

Colorado State University Information Science and Technology Center (ISTeC)

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- Information Science and Technology Center – **ISTeC**
- brief overview
- sample activities
- details: ISTeC.ColoState.edu





The Information Science & Technology Center

ISTeC.colostate.edu

- university-wide organization to promote, facilitate, and enhance CSU's IS&T research, education, and outreach activities
- IS&T at CSU: pertaining to the design and innovative application of computer, communication, and information systems
- Research Advisory Committee (RAC) & Education Advisory Committee (EAC)
 - ▲ each has ~15 faculty, including representatives of all nine colleges
- ISTeC Exec Com includes: Director, RAC & EAC Co-Chairs, VPIT
 - ▲ faculty from four different colleges
- ISTeC Industrial Advisory Council – over **35** active companies
 - ▲ meet each semester for half day, advice on our activities



History of ISTeC

ISTeC at CSU - The Information Science & Technology Center...

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http://istec.colostate.edu/

Getting Started Latest Headlines H. J. Siegel Homepage ECE

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ISTeC

The Information Science & Technology Center

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Contact Information

Executive Committee

- Members
- Meeting Schedule
- Minutes
- Activities

Education Advisory Committee

- Members
- Meeting Schedule
- Minutes
- Activities

Research Advisory Committee

- Members
- Meeting Schedule
- Minutes
- Activities

Industrial Advisory Council

- Members
- Meeting Schedule
- Minutes
- Activities

Mission Statement

CSU's ISTeC (Information Science & Technology Center) is a university-wide organization for promoting, facilitating, and enhancing CSU's research, education, and outreach activities pertaining to the design and innovative application of computer, communication, and information systems.

Sample ISTeC Activities

SP07 ISTeC Distinguished Lectures

Monday, February 5, 2007
Dr. Andrew Weiner
["Ultrafast Parallel Optical Signal Processing"](#)

Saturday, February 10, 2007
[Front Range Architecture Compilers Tools and Languages Workshop \(FRACTAL\)](#)

February 28, 2007
[2007 Research Retreat Registration](#)

What is ISTeC?

- Recent ISTeC Events
- Educational Programs
- Research Programs
- ISTeC Funding for Speakers and Workshops
- ISTeC Brochure
- Grid computing

Calendar of Events

- Jan. 2000: CSU ISTeC formed
 - ▲ established an IS&T minor
- Dec. 2001: Strategic Planning Com. charged to expand scope of ISTeC
- Dec. 2002: Strategic Plan approved, first ISTeC Director appointed
- May 2003: ISTeC's main faculty working groups formed: RAC & EAC
- ISTeC Director reports to Sr. VP/Provost through VPIT
- **Who is a member of ISTeC?**
 - ▲ anybody at CSU interested in "IS&T"



Example of ISTeC External Funding Received

- 5/04 – ISTeC grant from the state for high performance compute node
 - ▲ \$2M equip., \$50K staff support
 - ▲ 48 processors (Sun)
 - ▲ 192 GB of RAM (Hitachi)
 - ▲ cogrid.colostate.edu
- open to CSU faculty & students
- ISTeC courses to teach use (students from 14 different depts.)
- would not have without ISTeC
- total ISTeC “inspired” external funding:
> \$3.7M



Example of ISTeC Industry Workshop

IBM Day at Colorado State

November 11, 2004

Lory Student Center - West Ballroom

12:45 - Post-lunch Dessert

1:00 - Welcome/Program Introduction

HJ Siegel, Director - ISTeC, Electrical and Computer Engineering, CSU

Victor Walker, e-Business Strategy and Architecture, IBM Software Delivery and Fulfillment

1:05 - Big Blue Yesterday, Today and Tomorrow: An IBM Overview

Larry Longseth, Vice President, IBM Global Services Service Delivery Center - West, IBM Colorado Senior State Executive / IBM Boulder Senior Location Executive

2:15 - Blue and You: Using IBM as a Resource

Dr. Phil Farley, IBM Academic Initiative & Victor Walker, IBM

Scholars Program and Academic Initiative, Curriculum Help, IBM Grants and Grant Processes, IBMers as Resources, TVC Grants, Linux Hub and other current initiatives

