

Florida Atlantic University

# College of Engineering and Computer Science

“Innovative Technologies and  
New Directions in Applied Research”

**FAU Board of Trustees Meeting  
January 26, 2012**



# New Trend: The Entrepreneurial University

- Industry trends: research funding drastically reduced – chances for universities
- Universities can only effectively become incubators of entrepreneurship and innovation if they themselves practice entrepreneurship
- This “re-conceptualization” involves non-traditional, often radical university arrangements

# [ Our New Engineering Building ]

- Living lab with sensor systems
- Lecture hall
- 6 instructional engineering and computer labs
- 9 research labs
- Cloud computing
- Innovation lab



# We Follow Technology Trends

- Cloud Computing
- 3D Technologies
- Augmented Reality
- High-Performance Computing
- Cyber Security
- Social Networks
- Mobile Systems and Applications
- Bioinformatics and Biotechnology
- Data and Web Mining
- And more .....

Our Cloud  
Computers

They are not in  
cloud, they are  
on the 1<sup>st</sup> floor

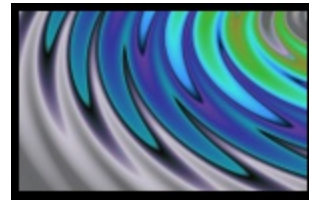
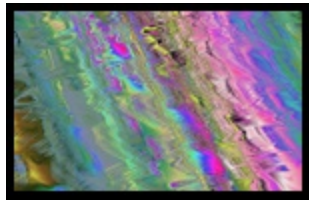
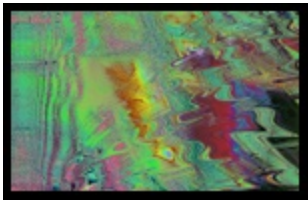


Our Apple  
Lab



# New Programs & New Courses

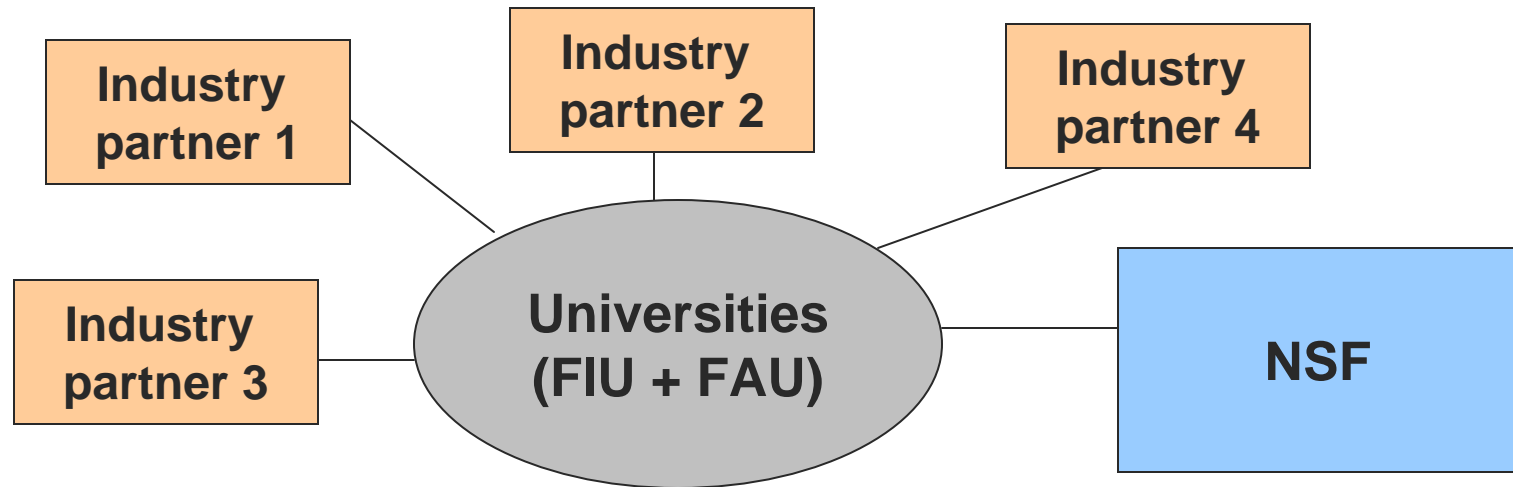
- Master Program in Information Technology and Management (2010)
  - Master Program in Media, Technology, and Entertainment (2011)
  - Master Program in Bioengineering (2007)
- iPhone Programming
  - Android Programming
  - Blackberry Programming
  - Game Programming
  - Computer Animation
  - Graphics Programming
  - Cloud Computing
  - Data Intensive Computing



# **Our Research and Innovation Strategy**

- At College level: Innovation Leadership Program
- NSF Industry/University Cooperative Research Center (I/UCRC) for Advanced Knowledge Enablement
- Collaboration with R&D Park at FAU
- Industry Advisory Boards (College and Departments)
- Creating joint Industry-University laboratories

