

Eric Feron
Professor of Aerospace Engineering
Georgia Institute of Technology
CV Table of Contents

Section	Description	Page
I.	Earned Degrees	
II.	Employment History	
III.	Teaching	
IV.	Scholarly Accomplishments	
V.	Service	
VII.	Honors and Awards	

Eric Feron
Professor of Aerospace Engineering
Georgia Institute of Technology

Date: September 2016

Full Name: Eric Marie Jacques FERON

Professor of Aerospace Engineering, Georgia Institute of Technology, USA
Director, Decision and Control Systems Laboratory (dcl.gatech.edu)

Date of Birth: February 19, 1967

Citizenship: US, France

Title of Thesis for Most Advanced Degree: Linear Matrix Inequalities for the Problem of Absolute Stability of Automatic Control

Principal Fields of Interest: System Guidance and Control, Optimization, and Computer Science with applications to autonomous aerial vehicles, air transportation systems, and embedded software.

Name and Rank of Other Faculty in the Same Field at same institution:

John-Paul Clarke, Associate Professor, Aerospace Engineering
Eric Johnson, Associate Professor, Aerospace Engineering
Panagiotis Tsiotras, Professor, Aerospace Engineering
Amy Pritchett, Associate Professor, Aerospace Engineering
JVR Prasad, Professor, Aerospace Engineering
Mark Costello, Professor, Aerospace Engineering
Wassim Haddad, Professor, Aerospace Engineering
Arkadiy Nemirovski, Professor, Industrial and Systems Engineering
Magnus Egerstedt, Professor, Electrical and Computer Engineering
Yorai Wardi, Professor, Professor, Electrical and Computer Engineering
Mayur Naik, Assistant Professor, College of Computing
Santosh Pande, Professor, College of Computing
Alessandro Orso, Professor, College of Computing

I EARNED DEGREES

<u>School</u>	<u>Degree</u>	<u>Date</u>
Stanford University	Ph.D.	01/1994
École Polytechnique	DEA (equivalent M.S.)	09/1990
École Polytechnique	B.S.	09/1989

II EMPLOYMENT HISTORY

<u>Employer</u>	<u>Position</u>	<u>Beginning</u>	<u>Ending</u>
Surentez, LLC.	Chief Scientist	2014	2016
Ecole Nationale Aviation Civile	Consulting Professor	2012	2014
Georgia Institute of Technology	Professor	2005	----
Nascent Technology Corp.	Chairman Board	2002	2005
Massachusetts Inst. Technology	Associate Professor	1999	2005
Massachusetts Inst. Technology	Assistant Professor	1993	1999
Ministry of Defense, France	Engineer	1990	1993

III TEACHING

A INDIVIDUAL STUDENT GUIDANCE

A1. Postdoctoral Fellows

Sang Hyun Kim (2013)
Air Transportation
Department of Transportation, Korea

Alireza Esna-Ashari (2012-2014)
Control Systems and Software Engineering
under way

Erwan Salaun (2008-2010)
Air Transportation
GNC research scientist, SAFRAN

Mazen Farhood (2006-2007)
Control Systems
Associate Professor (tenured), Virginia Tech

Viswesh Kulkarni (2002-2004)
Control Systems

Research Professor, U. Colo. Boulder

Berenice Mettler (2001-2005)

Human factors and Control Systems

Associate Professor (tenured), U. of Minnesota. Resigned from her position in 2016

Yong Wang (2001-2003)

Control Systems and Software Engineering

Professor, Beijing University

Jae Hyuk Oh (1995-1997)

Air Transportation

United Technologies Research Center

A2. Ph.D. Students

Doctoral Theses, Supervisor

M. W. McConley,

Major: Control Systems

Graduation: 01/97

"A computationally Efficient Lyapunov-Based Procedure for Control of Nonlinear Systems with Stability and Performance Guarantees".

Current Position: Technical Staff, Draper Laboratory.

N. Pujet

Major: Air Transportation

Graduation: 08/99

Thesis title: "Modeling and Control Airport of Departure Processes at Busy Airports".

Current Position: VP Research, Level 3 optical communication systems.