3:00 - Deeper Blue: IBM Research Initiatives

Dr. Brad Brooks, Manager - IBM Chemical & Toxicology Management

Dr. Joan Mitchell, IBM Fellow

IBM Research and the Problems We Face, Introduction to IBM Research/Academy, The End of Scaling, Promise of Technology, Software Algorithms and Their Effect on Our Solutions, Exciting Developments, Research Reminders

4:15 - Becoming Blue: IBM Hiring & Internship Opportunities

Jolene Howells, IBM University Recruiting Program Manager

Dionne Liggett, IBM Connections Coordinator

Heather Jackson, IBM Extreme Blue Placement & Recruiting Manager

Working at IBM, Internship Opportunities, Extreme Blue/Speed Teams, Hiring Process/Skills important to IBM

5:00 - Faculty & Student Reception with IBM Boulder Staff Members



sponsored by
ISTeC

- ISTeC allows interaction with multiple departments/colleges
 - ▲ “one stop shopping” for IS&T at CSU
- ISTeC IBM Day – 11/04
 - ▲ how CSU students & faculty can interact with IBM
 - grants, interns, jobs, etc.
 - ▲ 200+ faculty and students came and went during day
- also done with other companies, and will continue
 - ▲ ex. Apple, Cisco, SGI, Sun
- these university-wide IS&T industry days would not be without ISTeC



Example RAC Activity: ISTeC Distinguished Lecturers



The Information Science & Technology Center

ISTeC.ColoState.edu

For abstracts, locations, and specific lecture time, see ISTeC.ColoState.edu/event_calendar.shtml

SPRING 2008 ISTeC DISTINGUISHED LECTURERS

“Network Coding: A New Paradigm for Networking?”
January 28, 2008



Dr. Anthony Ephremides
Cynthia Kim Professor of Information Technology,
University of Maryland

“Electronic Design Automation (EDA) to the Rescue of the Silicon Roadmap”
March 24, 2008



Dr. T.W. (Tom) Williams
Synopsys Fellow,
Synopsys, Inc.

Electrical and Computer Engineering
Distinguished Lecture

“Myths, Missteps, and Folklore of Network Protocol Design”
March 25, 2008



Dr. Radia Perlman
Sun Fellow,
Sun Microsystems

“100 Years of Digital Data”
March 31, 2008



Dr. Fran Berman
Director,
San Diego Supercomputer Center
Professor and HPC Endowed Chair,
University of California San Diego

“Future Directions in DoD Science and Technology”
April 7, 2008



Dr. André van Tilborg
Deputy Under Secretary of Defense
for Science and Technology,
Office of the Secretary of Defense

- IS&T speakers that faculty & students recommend
- internationally recognized
- two lectures:
 - ▲ broad “Distinguished”
 - ▲ narrow “discipline-specific”
- example “Distinguished” topics
 - ▲ Wireless Communication
 - ▲ High Perf. Computing
 - ▲ Computer Security
 - ▲ Human Genome
 - ▲ Business Technology
 - ▲ Semiconductor Trends
 - ▲ Data Mining
 - ▲ Robotics
 - ▲ Quantum Computing
 - ▲ DNA Computing
 - ▲ Grid Computing

• would not be without ISTeC



Example RAC Activity: CSU IS&T Expertise Database

The screenshot shows a web browser window titled "ISTeC at CSU - The Information Science&Technology Cent...". The address bar shows "http://istec.colostate.edu/database2/sp". The page features the ISTeC logo and the Colorado State University logo. Below the logos, there is a navigation menu with links for "Contact Information", "Executive Committee", "Education Advisory Committee", "Research Advisory Committee", and "Industrial Advisory Council". The main content area is titled "IS&T Faculty Researcher Seminars" and includes a "Search by Keyword" box. Below the search box, there is a list of seminars with columns for the seminar title, the presenter's name, and the type of seminar (Seminar or Tutorial). The seminars listed include topics like "A web-based system for greenhouse gas mitigation reporting", "An Introduction to Research Issues in Heterogeneous Parallel and Distributed Computing", and "Artificial Intelligence in Geospatial Science and Industry".

