

# CURRENT ACTIVITIES AT SYSTEMS TECHNOLOGY, INC.



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SAE Aerospace Control & Guidance Systems Committee  
Meeting No. 98

Williamsburg, VA  
11-13 October 2006

# CURRENT CONSULTING & GOVERNMENT ACTIVITIES

I could tell you, but...

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# NDA

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# ITAR

# 4<sup>th</sup> ANNUAL STISIM *DRIVE* CONFERENCE

- To be held October 26-27, 2006
- Hosted by Massachusetts Institute of Technology, Cambridge, MA
- 20+ Papers from 15+ Organizations, 50 Attendees
- Previous conferences:
  - 2003: Cranfield University, Milton Keynes, UK
  - 2004: UC San Diego, San Diego, CA
  - 2005: Bosch Automotive, Stuttgart, Germany

# CONFERENCE PAPERS PUBLISHED AS A SPECIAL ISSUE OF *ADVANCES IN TRANSPORTATION STUDIES*

- Paper topics include:
  - Driver training
  - Driver impairment
  - Lower limb movement variability in elderly persons
  - Road safety evaluation
  - Testing visibility and conspicuity of highway designs
  - Performance measurement paradigms
  - Driving simulation in a clinical setting: utility for testing and treatment



# 2005 CONFERENCE OVERVIEW



SSP Demonstration



Bosch Demonstration



11-13 Oct. 06

Presentation to SAE Control & Guidance  
Systems Committee

# “SMART-CUE” PROGRAM DESCRIPTION

- Phase II Small Business Innovation Research (SBIR)
- Program falls under NASA SBIR Topic A1 - Aviation Safety & Security
- Program was motivated by the work of Ralph A'Harrah (NASA HQ) embodied in the Loss of Control Inhibition System (LOCIS) concept
- STI Innovation – “Smart-Cue” based on a quantified measure of control system dynamic distortion
- NASA DFRC COTR – Tim Cox

# CONCEPT DEVELOPMENT USING FIXED-BASE PILOTED SIMULATION

- STI PC-based Simulator
- McFadden Series 292A Pitch & Roll Stick & Control Loader
- Evaluations supported by:
  - STI in-house engineering and pilot evaluations
  - Boeing Pilots (3 BCA test pilots have participated thus far)
  - USAF Test Pilot School Student Pilots
  - NASA DFRC (pilot evaluation forthcoming)



# FLIGHT TEST EVALUATIONS

- Checkout Flights
  - 4 checkout flights conducted in June 2006 from the Calspan facility at Niagara Falls, NY
  - Configuration verification, evaluation task refinement, Smart-Cue nominal settings identification
  - Lateral & longitudinal evaluations in cruise, lateral evaluations in approach and landing
- Formal Evaluation Flights
  - Flights to be conducted in November 2006
  - Always looking for a few good test pilots that are not intimidated by Buffalo area weather in November

# CALSPAN LEARJET II IN-FLIGHT SIMULATOR



a) Learjet 2 is readied for first checkout flight



b) VSS Electronics Enclosure



c) Hydraulic control loaders for EP station



d) DVD recording system



e) Flight test engineer's station



f) SP station

# FLIGHT TEST EVALUATION TASKS



a) Head down tracking task display



b) Offset landing approach



c) Correction to centerline



d) Another happy landing