS**

### **Six Sigma Methodologies for Manufacturing Improvements**

*Project Leader: Les Cahoom*

*Industry Partners: Ditek, K-Byte, Dovatron & Southern Manufacturing Technologies*

*Total Allocated Funds: \$277,900 (Total Investment)*

*Corridor Investment: \$50,000*

*Private Match: \$67,230 Equipment, \$160,670 In-Kind*

### **Solder Joint Reliability for Ball and Column Grid Array Components Fielded in a Space Environment**

*Project Leader: Muhammed Rahman*

*Industry Partners: Honeywell, Inc.*

*Total Allocated Funds: \$31,860 (Total Investment)*

*Corridor Investment: \$10,620*

*Private Match: \$11,240 Cash, \$10,000 Equipment*

### **Marine Sciences—Infrastructure Support for the Physical Oceanographic Real-Time System (PORTS)**

*Total Allocated Funds: \$150,000 (Total Investment)*

*Corridor Investment: \$150,000*

## **BIOENGINEERING AND BIOMEDICAL**

### **Characterization of Novel, Highly Permeable, Contact Lens Materials**

*Project Leader: Julie Harmon*

*Industry Partners: Benz R&D*

*Total Allocated Funds: \$76,500 (Total Investment)*

*Corridor Investment: \$26,500*

*Private Match: \$25,000 Cash, \$5,000 Equipment, \$20,000 In-Kind*

### **Visualization and Biochemical Modeling of the Human Larynx**

*Project Leader: Don Hilbelink*

*Industry Partners: Gold Standard Multimedia, Inc.*

*Total Allocated Funds: \$70,000 (Total Investment)*

*Corridor Investment: \$20,000*

*Private Match: \$30,000 Cash, \$20,000 In-Kind*

**Layton BioScience/USF  
Neurodevelopment Program**

*Project Leader: Paul Sanberg  
Industry Partners: Layton BioScience*

*Total Allocated Funds: \$750,000 (Total  
Investment)*

*Corridor Investment: \$250,000*

*Private Match: \$320,000 Cash, \$180,000  
In-Kind*

**Industry Outreach and Small Business  
Innovative Research Development  
with the USF Bioengineering Institute  
and OED**

*Total Allocated Funds: \$25,000 (Total  
Investment)*

*Corridor Investment: \$25,000*

**INFORMATION TECHNOLOGY**

**Information Technology Workforce  
Development at Regional USF  
Campuses**

*Total Allocated Funds: \$296,100 (Total  
Investment)*

*Corridor Investment: \$296,100*

**The Office of Resources for Business  
and Industry (ORBIT) corporate and  
workforce training with UCF and  
Seminole Community College for Job  
Skill Support**

*Total Allocated Funds: \$265,000 (Total  
Investment)*

*Corridor Investment: \$125,000*

*Private Match: \$140,000*

**OED Information Technology Job Skills  
Support**

*Total Allocated Funds: \$25,000 (Total  
Investment)*

*Corridor Investment: \$25,000*

**Industry Outreach and Small Business  
Innovation Research Development  
with the USF Center for Digital and  
Computational Video and OED**

*Total Allocated Funds: \$10,000 (Total  
Investment)*

*Corridor Investment: \$10,000*

**Startup Support for the Community  
College and University Business and  
Industry Training (CCUBIT) Consortia  
Mobile Teaching Network Laboratory**

*Total allocated Funds: \$250,000 (Total  
Investment)*

*Corridor Investment: \$125,000*

*Private Match: \$125,000*

**HIGH-TECH WORKFORCE AND  
ECONOMIC DEVELOPMENT**

**Metrics Report with Florida TaxWatch  
for the Governor's Office of Tourism,  
Trade and Economic Development  
(OTTED)**

*Total Allocated Funds: \$20,000 (Total  
Investment)*

*Corridor Investment: \$20,000*

**Economic Analysis, Development of  
Web-based Data Services for Florida  
EDOs and International Marketing**

*Total Allocated Funds: \$511,400 (Total  
Investment)*

*Corridor Investment: \$360,000*

*Private Match: \$151,400*

**Office of Economic Development (OED)  
Workforce Development Through  
Recruitment of Engineers and  
Scientists, and Development of an  
Internet Career Portal for the Corridor**

*Total Allocated Funds: \$135,000 (Total  
Investment)*

*Corridor Investment: \$80,000*

*Private Match: \$55,000*



# UCF Projects. . .

The number of projects conducted by the University of Central Florida in conjunction with local industry and funded by the Council and the State of Florida nearly doubled this year. Total allocated funds topped out at more than \$15 million, while the Council's investment reached \$3.52 million.