- faculty expertise in uniform format
 - ▲ IS&T faculty in all colleges
 - ▲ research & teaching interests
 - ▲ seminars and tutorials available
- internal: aid forming multidisciplinary teams for research and proposals
- external:
 - ▲ “Coffee with CSU” industry talks
 - six so far – led to grants, consulting, PhD student
 - ▲ industry portal for consulting, tutorials, short courses, seminars
 - ▲ enhance IS&T web presence
 - impacts ranking and recruiting of students & faculty
 - ▲ expertise for media quotes
- without ISTeC this database would not be built



Example RAC Activity: ISTeC Research Retreats

ISTeC



Colorado State University

The Information Science & Technology Center

ISTeC.ColoState.edu

ISTeC Research Retreat 2007

The goal of the retreat is to bring together researchers from across Colorado State University to facilitate collaborative interdisciplinary research in Information Science and Technology, including the potential for development of funded research programs. All CSU faculty, graduate students, and research staff are welcome to participate.

Wednesday February 28, 2007

Lory Student Center, North Ballroom

Pre-registration by February 21, 2007 is required at ISTeC.ColoState.edu
Childcare will be available by advance request by Friday, February 9, 2007

4:45 – 5:30 p.m. **Buffet Dinner** (Provided) – Informal Discussions

5:30 – 5:45 p.m. **Introduction and Opening Remarks**
Bill Farland, Vice President for Research
Pat Burns, Vice President for Information Technology

5:45 – 6:45 p.m. **Breakout Groups and Possible Subtopics:**

Pattern Recognition

- ✓ Observation, Sensing and Data Extraction
- ✓ Feature Extraction and Classification
- ✓ Computer and Human Models
- ✓ Human and Computer Systems

Chair: Lucy J. Troup
(Psychology)

Environmental Disaster Mitigation

- ✓ Atmospheric Modeling
- ✓ Sensing and Global Information Systems
- ✓ Computing, Communication, and Systems Integration
- ✓ Human Interface Aspects
- ✓ Decision Support and Optimization

Chair: H. J. Siegel
(Electrical & Computer Engineering)

Human Computer Interaction

- ✓ Distributed Database Design
- ✓ Web Site Design, Graphical Interface Design, Knowledge-Based Technology
- ✓ Collaborative Technologies
- ✓ Multimedia Group Decision Making
- ✓ Software Interface and Database Design
- ✓ Usability Testing
- ✓ Technology Transfer and Adoption

Chair: Don Zimmerman
(Journalism & Technical Communication)

Information Technology Research in the Interest of Emerging Economies

- ✓ Extend the Benefits of IT Research to the Broadest Possible Population
- ✓ Meet Challenges Such as Low Cost Technology
- ✓ Usability without Requiring Literacy
- ✓ Operation with Intermittent Networking Connectivity
- ✓ Appropriate Design

Chair: Jim Folkestad
(Construction Management)

6:45 – 7:00 p.m. **Refreshments**

7:00 – 8:00 p.m. **Continuation of Breakout Groups**

8:00 – 8:30 p.m. **Closing Remarks & Refreshments**

For more information contact Professor Lucy Troup, lucy.troup@colostate.edu.

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- goal: facilitate and encourage multidisciplinary collaborations
- set of interdisciplinary meetings for faculty and students to explore common interests based on topic areas they suggest
- breakout topics and subtopics vary
- 2/07: 4th Annual Research Retreat
 - ▲ four breakouts
 - ▲ 50 faculty, 26 students, 3 industry
 - from 16 depts., 7 colleges
- example result from retreats: \$334K “National Animal ID” project
- without ISTeC these retreats would not happen



Example RAC Activity: Proposed “PAR” Umbrella Lab

- proposed ISTeC People-Animals-Robots (PAR) Lab - umbrella research lab
- future: teams of people, animals, and robots working together
 - ▲ medical, disabled, and elderly care
 - ▲ search and rescue
 - ▲ disaster management
 - ▲ homeland security
 - ▲ military environments
- plan: form interdisciplinary research project groups under a unifying umbrella lab
- study how can teams of P, A, R can work together in an optimal way
- synergy & interaction among projects for improved research & funding
- Spring 2008: PAR Lab had four two-hour brainstorming sessions
 - ▲ successfully bringing faculty together
 - ▲ over 50 participants from 14 departments, 7 colleges
- identifying potential initial PAR research projects
- would not be without ISTeC



