



2004 Annual Review of the

**Ohio State University**

# Collaborative Center of Control Science (CCCS)

and

2004 Peer Review of the

**AFRL Air Vehicles Directorate**

# Control Science Center of Excellence (CSCOE)


October 12-13, 2004

*(Directions and Accommodation Information is Attached)*

**Tuesday, Oct. 12: The Blackwell, Pfahl Executive Conference Center, Rm. 140 Pfahl Hall**

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| 7:30am | Registration and Continental Breakfast |
| 8:00am | Opening Remarks and CSCOE Program Overview<br>Siva Banda |
| 8:30am | Welcome and CCCS Program Overview<br>Kevin Passino |

**Cooperative Control for UAVs: CSCOE**
**Session Chair: Debbie Grismer**

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|---|---|
| 9:00am | UAV Cooperative Control Research Overview<br>Phil Chandler |
| 9:30am | Task Assignment with Coupled Tasks and Timing Constraints<br>Corey Schumacher |
| 10:00am | Break for 30 minutes |
| 10:30am | Cooperative Electronic Attack<br>Mark Mears |
| 10:50am | UAV and MAV Operations in Urban Environments, Matt Orr |
| 11:10am | Cooperative UAV Simulation<br>Steve Rasmussen |
| 11:30pm | Lunch on site |

**Cooperative Control for UAVs: CCCS**
**Session Chair: Raul Ordóñez**

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|---|---|
| 12:30pm | UAV Cooperative Control Research Overview<br>Kevin Passino |
| 12:50pm | Cooperative Assignment with Information Flow Constraints<br>Brandon Moore |

1:10pm Cooperative Search with Networked UAVs
Kevin Passino

1:30pm Modeling Pop-Up Threats for Coordinated Area Denial
Joe Cruz

1:50pm Distributed Sensor Fusion
Ümit Özgüner

2:10pm Cooperative Control Testbed
Keith Redmill

2:30pm Break for 15 minutes

**Control of Reusable Launch Vehicles: CSCOE/CCCS**
**Session Chair: Mike Oppenheimer**

2:45pm Hypersonic & Space Access Vehicle Guidance & Control Research
Dave Doman

3:45pm RLV Research: From Reconfigurable Control Allocation to Model-Based Control for an Air-Breathing Hypersonic Vehicle
Andrea Serrani

**4:30pm-5:30pm Poster Session, Session Chair: Lt Reid Larson**

1. Cooperative Control for Mobile Targets with Communication Delays, Raul Ordóñez
2. Real-Time Task Allocation for Heterogeneous UAV Teams in Stochastic Environments, Ali Minai
3. Model Checking to Generate Search Strategies, Bruce Weide
4. Stability Domain Estimation for Dynamic Inversion Embedded SDRE Flight Control, Rama Yedavalli
5. Control Science Center of Excellence– External Support, Bill Blake
6. Cooperative Assignment Using Efficient Collaborative Estimation, Tal Shima

**Tuesday Evening Activities:**

5:30pm Cocktails and Hors d'oevres
The Blackwell, Ball Room Lobby (second floor)
6:30pm Dinner (on site)
The Blackwell, Banquet/Ball Rooms A& B

**Wednesday, Oct. 13: The Blackwell, Pfahl Executive Conference Center, Rm. 140 Pfahl Hall**

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|---|---|
| 7:30am | Continental Breakfast |

**Aerodynamic Flow Control: CSCOE/CCCS**
**Session Chair: Bill Blake**

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|---|---|
| 8:00am | Overview of Feedback Control of Aerodynamic Flows<br>James Myatt |
| 8:40am | Flow Control Using Feedback-Oriented Model Reduction<br>Chris Camphouse |
| 9:00am | Overview of Simulation, Modeling, and Experiments for Feedback Control of Cavity Flows<br>Mo Samimy |
| 10:00am | Controller Design for Feedback Control of Cavity Flows<br>Andrea Serrani |
| 10:30am | Break for 15 minutes |

**Executive Board Evaluation and Feedback:**

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|---|---|
| 10:45am | CCCS/CSCOE Executive Board Meeting (closed meeting & working lunch) |
| 11:00 | Lunch for non-panel on site |
| 12:15pm | CCCS/CSCOE Executive Board Feedback to CCCS/CSCOE Investigators (open meeting) |
| 1:00pm | Meeting ends |

**Directions and Accommodations**
AFRL/VA and AFOSR supported

**The Ohio State University**

## Collaborative Center of Control Science (CCCS)

# Hotel Information

The Blackwell http://www.theblackwell.com/about/
2110 Tuttle Park Place
Columbus, Ohio 43210

Phone: 614-247-4000
Call for reservations, toll free: 866-247-4003

Location: On the east side of Tuttle Park Place Ave. between Lane Ave. and Woody Hayes Dr. See directions below.