## **Adaptive Synthesis of an Objective Image Quality Function**

*Project Leader: Harley Mylar*

*Industry Partners: TeraNex*

The study of image-quality issues is of great concern to developers and manufacturers of High Definition Television (HDTV) systems. HDTV requires a substantially greater amount of bandwidth than analog television due to the high data volume of the image stream. Because of this, HDTV signals are often compressed with lossy schemes that can degrade the quality of the imagery in terms of human subjective interpretation. This project addresses the problem of subjective image quality.

The approach of the project was to develop objective measures that model human perception and to perform systems identification using an adaptive learning scheme. This approach may prove to be superior to existing approaches that are based on perceptual studies alone.

The impact of this research could be revolutionary to programming. Fundamental results could include a new and automatic methodology for automated programming of parallel architectures, and the algorithm derived for objective image quality assessment could also be used in conventional architectures (Von Neumann) or DSP systems.

*Total Allocated Funds: \$190,469*

*Corridor Investment: \$45,264*

*Private Match: \$45,205 Cash, \$100,000*

*In-Kind*

## **Application-Specific Chip Design Using Asynchronous Digital Methodologies**

*Project Leader: Jiann-Shium Yuan*

*Industry Partners: Thesus Logic*

The evolution of Silicon technology toward high-density, deep sub-micron devices has focused significant attention on clocks and clock distribution networks. This is due to the fact that they are expensive elements in today's products and are a potentially limiting factor in tomorrow's designs. Self-synchronizing asynchronous delay insensitive circuits have long been sought after by the microelectronics industry. Using Thesus Logic's NULL Convention Logic (NCL™), the approaching design crisis can be avoided by eliminating the requirement for clocks to control the flow of data.

Low power DSP chips will become increasingly important to many consumer and military applications due to the desire to provide increased mobility while simultaneously taking advantage of the performance benefits which digital implementation provides. Digital cellular telephones, portable test equipment and Personal Digital Assistants are a few of the many applications that wouldn't be possible without low power DSP technology. This project will help design lower power DSP chips using NCL methodology.

*Total Allocated Funds: \$330,000*

*Corridor Investment: \$150,000*

*UCF Match: \$30,000*

*Private Match: \$150,000 Cash*

## **High Precision Laser Forming, Shaping and Annealing for Flat Panel Display Applications**

*Project Leader: Aravinda Kar*

*Industry Partners: Applied Photonics*

The goal of this project is to transform sharp edges (90° corners) on panel display material, such as glass, into smooth, round edges. This improves edge quality and product geometry and strength.

A high-power CO<sub>2</sub> laser can be used to heat up the material and in a controlled



manner, deform localized hot spots to attain a desired material shape.

This localized heating can also anneal the material, which can be used to heal cracks, through local melting and filling. This will provide a means of eliminating micro-cracks in flat panel display materials, and therefore, increase their strength.

*Total Allocated Funds: \$80,000*

*Corridor Investment: \$35,000*

*Private Match: \$45,000 Cash*

**Of Note:**

UCF provided \$1 million of Corridor matching funds to Cirent Semiconductor and Bell Labs to be used for research. These funds were matched by \$1.5 million in donated equipment; \$200,000 in Bell Labs scientists, technicians and administrative services; and \$2 million in additional corporate and federal sources. Upon receiving the Corridor's funds, Cirent Semiconductor and Bell Labs decided to reinvest the money in UCF's AMPAC research facility. This reinvestment is broken down as follows: \$750,000 went to hire university faculty for the facility, \$150,000 went to the materials characterization facility component of AMPAC, \$50,000 was used to train Cirent / Bell Labs and other university and corporate employees at AMPAC, and \$50,000 went to support UCF, AMPAC projects at the Orlando Science Center.