Example RAC Activity: CSU Campus-Wide HPC Study

Information Science and Technology HPC Survey - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://istec.colostate.edu/groups_research/hpc_survey/hpc

ISTeC Colorado State University

The Information Science & Technology Center ISTeC.ColoState.edu

High-Performance Computing (HPC) Survey

The CSU Information Science and Technology Center (ISTeC) is working with the Office of the Vice President for Research (VPR) to assess current activities and future opportunities that would benefit from High-Performance Computing (HPC), which is defined as using parallel processing software and hardware for fast problem solving. Our findings from this survey could potentially help CSU to better position itself in its presence of HPC in the region and future HPC-related resource acquisition/allocation.

Please complete this survey by **Friday, March 7, 2008**

If you have any questions, please review the [ISTeC HPC webpage](#) and/or contact Ricky Kwok (co-chair of the ISTeC Research Advisory Committee, Ricky.Kwok@colostate.edu).

Thank you in advance for your cooperation and participation.

Name:

Email:

Department:

Area of Research:

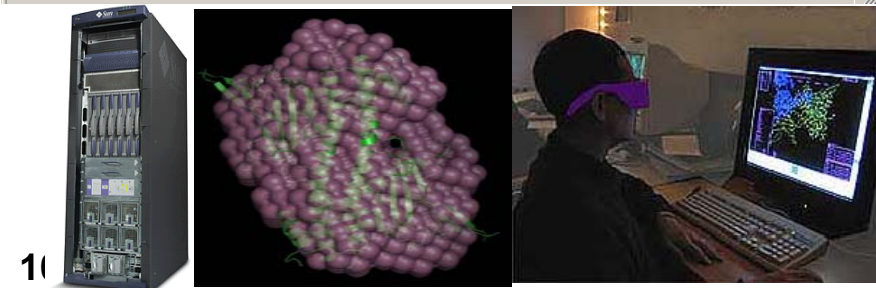
1. Please indicate whether you currently use or have used HPC in (check all that apply):

research

instruction

other (describe):

- HPC (high performance computing) for research across all CSU colleges
- Spring 2008 survey is to determine:
 - ▲ systems now used across CSU
 - ▲ which available for sharing
 - ▲ how systems being used – projects and software packages
 - ▲ current HPC needs being met?
 - ▲ expected future HPC needs
- goal: potential enhancements
 - ▲ campus-wide HPC platform
 - ▲ link up individual clusters
 - ▲ desktop grids
 - ▲ national lab cycles
 - ▲ provide HPC consultancy
- HPC study would not be without ISTeC



Example EAC Activity: IS&T Programs Brochure

- undergraduate IS&T programs in all eight academic colleges
- to high school students and CSU students with undecided majors

Adaptive Technology
COLLEGE OF APPLIED HUMAN SCIENCES
Applied Technology
Instructional Technology and
Technology Teacher Education
Adaptive Technology

E-commerce
COLLEGE OF BUSINESS
Computer Information Systems
Business Systems Development
E-commerce and Web Development

Robotics
COLLEGE OF ENGINEERING
Computer Systems and
Technologies
Computer Aided
Engineering
Communications and
Networking
Control Systems and
Robotics

Agriculture Information Technology
COLLEGE OF AGRICULTURAL SCIENCES
Applied Information Technology in Agriculture
Applications of GPS/Geographic
Information Systems Remote Sensing
Sensor Technology Applications in Agriculture

Tele-medicine
COLLEGE OF VETERINARY MEDICINE AND
BIOMEDICAL SCIENCE
Diagnostics Imaging
Advanced Computer-Based Instructional
Technology
Biomedical Information Management Systems

Bioinformatics
COLLEGE OF LIBERAL
ARTS
Media Technology
Computer Mediated
Communication
Technical Journalism

COLLEGE OF NATURAL RESOURCES
Geospatial Analysis and Modeling
Ecological Remote Sensing
Geographic Information Systems and GPS

COLLEGE OF NATURAL SCIENCES
Information
Science,
Cryptography
Bioinformatics
Computer Science
Applied
Computing
Technology

Each college offers undergraduate degree programs dealing with a critical dimension of information science and technology. These programs are for students with career goals in fields centered on computer, communication, and information systems.