E. Frazzoli,

Major: Control Systems

co-Advisor: Munther Dahleh

Graduation: 08/2001

Thesis title: "Robust hybrid control for autonomous vehicle motion planning".

Current Position: Professor, ETH Zurich, Co-founder, Nutaunomy

L. McGovern,

Major: Optimization

Graduation: 05/00

Thesis title: "Computational Analysis of Real-Time Convex Optimization for Control Systems".

Current Position: Loral Corp.

Vladislav Gavrilets

Major: Robotics

Graduation: 08/03

Thesis Title: "Autonomous aerobatic maneuvering of miniature helicopters".

Current Position: Technical Fellow, Rockwell-Collins.

S. Gentry,

Major: Robotics and Human-Centered Engineering

Graduation: 06/05

Thesis Title: "Dancing cheek to cheek : haptic communication between partner dancers and swing as a finite state machine".

Current Position: Professor of Mathematics (tenured), US Naval Academy. Research fellow, Johns Hopkins U.

J. DeMot,

Major: Robotics

Graduation: 06/05

Thesis Title: "Optimal agent cooperation with local information"

Current Position: Leadership, the Coca-Cola company

F. Carr

Major: Air Transportation

Graduation: 01/04

Thesis Title: "Robust Decision-Support Tools for Airport Surface Traffic"

Current Position: Technical Staff, Draper Laboratory

Chris Dever

Major: Autonomy

Graduation: 08/04

Thesis Title: "Path planning of unmanned helicopter using parameterized aggressive maneuvers and Integer Programming"

Current Position: Technical staff, Draper Laboratory

Z. H. Mao

Major: Neuroscience

Co-Advisor: Steve Massaquoi

Graduation: 06/05

Thesis Title: "Modeling the role of the basal ganglia in motor control and motor programming"

Current Position: Associate Professor (tenured), University of Pittsburgh

T. Schouwenaars,

Major: Autonomy

Co-Advisor: Jonathan How

Graduation: 08/05

Thesis Title: "Safe trajectory planning for multiple unmanned vehicles"

Current Position: Financial Analyst, Goldman Sachs

Mardavij Roozbehani,

Major: Software Analysis

Co-Advisor: Alexandre Megretski

Graduation: 08/08

Thesis Title: "Optimization of Lyapunov Invariants in Analysis and Implementation of Safety-Critical Software Systems".

Current Position: Principal Research Engineer, MIT

Animesh Chakravarthy,

Major: Traffic Engineering

Co-Advisor: Jaime Peraire

Graduation: 11/06

Thesis Title: "Safety of a multi-vehicle system in mixed communication environments"

Current Position: Associate Professor (tenured), Wichita State U.

J H Yang,

Major: Human Centered-Engineering

Co-Advisor: Joseph Coughlin

Graduation: 08/07

Thesis Title: "Analysis and Detection of Driver Fatigue Caused by Sleep-deprivation" Current

Position: Associate Professor, Kookmin University, Korea

Jerome Le Ny

Major: Control Systems

Co-Advisor: Munther Dahleh

Graduation: 08/08

Thesis Title: "Performance Optimization for Unmanned Vehicle Systems"

Current Position: Assistant Professor, Université Polytechnique de Montréal

Keumjin Lee

Major: Air Transportation

Co-Advisor: Amy Pritchett

Graduation: 12/07

Thesis Title: "Describing Airspace Complexity: Airspace response to disturbances"

Current Position: Assistant Professor, Korea Aerospace University

Maxime Gariel

Major: Air Transportation

Graduation: 08/2010

Thesis Title: "Towards a Graceful Degradation of Air Traffic Management Systems"
Current Position: Chief Technology Officer, Cavorite Research.

Pierrick Burgain

Major: Air Transportation

Graduation: 01/2013

Thesis Title: "On the Control of Airport Departure Operations"

Current Position: Financial Analyst, Capital One

Mehrdad Pakmehr,

Major: Control Systems

Graduation: 06/2013

Thesis title: TOWARDS VERIFIABLE ADAPTIVE CONTROL OF GAS TURBINE ENGINES"

Current Position: SF Bay Area Controls Startup

Sang Hyun Kim,

Major: Air Transportation

Graduation: 08/2013

Thesis title: AIRPORT CONTROL THROUGH INTELLIGENT GATE ASSIGNMENT

Current Position: Research Engineer, Department of Transportation, Korea

Timothy Wang

Major: Software Engineering

Graduation: 08/2015

Thesis title: Credible autocoding of hierarchical control systems

Current Position: Research Engineer, United Technologies Research Center.