**ADDITIONAL PROJECTS BY SECTOR:**

**MICROELECTRONICS/SEMICONDUCTOR MANUFACTURING AND DEVELOPMENT**

**Characterization of Candidate CMP Consumables**

*Project Leader: Kathleen Richardson  
Industry Partners: Black Rock Technologies*

*Total Allocated Funds: \$80,000*

*Corridor Investment: \$40,000*

*Private Match: \$40,000 Cash*

**Corporation/UCF/Corridor Partnership in Digital Signal Processing/Wireless Communications Technology**

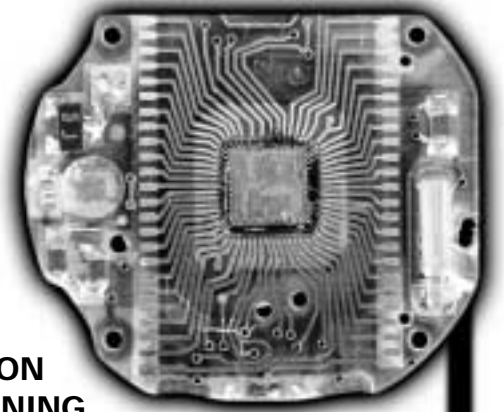
*Project Leader: Wasfy Mikhael  
Industry Partners: Intersil Corporation*

*Total Allocated Funds: \$330,000*

*Corridor Investment: \$60,000*

*Private Match: \$90,000 Cash, \$180,000*

*In-Kind*



**SIMULATION AND TRAINING**

**COSAIR Content Oriented Semantics and Image Retrieval for Simulation, Training and Surveillance**

*Project Leader: Erol Gelenbe  
Industry Partners: Harris*

*Total Allocated Funds: \$152,000*

*Corridor Investment: \$75,000*

*Private Match: \$52,000 Cash, \$25,000*

*In-Kind*

**CORVAIR Content Oriented Video and Image Retrieval for Simulation, Training and Surveillance**

*Project Leader: Erol Gelenbe  
Industry Partners: Silicon Graphics, Inc.*

*Total Allocated Funds: \$10,000*

*Corridor Investment: \$5,000*

*Private Match: \$5,000 Cash*

**A Modeling and Simulation Analysis Center**

*Project Leader: Gary Green  
Industry Partners: STRICOM*

*Total Allocated Funds: \$114,812*

*Corridor Investment: \$13,000*

*Private Match: \$101,812 Cash*

**Predictive techniques for Temporal Line-of-Sight Determination and Image Correlation**

*Project Leader: Guy Schiavone  
Industry Partner: STRICOM*

*Total Allocated Funds: \$357,000*

*Corridor Investment: \$7,000*

*Private Match: \$350,000 Cash*

**Multimedia In-Service Training**

*Project Leader: Ronald Tarr  
Industry Partners: NAWCTSD*

*Total Allocated Funds: \$225,000*

*Corridor Investment: \$25,000*

*Private Match: \$200,000 Cash*

**Continued next page. . .**



### **Infrared Targets for Test and Training**

*Project Leader: Thomas Clark  
Industry Partners: NAWCTSD, IST*

*Total Allocated Funds: \$375,000  
Corridor Investment: \$37,500  
Private Match: \$337,500 Cash*

### **Context-based Representation of Intelligent Behavior in Degraded Systems Simulation Air Force M&S Education ADL Model**

*Project Leader: Ronald Tarr  
Industry Partners: Air Force, IST*

*Total Allocated Funds: \$300,000  
Corridor Investment: \$30,000  
Private Match: \$270,000 Cash*

### **Improving the Quality of Computer Graphics for Visual Simulation**

*Project Leader: Brian Goldiez  
Industry Partners: Evans & Sutherland Corporation*

*Total Allocated Funds: \$40,000  
Corridor Investment: \$20,000  
Private Match: \$20,000 Cash*

### **Design, Fabrication and Testing of a Meso-Scale Refrigerator**

*Project Leader: Jayanta Kapat  
Industry Partners: Lockheed Martin Missile & Fire Control, MMAE*

*Total Allocated Funds: \$63,032  
Corridor Investment: \$35,000  
Private Match: \$21,000 Cash  
UCF Match: \$7,032*

### **Application of Parallel Computing in the Distributed Simulation Environment—Automatic Program Partitioning Study**

*Project Leader: Kuo-Chi Lin  
Industry Partners: Science Applications International Corporation*

*Total Allocated Funds: \$44,250  
Corridor Investment: \$10,000  
Private Match: \$34,250 Cash*

## **SOFTWARE DEVELOPMENT**

### **UCF-Oracle Collaborative Research on Tools for Systems Assurance Analysis**

*Project Leader: Kien Hua  
Industry Partners: Oracle*

*Total Allocated Funds: \$270,000  
Corridor Investment: \$100,000  
Private Match: \$100,000 Cash, \$70,000 In-Kind*