The Interdisciplinary Studies Program in Information Science and Technology was created for students who would like to take a 21-credit series of courses that is equivalent to a minor program of study.

For further information on Information Science and Technology education programs at Colorado State University istec.colostate.edu/education

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ISTeC
Information Science
and Technology
istec.colostate.edu/education Colorado State University
Knowledge is On Place

- without ISTeC this brochure would not exist

Example EAC Activity: Annual High School Day

- ISTeC Annual IS&T High School Day for students and counselors
- bring Colorado's brightest high school students to CSU
- present IS&T educational and career opportunities
- faculty propose and run stations with demos, activities, and contests
 - ▲ sponsor company representatives at each station discuss careers



- 11/07 – 4th Annual ISTeC IS&T H. S. Day
 - ▲ bused in over 275 high school students & counselors from 24 schools
 - ▲ 50 CSU faculty, staff, students from all nine colleges
 - ▲ 14 ISTeC IAC co-sponsorsfully funded event:
Agilent, AMD, Avaya, Cisco, Covidien, ESRI, Hitachi, HP, IBM, InfoPrint, Intel, Level3, Lockheed Martin, Microsoft
- without ISTeC this multidisciplinary event would not be happening

Example EAC Activity: FutureVisions Symposium

WELCOME TO CAMPUS: SECOND LIFE
please click this sign for info

FUTUREVISIONS
Symposium

FRIDAY, SEPTEMBER 14, 2007
8:30 A.M. TO 4:00 P.M.
LORY STUDENT CENTER

THE 2nd biennial FutureVisions Symposium is an exciting free conference on the future of global information and communication technology for students, faculty, government officials, and industry professionals.

Co-sponsored by the Information Science and Technology Center (ISTeC) at Colorado State University and Accenture, Covidien, Hitachi, HP, IBM, InfoPrint, Lockheed Martin, Xilinx, Zolon.

<http://futurevisions.colostate.edu>

ISTeC Colorado State University

Topics: DOUBLE EARTH • HEALTHCARE • BIOTECHNOLOGY • ALTERNATIVE ENERGY • WIRELESS • MOBILE • FUTURE OF THE INTERNET • VISUALIZATION • VIRTUAL WORLDS • SECOND LIFE • FUTURE OF GPS • VIRTUAL WORLD FUTURES • COMPUTER SECURITY • FUTURE OF TV SYSTEMS • LIFE IN VIRTUAL WORLDS • SECOND LIFE

- biannual event for students
- started 2005
- state of IS&T in next 5-10 years
- topics proposed by faculty
- industry and academic speakers
- 9/07 – 2nd FV – with ~500 attendees
 - ▲ “The Merger of Designed and Real Worlds in Google Earth”
 - ▲ “Future of Innovation in IT” (IBM)
 - ▲ “Life in Virtual Worlds: Unique Applications in Second Life”
 - ▲ 3 concurrent topical tracks
 - ▲ 9 ISTE C IAC co-sponsors
- fully funded event:
Accenture, Covidien, Hitachi, HP, IBM, InfoPrint, Lockheed Martin, Xilinx, Zolon
- would not be without ISTE C

Example EAC Activity: Fluency with IT (FITness)



- goal: to assess graduating CSU seniors' fluency with information technology (FITness)
- conducting "iSkills"[™] survey of 400 CSU seniors in Spring and Fall of 2008 to assess information processing and communication skills
- data will enable EAC to
 - ▲ compare CSU students' fluency with that of other universities
 - ▲ determine any needed improvements to curriculum
- also working with local school district to assess K-12 preparation in IS&T, and how to improve if needed
- IT skills assessment would not be without ISTE C



Concluding Remarks

- sample ISTeC activities summarized
- ISTeC exists to provide added value to CSU
- bringing IS&T faculty together across department and college boundaries is critical if CSU is to compete with larger departments at other universities for ranking, funding, new students, new faculty, etc.
- ISTeC consists of active faculty from all colleges who care about CSU IS&T research and education
- built an inter-college IS&T people-infrastructure
- enhancing IS&T intellectual environment, reputation, and funding at CSU
- providing infrastructure to assist all colleges at CSU in the design and innovative application of IS&T