Romain Jobredeaux

Major: Software Engineering

Graduation: 08/2015

Thesis title: Analysis of credibly autcoded software

Current position, Google, Inc.

Emmanuel Boidot

Major: Robotics

Expected Graduation: 05/2017

Thesis title: Path Planning in Ambush Games

Current position: Research Engineer, Mercedes, Silicon Valley

Aude Marzuoli

Major: Air Transportation

Graduation: 08/2015

Thesis Title: Multimodal Operations during Major Air Transportation Disruptions.
Current Position: Verizon Research, Palo-Alto

Romarc Breil (co-advisor, Ecole Nationale de l'Aviation Civile, France)
Major: Air Transportation and Computer Science
Expected Graduation: 08/2017
Thesis Title: Emergent behaviors in decentralized air transportation operations.

Raphael Cohen (co-tutelle with ONERA-Toulouse, France)
Major: Software Engineering
Expected Graduation: 2018
Thesis title: Certification of embedded optimization algorithms for online vehicle guidance

Guillaume Davy (co-advisor, ONERA-Toulouse, France)
Major: Software Engineering
Expected Graduation: 2018
Thesis title: Semantics of optimization programs.

Thomas Gurriet
Major: Control systems
Expected graduation: 2019
Thesis title: Barrier functions for agile robotics.

Mark Mote
Major: Control systems
Expected graduation: 2020
Safety verification of open experimental testbeds.

A3. M.S. Students

S.M. Theses

C. Sabol, MIT, "Application of Sun-Synchronous, Critically Inclined Orbits of Global Personal Communications Systems," February 1994.

F. Niles, MIT, "Noise Covariance Change Detection Using Kalman Filtering", May 1996.

L. Lintereur, MIT, "Optimal Trajectory Determination for Strapdown IMU Calibration", May 1996.

X. Paternot, ETH Zurich, "F18-SRA analysis via Wavelets and Identification", May 1996.

L. Duchesne, MIT, "A Novel Algorithm for Flutter Boundary Determination", January 1997.

M. Shewchun, MIT, "Linear Matrix Inequalities for Control Problems with Pointwise-in-Time Constraints", August 1997.

A. Turevskiy, MIT, "Flutter Boundary Prediction Using Experimental Data", January 1998.

C. Sanders, MIT, "Real-Time Collision Avoidance for Autonomous Air Vehicles", January 1998.

G. Desilles, MIT, "Differential Kolmogorov Equations for Transiting Processes", May 1998.

B. Lintereur, MIT, "Control System Design Using Convex Constraint Specification and Youla Controller Parameterization", May 1998.

B. Delcaire, MIT, "Dealing with Airport Congestion: Development of Tactical Tools for the Departure Flows from a Large Airport", May 1998.

A. Budge, MIT, "Aerodynamic Fuze Characteristics for Trajectory Control", May 1998.

S. George, MIT, "The Effect of Configurational Asymmetries on Projectile Aerodynamics, Stability, and Guidance", May 1998.

M. Jamoom, MIT, "Constrained Optimization for Hierarchical Control System Design", May 1999.

H.-F. Vuong, MIT, "Modeling and Analysis of Software Specifications for an Autonomous Aerial Vehicle", May 1999.

K. Andersson, MIT, "Potential Benefits of Information Sharing During the Arrival Process at Hub Airports", May 2000.

A. Shterenberg, MIT, "Instrumentation and System Identification for a Small Autonomous Helicopter", September 2000.

Z.-H. Mao, MIT, "Stability and Performance of Intersecting Aircraft Flows under Decentralized Conflict Resolution", May 2000.