### **Using Design Metrics to Identify Error-Prone Modules and Evaluate Risk**

*Project Leader: Darrel Linton  
Industry Partners: Honeywell*

*Total Allocated Funds: \$28,000  
Corridor Investment: \$14,000  
Private Match: \$14,000 Cash*

### **Web-based Design Environment (WDE) and Web-Based Knowledge Capture (WKS)**

*Project Leader: Jamal Nayfeh  
Industry Partners: Lockheed and or Technosoft sub Engineering*

*Total Allocated Funds: \$184,236  
Corridor Investment: \$15,000  
Private Match: \$150,000 Cash  
UCF Match: \$19,236*

### **Virtual Environment Software System**

*Project Leader: Kimberly Parsons  
Industry Partner: ARI, STRICOM*

*Total Allocated Funds: \$253,000  
Corridor Investment: \$28,000  
Private Match: \$225,000 Cash*

### **Computer 3-D Structures of Protein Molecules on a Large Cluster of PCs**

*Project Leader: Deo Narsingh  
Industry Partners: Honeywell Space Systems*

*Total Allocated Funds: \$40,000  
Corridor Investment: \$20,000  
Private Match: \$20,000 Cash*

### **Probabilistically Determining Error-Prone Modules Using an Incomplete Design Metric Database**

*Project Leader: Darrel Linton  
Industry Partners: Honeywell Space Systems*

*Total Allocated Funds: \$28,000  
Corridor Investment: \$14,000  
Private Match: \$14,000 Cash*

**Enhancements to the Virtual Environment Software System**

*Project Leader: Kimberly Parsons/Glenn Martin*

*Industry Partners: ARI, IST*

*Total Allocated Funds: \$420,000*

*Corridor Investment: \$37,500*

*Private Match: \$382,500 Cash*

**Redefining Photography: Simulating Painterly Effects in Images**

*Project Leader: Jannick Rolland*

*Industry Partners: SmARTlens Corporation*

*Total Allocated Funds: \$100,000*

*Corridor Investment: \$50,000*

*Private Match: \$50,000 Cash*

**A Data Mining System for Solid Rocket Booster Program**

*Project Leader: Morgan Wang*

*Industry Partners: United Space Alliance*

*Total Allocated Funds: \$30,000*

*Corridor Investment: \$10,000*

*Private Match: \$20,000 Cash*

**Automatic Tools for Systems Diagnosis**

*Project Leader: Kien Hua*

*Industry Partners: Oracle*

*Total Allocated Funds: \$200,000*

*Corridor Investment: \$100,000*

*Private Match: \$100,000 Cash*

**LASERS AND ELECTRO-OPTICS**

**Laser Microprocessing of Plain and Braided Tubes to produce Radioactive Stents for the Treatment of Coronary Artery Disease**

*Project Leader: Aravinda Kar*

*Industry Partners: Bio-Nucleonics*

*Total Allocated Funds: \$23,982*

*Corridor Investment: \$12,000*

*Private Match: \$11,982 Cash*

**Laser Conversion of Silicon Carbide for High Temperature Sensor and Control Applications**

*Project Leader: Aravinda Kar*

*Industry Partners: Applicote Associates*

*Total Allocated Funds: \$20,500*

*Corridor Investment: \$10,000*

*Private Match: \$10,500 Cash*

**Design, Test Prototype to Obtain Platform for Precision Measurements of Constant Velocity/Acceleration of a Test Vehicle with a Laser**