Holiday Inn on the Lane http://www.holidayinnosu.com/
328 W. Lane Ave.
Columbus, Ohio 43210

Phone: 614-294-4848
Call for reservations, toll free: 800-465-4329

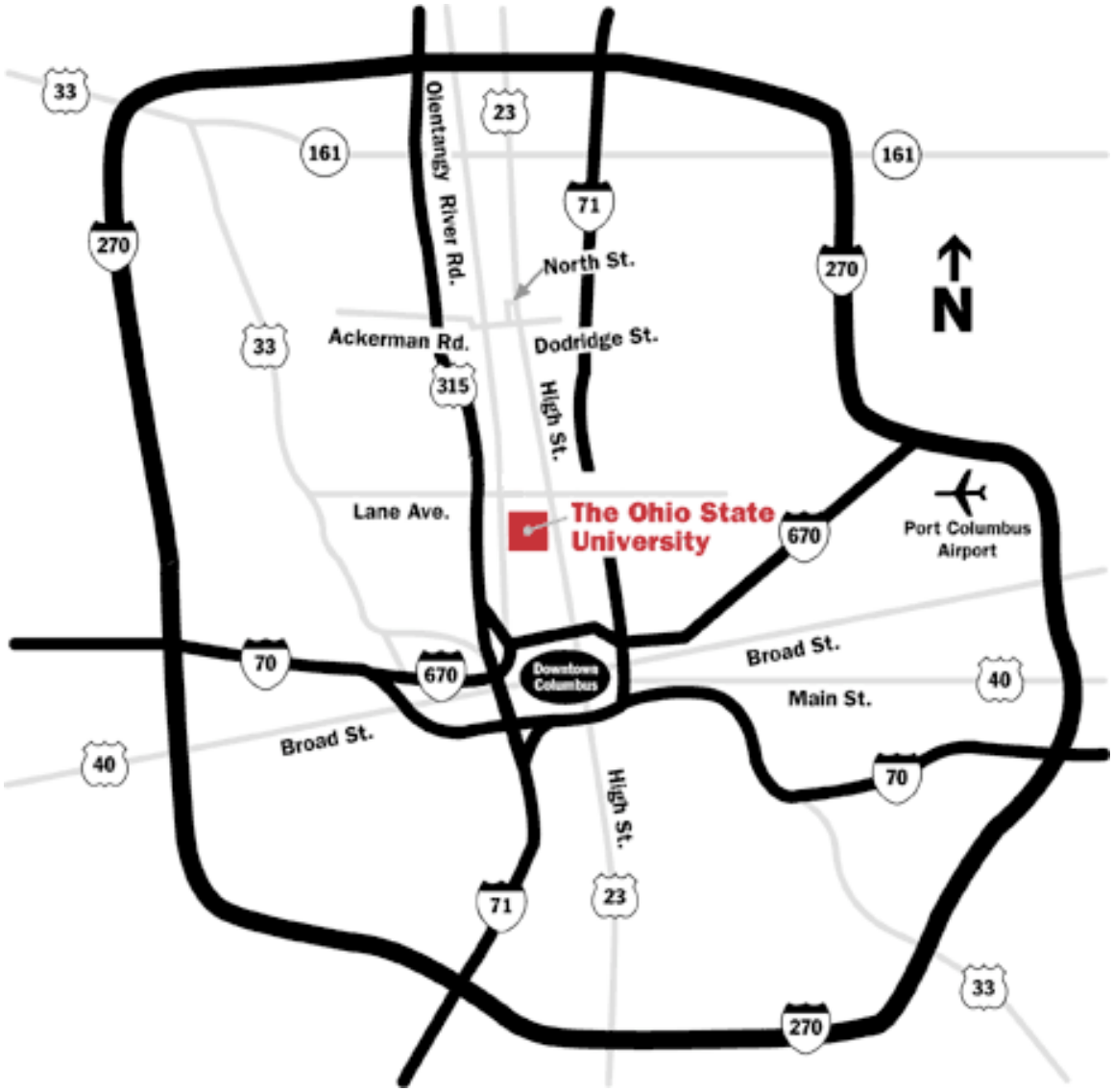
Location: On the north side of Lane Ave., east of 315 (and of Olentangy River Rd.) and just west of Tuttle Park Place Ave. See directions below.

Alternate Hotel: The University Plaza Hotel - http://www.universityplazaosu.com/
3110 Olentangy River Rd.
Columbus, Ohio 43202
Phone: (614) 267-7461

Location: Go north on Olentangy River Rd. from Lane Ave., about a mile and on right hand side.

For more information on accommodations, see http://www.osu.edu/visitors/

# Directions to The Ohio State University*




## Directions to OSU Campus:

**From the north:**
Take any major highway to I-270. Take I-270 to SR 315 south. From SR 315 south, exit at Lane Avenue and turn left.

**From the south:**
Take any major highway to I-71 north. Take I-71 north to SR 315 north. Exit at Lane Avenue and turn right.

**From the west:**
Take any major highway to I-70 east. Take I-70 east to I-670 east to SR 315 north. Exit at Lane Avenue and turn right.

**From the east:**
Take any major highway to I-70 west. Take I-70 west to SR 315 north. Exit at Lane Avenue and turn right.

**From Port Columbus International Airport:**
Take I-670 west to SR 315 north. Exit at Lane Avenue and turn right.

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* From OSU Visitor Guide. For more details, if you have access to the web, click here.

# Directions to The Blackwell Hotel and Holiday Inn

- Go east on Lane Avenue from SR 315.
- Holiday Inn is on your right (north) after you cross the river.
- Blackwell: Continue past the Holiday Inn and take a right on Tuttle Park Place.
- The Blackwell is on the east side of Tuttle Park place, immediately on your left (i.e., at the corner of Tuttle Park Place and Woody Hayes Dr.).

## See map below for more details:

The Blackwell is Building 254

Pfahl Hall, Pfahl Executive Conference Center is Building 253

Holiday Inn on the Lane is the cream and white-topped building in the top-right corner of the map below.

# Directions to Dreese Laboratory


Go east on Lane Avenue from 315.

Turn right on Tuttle Park Place (road next to stadium) and then turn left into Garage D (Tuttle Park Place Garage).

You may walk to Dreese Laboratory, which is nearby, just to the southeast of the Tuttle Park Place Garage (see above map).