F. Carr, MIT, "Stochastic Modeling and Control of Surface Traffic", February 2001.

T. Schouwenaars, KU Leuven, "Path planning of several vehicles using mixed-integer programming" 2001, KU Leuven

D. Dugail, MIT, "En-route airspace capacity under flow separation and scheduling constraints", 2002

K. Sprague, MIT, Avionics System for highly agile autonomous Systems 2002

I. Martinos, MIT, "Path Planning for highly agile autonomous systems" 2003

Ji Hyun Yang, MIT, "Development of a Performance-Based Approach for Collision Avoidance and Mitigation, May 2003

Mario Valenti, MIT, "reconfigurable guidance systems", june 2003.

M. Ishutkina, MIT, "Design and analysis of safe laboratory flight systems", completed 06/04

Rodin Lyasoff, MIT, "Syntax-based guidance for autonomous aggressive aerobatics in urban environments." Completed 08/04

Emily Craparo, MIT, "Natural language processing for unmanned aerial vehicle guidance interfaces": Completed 06/04

Farmey Joseph, MIT: "planning randomized paths for personnel and vehicle security management", 06/05.

Greg Marks, MIT : "Flexibility in Unmanned Rotorcraft design", 06/05

Olivier Toupet, MIT: "Path planning of Unmanned Rotorcraft using Linear and Integer Programming", 01/06.

K. Sprague, MIT Technology & Policy Program," Civilian applications and policy implications of commercial unmanned aerial vehicles" 08/04

Phillip Root, MIT, "Randomized path planning for invasion route reconnaissance by unmanned aerial helicopters", 06/05.

Glenn Tournier, MIT "Six degrees of freedom estimation using monocular vision and moiré patterns", 05/2006

Nicolas Barbieri, Georgia Tech – "Positioning applications of lenticular sheets" – 05/2008

Aude Marzuoli - Georgia Tech "Enroute Air Traffic Optimization under Nominal or Perturbed Conditions, on a 3D Data-Based Network Flow Model", 05/2012

Timothee Cazenave - "Peak-Seeking Control of Propulsion Systems", 05/2012

Troy Hand , "Self-Organized Traffic Flows: A Sequential Conflict Resolution Approach", 2013

Raphael Cohen (ENSMA, France) "Modeling and control of small jet engine", September 2014.

Tom Guillaumet “System on a chip architectures for safety-critical applications”, planned May 2017.

Hélène Piquet “Performance metrics for the air transportation system”, planned May 2017.

A4. Undergraduate Students

S.B. Theses

Christophe Martin 1995, école Polytechnique SB thesis

A. Otero Saenz and D. Matsumoto, “Control of a Tethered Grapple,” 1997. Award Winning team.

D. McIvor, “Experimental Evaluation of an Artificial Vision System,” 1997.

P. Kuo, K. Peters and T. Wang, “Modeling an Airline Operations Center,” UROP project, 1997-98.

K. Dyer, P. Eremenko and J. Markish, “Autonomous Helicopter Supervisory Control,” UROP project, 1997-98.

M. Pirri, “Analysis and Design of an Airport Simulation Tool,” UROP project, 1998.

P. Elliott and Benjamin Ingram, “Automatic Control of an Autonomous Helicopter”, 1999.

A. Matusevski and A. Shterenberg, “Analysis and design of mechanical and electronic data processing system for autonomous vehicle system inertial management unit.”, 1999.

T. Borrego and J. Wright, “Helicopter aggressive maneuvering: Human performance”, 1999.

T. Melconian, “Open-loop vibrational magnetic control of small devices”, 1999.

M. Coudyser, “abstract interpretation for linear control systems”, 2001

Timothee de Mierry “Ground Vibration test of Hind Helicopter”, 2002

Adrian Townsend and John Sims, “Air-Levitated Systems,” 2004.

Timothée Hunter, “Landing of autonomous helicopters at unusual attitudes,” 2007.

Keenan Jones, David Miculescu “Peak Seeking control of propulsion systems”, 2011-2012.

Mark Mote, Corey Mercurio “Aerospace information systems security”, 2014.