*Project Leader: Roger Johnson*

*Industry Partners: Lockheed*

*Total Allocated Funds: \$40,000*

*Corridor Investment: \$20,000*

*Private Match: \$20,000 Cash*

**Laser Micro-Processing for Metal Fiber Fabrication**

*Project Leader: Aravinda Kar*

*Industry Partners: U.S. Filter/Fluid Dynamics*

*Total Allocated Funds: \$65,000*

*Corridor Investment: \$10,000*

*Private Match: \$10,000 Cash, \$45,000*

*In-Kind*

**Microwave/Millimeter Wave Fiber-Optic Links**

*Project Leader: Guifang Li*

*Industry Partners: Uniphase, NSF, Hewlett Packard*

*Total Allocated Funds: \$93,720*

*Corridor Investment: \$10,000*

*Private Match: \$35,000 Cash, \$48,720*

*In-Kind*

**Nonlinear-Optical Measurements of Power and Energy Density of Laser Beams**

*Project Leader: Zel Dovich*

*Industry Partners: BEAM Corp.*

*Total Allocated Funds: \$70,000*

*Corridor Investment: \$35,000*

*Private Match: \$35,500 Cash*

**Holographic Narrow-Band Filters for Selected Spectral Lines Detection**

*Project Leader: Leonid Glebov*

*Industry Partners: Light Processing & Technologies*

*Total Allocated Funds: \$60,000*

*Corridor Investment: \$30,000*

*Private Match: \$30,000 Cash*

**Wavelength-Selectable Ring-Cavity Lasers for Photonic Analog-to-Digital Conversion and WDM Optical Networks**

*Project Leader: Guifang Li*

*Industry Partners: ENSCO, Inc., NSF*

*Total Allocated Funds: \$221,263*

*Corridor Investment: \$78,000*

*Private Match: \$103,263 Cash, \$40,000*

*In-Kind*

*Continued next page. . .*

**Evaluation of the Defect and Impurity Effect on Scintillation Behavior of LSO and LYSO Single Crystals**

*Project Leader: Lee Chow*

*Industry Partners: Crystal Photonics, Inc., Physics/MMAE*

*Total Allocated Funds: \$73,166*

*Corridor Investment: \$15,000*

*Private Match: \$15,000 Cash*

*UCF Match: \$43,166 In-Kind*

**Vehicle Classification From Top-Down Laser Telemetry Energy Response**

*Project Leader: Erol Gelenbe*

*Industry Partners: Schwartz Electro-optics*

*Total Allocated Funds: \$36,000*

*Corridor Investment: \$18,000*

*Private Match: \$18,000 Cash*

**MEDICAL BIOMEDICAL TECHNOLOGY**

**Characterization of Hydrated Poly-methyl Methacrylate**

*Project Leader: Larry Chew*

*Industry Partners: Xenon*

*Total Allocated Funds: \$69,000*

*Corridor Investment: \$34,000*

*Private Match: \$35,000 Cash*

**OTHER TECHNOLOGIES/PROJECTS**

**Support for Central Florida Business and Technology Development Center**

*Project Leader: Tom O'Neal*

*Industry Partners: Sponsored Research, School of Optics, Engineering, College of Business, Scottish Enterprises, SunTrust, TRDA*

*Total Allocated Funds: \$748,000*

*Corridor Investment: \$135,000*

*Private Match: \$513,000 Cash, \$100,000 In-Kind*

**An Innovative Copper Coating of Coal Combustion By-Products for Conductive Filler Applications: Value-Added Recycling Waste**