# Model of the I/UCRC



- Industry partners pay the memberships (\$5K to \$50K++ per year)
- NSF sponsors the Center (\$60K to \$200K per university per year)
- Industry Advisory Board selects the research projects
- Industry members select the products for commercialization – no royalties
- Expectations: \$750K from NSF + \$7.5M from Industry (5 years)
- Similar to MIT Media Lab model

# Information, Communication, and Computing, 15 Centers in USA

## Center for Autonomic Computing (CAC)

University of Florida, University of Arizona, Rutgers University

## Center for Identification Technology Research (CITeR)

West Virginia University, University of Arizona

## Center for Information Protection (CIP)

Iowa State University, University of California - Davis - Planned

## Center for Advanced Knowledge Enablement

**Florida International University, Florida Atlantic University**

## Center for Embedded Systems - Planned

Arizona State University, University of California - Irvine, Southern Illinois University - Carbondale, Southern Methodist University, University of North Texas, University of Texas - Dallas, State University of New York - Stony Brook, University of Texas - San Antonio

## Center for Experimental Research in Computer Systems (CERCS)

Georgia Institute of Technology, Ohio State University

## Center for Hybrid Multicore Productivity Research

University of Maryland - Baltimore County, Georgia Tech, University of California - San Diego

## I/UCRC for Intelligent Storage - Planned

University of Minnesota, University of California Santa Cruz

## High-Performance Reconfigurable Computing (CHREC)

University of Florida, The George Washington University, Virginia Tech University, Brigham Young University

## Center for Software for Ultra Large Systems - Planned

University of Virginia, Michigan State University, Vanderbilt University, University of South Dakota

## Wireless Internet Center for Advanced Technology (WICAT)

Polytechnic University, University of Virginia, Auburn University, Virginia Polytechnic Institute and State University.

## Advanced Space Technologies Research and Engineering Center (ASTREC)

University of Florida and North Carolina State University



# NSF-Sponsored I/UCRC Center for Advanced Knowledge Enablement

FIU + FAU (Total 25 industry members)



National Science Foundation  
WHERE DISCOVERIES BEGIN

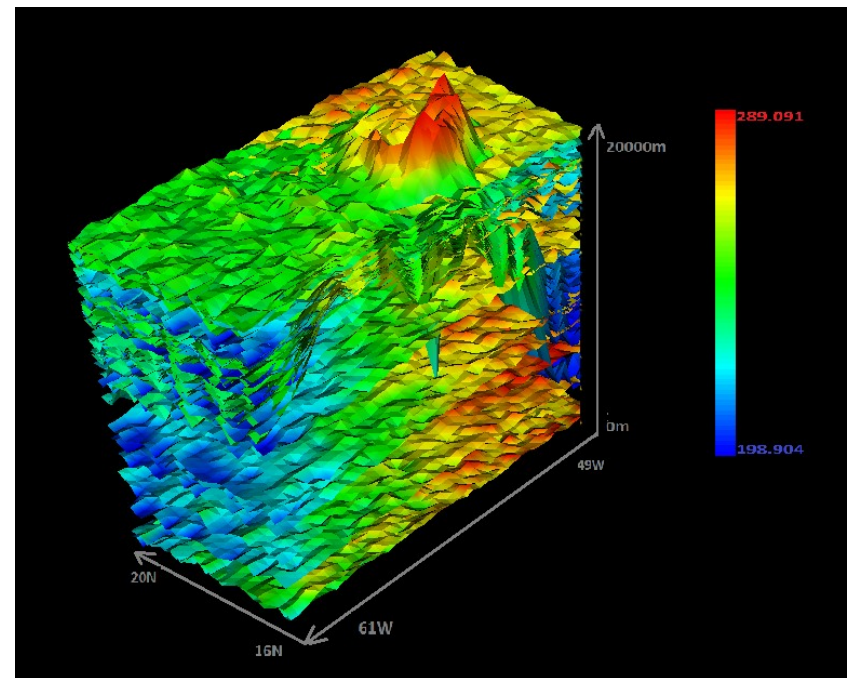
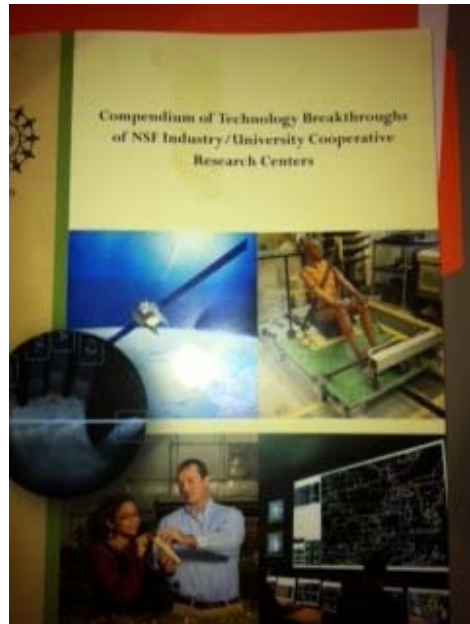
- FAU Industry Members:
  - LexisNexis (\$80K + \$900 equipment)
  - ProntoProgress (\$60K)
  - Wigime, Inc. (\$50K)
  - Relli Technologies (\$100K)
  - SmartVCR, LLC (\$50K)
  - ILS Technology (\$30K)
  - Avocent/Emerson Corp. (\$38K)
  - Jansyl Technologies (\$5K)
  - Tecore Networks (\$200K + \$960K equipment)
  - Aware Technology (\$20K)
  - Adventure Automation (\$34K)
  - LastBestChance, LLC (\$1M over 5 years)
- New, potential members
  - IBM (\$46K)
  - MobileHelp (Scott Adams) (\$46K)
  - SorenTech (\$200K)
- FAU: 15 active research projects funded with \$1M+ from industry members and \$306K from NSF