A5. Service on thesis or dissertation committees:

A.5 Doctoral Theses, Reader and committee membership

K. Y. Yang, "Efficient Design of Robust Controllers for H2 Performance", MIT, 1997.

P. Miotto, "Fixed Structure methods for Flight Control Analysis and Automated Gain Scheduling", MIT, 1997.

J. F. Bosc, "Techniques d'évitement réactif et simulation du trafic aérien", (Reactive conflict avoidance and simulation of air traffic). ENAC, Toulouse, France. 1998

K. Gandhi, "Nonlinear Modeling and Characterization Techniques for Phase Transitions in Electro-Mechanically Coupled Devices", MIT, 1998.

R. Kornfeld, "The Impact of GPS Velocity Vector Based Flight Controls on Flight Instrumentation Architecture", MIT, 1999.

W. Hall, "Efficient Capacity Allocation in a Collaborative Air Transportation System", MIT, 1999.

William Kaliardos, "Semistructured Decision Processes", MIT, 1999.

Gregory Mallory, "Development and Experimental Validation of Direct Controller Tuning for Spaceborne Telescopes", MIT, April 2000.

Jorge M. Gonçalves, "Stability Analysis of Hybrid Systems", MIT, September 2000.

Jerry Wohletz, "Retrofit Systems for Reconfiguration in Civil Aviation", MIT, January 2000.

Olivier DeWeck, "Multivariable isoperformance methodology for precision opto-mechanical systems", MIT.

Kuan Hang Chen, "Data-rich correlations", MIT.

Shen-Fang Liao, "Robust Control of Surge and Rotating Stall in an Axial Compressor", MIT, September 2000.

David Benson, "A Gauss pseudospectral transcription for optimal control", MIT, 2005.

Alvar Saenz-Otero, : "Design Principles for the Development of Space Technology Maturation Laboratories Aboard the International Space Station." MIT, 2005.

Arthur Richards, "Robust constrained model predictive control", MIT, 2005.

Erwan Salaun, "FILTERING ALGORITHMS AND AVIONICS SYSTEMS FOR UNMANNED AERIAL VEHICLES", 01/09, Ecole des Mines, Paris, France.

Gauthier Hattenberger: “ Vol en Formation sans Formation” (Formation Flight without Training). Laboratoire d’Automatique et d’Analyse des Systèmes + ENAC, France. 2009.

Assale Adje: “Optimisation et jeux appliqués à l'analyse statique de programmes par interprétation abstraite”, (Optimization and games applied to static program analysis via abstract interpretation), Ecole Polytechnique, France. 2010

Raphael Deaux, (ENAC, France) “Airport control systems”, 2009.

Efstathios Bakolas “OPTIMAL STEERING FOR KINEMATIC VEHICLES WITH APPLICATIONS TO SPATIALLY DISTRIBUTED AGENTS”, 2011, Georgia Tech.

Raghvendra V Cowlagi “Hierarchical Motion Planning for Autonomous Aerial and Terrestrial Vehicles”, 2010, Georgia Tech.

Allen Wu, “Vision-Based Navigation and Mapping for Flight in GPS-Denied Environments” , 2010, Georgia Tech.

Jonathan Nusse, “Adaptive control” ~2009. Georgia Tech.

Bhenood Gholami “Closed-Loop Control for Cardiopulmonary Management and Intensive Care Unit Sedation using Digital Imaging”, 2010. Georgia Tech.

Claus Christmann Under way , Georgia Tech.

Olivia Pinon, “A METHODOLOGY FOR THE VALUATION AND SELECTION OF ADAPTABLE TECHNOLOGY PORTFOLIOS AND ITS APPLICATION TO SMALL AND MEDIUM AIRPORTS”, 2012, Georgia Tech.

Yimin Zhao “EFFICIENT AND ROBUST AIRCRAFT LANDING TRAJECTORY OPTIMIZATION”, 2011, Georgia Tech.

Efstathios Bakolas "OPTIMAL STEERING FOR KINEMATIC VEHICLES WITH APPLICATIONS TO SPATIALLY DISTRIBUTED AGENTS", October 2011, Georgia Tech.

Jean Francois Castets " RELIABILITY, MULTI-STATE FAILURES AND SURVIVABILITY OF SPACECRAFT AND SPACE-BASED NETWORKS", 12/12, Georgia Tech.

Greg Dubosc "Satellite Flexibility", 2009, Georgia Tech.