*Project Leader: Sudpita Seal*

*Industry Partners: U.S. Natural Resources*

*Total Allocated Funds: \$50,000*

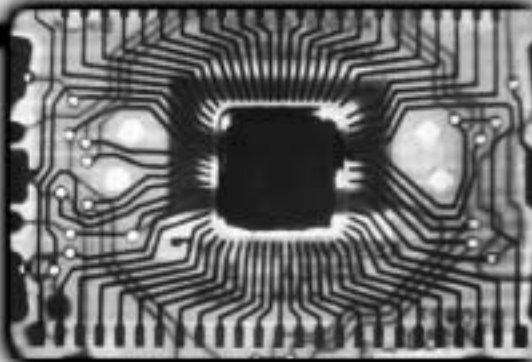
*Corridor Investment: \$25,000*

*Private Match: \$25,000 Cash*

**Advanced Techniques for Motion Compensation of 2-D Imagery**

*Project Leader: Mubarak Shah*

*Industry Partners: TeraNex*



*Total Allocated Funds: \$40,000*

*Corridor Investment: \$20,000*

*Private Match: \$20,000 Cash*

**Image Registration Prescreening Metric**

*Project Leader: Mubarak Shah*

*Industry Partners: Harris Corporation*

*Total Allocated Funds: \$52,000*

*Corridor Investment: \$26,000*

*Private Match: \$26,000 Cash*

**NSF-STTR Phase I-Low Voltage Multi-Output Converters with Unity Power Factor for New Generation of Computer Systems**

*Project Leader: Issa Batarseh*

*Industry Partners: Electrodynamical Associates*

*Total Allocated Funds: \$78,577*

*Corridor Investment: \$30,000*

*Private Match: \$48,577 Cash*

**Infrared Transparent Organic Polymers**

*Project Leader: Kevin Belfield*

*Industry Partners: Lockheed Martin Electronics & Missiles*

*Total Allocated Funds: \$100,000*

*Corridor Investment: \$50,000*

*Private Match: \$50,000 Cash*

**IR Microstrip Antennas: Development of Uncooled Wavelength-Tunable Pixels**

*Project Leader: Glenn Boreman*

*Industry Partners: Lockheed Martin Electronics & Missiles*

*Total Allocated Funds: \$102,000*

*Corridor Investment: \$50,000*

*Private Match: \$52,000 Cash*

**Nitric Oxide Emission of Premixed Natural Gas Flames under Gas Turbine Combustion Conditions**

*Project Leader: Ruey-Hung Chen*

*Industry Partners: Siemens Westinghouse*

*Total Allocated Funds: \$75,132*

*Corridor Investment: \$37,566*

*Private Match: \$37,566 Cash*

**The Development of Environmentally Compatible Gaseous Infrared Screening and Filter Mixtures**

*Project Leader: Christian Clausen  
Industry Partners: Engineering Technology, Chemistry Department*

*Total Allocated Funds: \$67,227  
Corridor Investment: \$25,000  
Private Match: \$25,000 Cash  
UCF Match: \$17,227 Cash*

**Performance of Oxide Ceramics in Gas Turbine Environments Containing High Temperature Water Vapor**

*Project Leader: Vimal Desai  
Industry Partners: Seimens Westinghouse*

*Total Allocated Funds: \$50,000  
Corridor Investment: \$25,000  
Private Match: \$25,000 Cash*

**TP-RAID: Transaction Processing Performance of RAID**

*Project Leader: Erol Gelenbe  
Industry Partners: Distributed Processing Technology*

*Total Allocated Funds: \$102,000  
Corridor Investment: \$51,000  
Private Match: \$51,000 Cash*

**High-Tech Corridor Institute for Secondary Science and Mathematics**

*Project Leader: Judith Johnson  
Industry Partners: Lockheed Martin Academy*

*Total Allocated Funds: \$29,850  
Corridor Investment: \$10,000  
Private Match: \$19,850 Cash*

**Field-controlled Fluidic Damper (Phase II)**

*Project Leader: Weili Luo  
Industry Partners: Lockheed Martin*

*Total Allocated Funds: \$50,000  
Corridor Investment: \$15,000  
Private Match: \$35,000 Cash*

**Studying the High Temperature Performance of Ceramic Matrix Composites for Gas Turbine Applications**

*Project Leader: Vimal Desai  
Industry Partners: Seimens Westinghouse*

*Total Allocated Funds: \$30,000  
Corridor Investment: \$15,000  
Private Match: \$15,000 Cash*

**Monolithic Integrated Mach-Zehnder Interferometric Devices**

*Project Leader: Patrick LiKamWa  
Industry Partners: Technology Capital Funding Group, LLC*

*Total Allocated Funds: \$172,600  
Corridor Investment: \$50,000  
Private Match: \$122,600 Cash*

**Photo-Activated Polymers**

*Project Leader: George Stegeman  
Industry Partners: Lockheed Martin Missiles & Fire Control*

*Total Allocated Funds: \$100,000  
Corridor Investment: \$40,000  
Private Match: \$60,000 Cash*

**Reed-Salomon Decoder Design for Satellite Communications**

*Project Leader: Jiann-shiun Yuan  
Industry Partners: RSI Baseband Technologies*

*Total Allocated Funds: \$60,000  
Corridor Investment: \$30,000  
Private Match: \$30,000 Cash*

**University of Central Florida Projects Coordinated With the Florida Space Institute**

*Project Leader: Tom O'Neal  
Industry Partners: Florida Space Institute*

*Total Allocated Funds: \$1,058,000  
Corridor Investment: \$350,000  
Private Match: \$708,000 Cash  
UCF Match: \$135,000*

**University of Central Florida Projects Coordinated With the National Center for Simulation**

*Project Leader: Tom O'Neal  
Industry Partner: National Center for Simulation*

*Total Allocated Funds: \$1,250,000  
Corridor Investment: \$325,000  
Private Match: \$925,000 Cash*





**Florida High Tech  
Corridor Council, Inc.**



901 Lake Destiny Drive, Suite 400 • Maitland, Florida 32751  
(407) 875-4443 • Fax (407) 875-4452 • [www.floridahightech.com](http://www.floridahightech.com)