# Success Story:

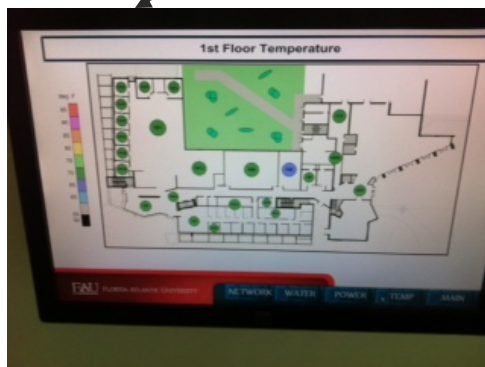
## Distributed Cloud Computing Study to Provide 3D Visualization Services for Climate Data on Demand

- NSF- sponsored project, jointly with FIU and University of Maryland
- New visualization techniques to provide 3-D temperature profiles



# New Project: Smart Building Design

- NSF Center with industry partners ILS Technology and Aware Technology
- Using sensors and available measurements develop algorithms for power optimization and building management
- Expand the idea to Smart Campus project



# Joint University/Industry Labs

- “Incubator as part of the Department”
- Examples - Motorola (2002-2010):  
Developing tools and techniques for mobile applications
- Tecore Networks (Jay Salkini) :  
Research in mobile and wireless systems
- Pronto Progress (Tim Proksh):  
Developing Web services for customers
- LastBestChance,LLC (Mike Levine):  
\$1M for 5 years to work on variety of innovative mobile products.
- New MOU with Telecommunication Industry Association (TIA)



# Industry Courses

- Courses Taught by Industry
  - Data Intensive Computing (LexisNexis)
  - Enterprise Software Development (Citrix)
- Industry Training Courses
  - Android and iPhone/iPad Programming courses for LexisNexis and Siemens
  - Programming courses (C++, Java) for PaceAmerica

# Interaction With Local Community

- College's Engineering Scholars Program (ESP)
  - Has been in place for 14 years
  - 150 high school students from Palm Beach and Broward Counties take a dual enrollment engineering courses
- College offers STEM-related courses for middle school students during Summer
- College faculty have recently developed STEM curriculum for Broward County school system
- Provided one-day curriculum training to 50+ Math and Science school teachers and 6 school principals on January 6, 2012

# Success Stories SNMREC

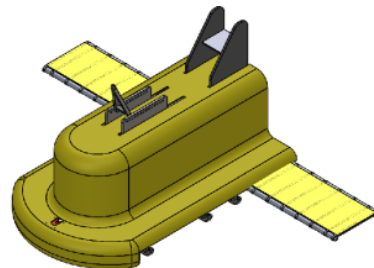


- Southeast National Marine Renewable Energy Center (SNMREC) has more than 40 active partnership agreements
- SNMREC actively participates in Palm Beach Business Development Board
- SNMREC provides outreach activities to local, regional, national communities
- SNMREC provides assistance in educational curriculum development for K-12



# Success Stories

- EdgeTech (a local company) has commercialized technology developed in the College and developed sonar systems
- Hundreds of such systems have been sold
- STTR for high bit-rate acoustic modems
- EdgeTech's business and size has grown in Florida
- EdgeTech hires graduates from our College





# Success Stories Our Graduates

Ralph de la Vega  
CEO of AT&T Mobility



Jaime Borrás  
Ex-CTO of  
Motorola



Steve Swanson,  
NASA Astronaut



Students at FAU have created a number of iPhone and Android applications, approved by Apple and Google

# Success Stories

Signing MOU with Telecommunications  
Industry Association (TIA), 2011



# Our Industry Guests

- Dr. Zee Aganovic, CEO of Hiconversion
- Armando Escalante, CTO of LexisNexis
- Michael Levine, Entrepreneur and CEO of LastBestChance, LLC
- Fred Yentz, CEO of ILS Technology
- Dr. John Yin, CEO of PartnerCommunity