Ioannis Simaiakis (MIT) “Airport operations optimization”, Massachusetts Institute of Technology.09/26/2012

Nour Dougui (ENAC, rapporteur) "Aircraft trajectories planning : light propagation model", 2009

Adan Vela, "Understanding Conflict-Resolution Taskload: Implementing Advisory Conflict-Detection and Resolution Algorithms in an Airspace", 2011.

Ryder C Winck: "SIMULTANEOUS CONTROL OF COUPLED ACTUATORS USING SINGULAR VALUE DECOMPOSITION AND SEMI ON-NEGATIVE MATRIX FACTORIZATION", 08/2012 . Georgia Tech

Mike Ward: "ADAPTIVE GLIDE SLOPE CONTROL FOR PARAFOIL AND PAYLOAD AIRCRAFT" (2012) Georgia Tech.

Shanewaz Siddique: COMPLEX SYSTEMS: FAILURE MECHANISMS AND MITIGATION STRATEGIES. (2013) Georgia Tech.

Carlos Montalvo: "META AIRCRAFT FLIGHT DYNAMICS AND CONTROLS", 11/2013. Georgia Tech.

Mickael Lefebvre (ISAE-Supaéro, jury president): Contrôle d'altitude des avions de transport pour approches à pente raides (Altitude control of commercial aircraft for steep descent approaches). (2011)

Cyril Allignol (ENAC, jury president) : Planification de trajectoires pour l'optimisation du trafic aérien. (Trajectory planning to optimize air traffic) (2012)

Philip Y. Twu : " CONTROL OF MULTI-AGENT NETWORKS: FROM NETWORK DESIGN TO DECENTRALIZED COORDINATION", 05/2012, Georgia Tech.

Murat BRONZ (ISAE-Supaero, Rapporteur and jury president, 10/1/2012): a methodology to design long endurance mini unmanned aerial vehicles .

Vlad Popescu: A modular process for the Optimal Design of Airspace Structures. Georgia Tech, 2012.

David Rey (LICIT, Traffic Engineering and Transportation laboratory, Grenoble): Minimisation des conflits aériens par des modulations de vitesse. PhD Thesis. December 14, 2012.

Clement Peyronne (ENAC, Toulouse): Modélisation mathématique et résolution automatique de conflits par algorithmes génétiques et par optimisation locale continue. ENAC. December 12, 2012.

Kairat Tastambekov (INSA, Toulouse): Aircraft Trajectory Prediction by Local Functional Regression in Sobolev Space. ENAC. December 18, 2012. President Jury.

Hancao Li: "Modeling and Control of a Pressure-Limited Respirator and Lung Mechanics System using a Multi-Compartment Model", 2013, Georgia Tech.

Oscar Gonzalez: "Dimensionnement et contrôlabilité de configurations avion innovantes", ENAC, 2013.

Evan McClain "Metroplex Identification, Evaluation, and Optimization, Georgia Institute of Technology, March 2013

René Valenzuela, "Compact reliability and maintenance modeling of complex repairable systems", 2013

Antoine Varet, " Conception, Mise en OEuvre et Évaluation d'un routeur embarqué pour l'avionique de nouvelle génération (certifiable router for air transport applications)". ENAC. October 2013. jury president

Mohammad Ghasemi Hamed: " Méthodes non-paramétriques pour la prévision d'intervalles avec haut niveau de confiance : application à la prévision de trajectoires d'avions"; ENAC, January 2014

Yasin Yazicioglu, " DECENTRALIZED GRAPH PROCESSES FOR ROBUST MULTI-AGENT NETWORKS", 08/2014. Georgia Tech.

Yusun Lim: " GAME THEORETIC DISTRIBUTED COORDINATION: DRIFTING ENVIRONMENTS AND CONSTRAINED COMMUNICATIONS", aug. 2014. Georgia Tech.

Derya Aksaray: " CONSIDERATION OF CONTROL IN EARLY DESIGN FOR MULTI-AGENT SURVEILLANCE SYSTEMS", aug 2014. Georgia Tech.

Gaetan Marceau-Caron: "Optimization and Uncertainty Handling in Air Traffic Management". Paris University (Orsay), Sep 2014.

Supatcha Chaimatana: " Strategic Planning of Flight Trajectories", July 2014. Ecole Nationale de l'Aviation Civile.

Laureline Guys: " Planification de Trajectoires d'Avions sans Conflit : Fonctions Biharmoniques et Fonction de Navigation Harmonique" ENAC (2014)

Richard Alligier (11/ 2014), " Apprentissage artificiel appliqué à la prévision de trajectoire d'avion", Ecole Nationale de l'Aviation Civile.

Brunhilde Girardet (12/ 2014), Ecole Nationale de l'Aviation Civile. Jury president.

Jean-Philippe Condomines (02/2015), Institut Supérieur de l'Aéronautique et de l'Espace. Jury president.

Fancesca Favaro (03/2016), Georgia Tech, "Safety Supervisory Control, Model-Based Hazard monitoring, and Temporal Logic: Dynamic Risk-Informed Safety Interventions and Accident Prevention".

Muhammad Umer Tariq (04/2016), Georgia Tech, "Service-Oriented Reference Model for Cyber-Physical Systems".

Youngjun Choi (06/2016), Georgia Tech.

A6. Mentorship of Visiting Students/Scholars/Teachers

Dr. Philippe Roux (from ONERA), circa 2011.

Mr. Raphael Cohen (from ENSMA, now PhD student), 2013.

Mr. Pablo Roig Colomar (from TU Munich), 2014.

Mr. Christophe Brunner (from ENAC), 2014.

Prof. Emmanuel Grolleau (ENSMA), 2014.

Guillaume Davy (ENS Cachan), 2014-2015.

Gabriel Jarry (ENAC), 2016

Miscellaneous student awards

1. Student supervisor, International Aerial Robotics Contest team. (Ranked second, 1997, best paper presentation, 1998, best oral presentation (by club president, **Paul Eremenko**), AIAA student conference, April 1999).
2. Tech Review 35, **Vlad Gavrilets**, 2001 (35 most promising researchers under 35 according to MIT Tech Review).
3. Advisor, Georgia Tech University Student Launch Initiative (4th place, 2012). **Richard Zappulla** and **Kevin Reiley**
4. William Jackson award, RTCA, **Maxime Gariel** (2011).
5. **Aude Marzuoli** AIAA Guidance and Control student award, 2013
6. **Vlad Gavrilets** AIAA Guidance and Control student award, 2001.
7. **Mardavij Roozbehani**, AIAA Software student award, 2004.
8. Georgia Tech zero gravity atmospheric flight, May 2013, **Richard Zappulla** and **Kevin Reiley**.
9. Best Student Paper Award, **Timothy Wang** and **Romain Jobredeaux**, Digital Avionics Systems Conference, 2014.

• **OTHER TEACHING ACTIVITIES**

Term	Subject Number	Title	Role	Course type	Course evaluation survey given
MIT/ST94	16.921	Advanced Analysis of Control Systems	Instructor	Lecture	No
FT94	16.060	Principles of automatic control	Recitation Instructor	Lecture	No
ST95	16.410	Intro. to Optimization and Decision Analysis	Instructor	Lecture	No
Su95	16.30S	Practical Methods for Robust Control	Instructor	Lecture	No
FT95	16.338	Nonlinear Aerospace Control Systems	Instructor	Lecture	No
ST96	16.410	Intro. to Optimization and Decision Analysis	Instructor	Lecture	No
FT96	16.31	Feedback Control Systems	Instructor	Lecture	No
IAP97		Aerial Robotics Control	Supervisor	Lecture	No
ST97	16.410	Intro. to Optimization and Decision Analysis	Instructor	Lecture	No
FT97	16.338	Nonlinear Aerospace Systems	Instructor	Lecture	No
IAP98		Aircraft Pilot Ground School	Supervisor	Lecture	No
ST98	16.410	Intro. to Optimization and Decision Analysis	Instructor	Lecture	No

FT98	16.31	Feedback Control Systems	Instructor	Lecture	No
IAP99		Aircraft Pilot Ground School	Supervisor	Lecture	No
IAP99		Logan Airport Tower Visit	Supervisor	Lecture	No
ST99	16.410	Intro. to Optimization and Decision Analysis	Instructor	Lecture	No
FT99	16.338	Nonlinear Aerospace Systems	Instructor	Lecture	No
IAP00		Aircraft Pilot Ground School	Supervisor	Lecture	No
ST00	16.410	Intro. to Optimization and Decision Analysis	Instructor	Lecture	No
ST01	16.30	Estimation and Control of Aerospace Systems	Instructor	Lecture	Yes
ST01	16.410	Principles of Automated Reasoning and Decision Making	Instructor	Lecture	Yes
FT01	6.251/ 15.081	Introduction to Linear Programming/ Operations Research	Instructor	Lecture	Yes
IAP02	16.900	Intro. to computational methods in Engineering	Instructor	Lecture	Yes
ST02	16.30	Estimation and Control of Aerospace Systems	Instructor	Lecture	Yes
ST02	16.410	Principles of Automated Reasoning and Decision Making	Instructor	Lecture	Yes

FT02	6.242	Control of Complex Dynamical Systems	Guest Instructor	Lecture	Yes
FT03	16.31	Feedback Control Systems	Instructor	Lecture	Yes
IAP04	16.900	Intro. to computational methods in Engineering	Instructor	Lecture	Yes
ST04	16.30	Estimation and Control of Aerospace Systems	Instructor	Lecture	Yes
GTech/ FT05	AE4508	Analysis of Computer Programs	Instructor	Lecture	No
GTech/ ST06	AE3515	System Dynamics	Instructor	Lecture	Yes
ST06	AE4525	Control Systems Lab	Instructor	Lecture	Yes
FT06	AE8803	Analysis of Computer Programs	Instructor	Lecture	No
ST07	AE3521	Aircraft and Spacecraft Dynamics & Control	Instructor	Lecture	Yes
SuT07	AE2220	Dynamics	Instructor	Lecture	Yes
FT07	AE3521	Aircraft and Spacecraft Dynamics & Control	Instructor	Lecture	Yes
ST08	AE6531	Robust Control I	Instructor	Lecture	Yes
ST08	AE6561	Real-Time Control Software	Instructor	Lecture	Yes
SuT08	AE3515	System Dynamics	Instructor	Lecture	Yes
FT08	AE3521	Aircraft and Spacecraft Dynamics & Control	Instructor	Lecture	Yes
ST09	AE3515	Systems Dynamics	Instructor	Lecture	Yes
SuT09	AE3521	Flight Dynamics	Instructor	Lecture	Yes
FT09	AE3521	Flight Dynamics	Instructor	Lecture	Yes

ST10	AE2220	Dynamics	Instructor	Lecture	Yes
FT10	AE3521	Flight Dynamics	Instructor	Lecture	Yes
ST11	AE6531	Robust Control Systems	Instructor	Lecture	Yes
FT11	AE3521	Flight Dynamics	Instructor	Lecture	Yes
FT11	ECE2991	VIP/USLI Contest	Instructor	Lecture	No
ST12	ECE2991	VIP/USLI Contest	Instructor	Lecture	No
FT12	AE3521	Flight Dynamics	Instructor	Lecture	Yes
FT12	AE2220	Dynamics	Instructor	Lecture	Yes
ST13	AE6561	Aerospace Software Engineering	Instructor	Lecture	Yes
ST13	ECE2991	VIP/USLI Contest	Instructor	Lecture	No
FT13	ECE2991	VIP/USLI Contest	Instructor	Lecture	No
ST14	ECE2991	VIP/Rocket Launch Contest	Instructor	Lecture	No
ST14	AE6521	Adv. Flight Dynamics	Instructor	Lecture	Yes
ST14	AE3515	System Dynamics and Control	Instructor	Lecture	Yes
SuT14	AE 2220	Dynamics	Instructor	Lecture	Yes
FT14	AE 3521	Flight Dynamics	Instructor	Lecture	Yes
FT14	ECE2991	VIP/Rocket Launch Contest			No
FT14	None	Short Graduate Course: Cyber-physical Systems	Co-instructor	Lecture	No

• **SCHOLARLY ACCOMPLISHMENTS**

A. PUBLISHED BOOKS AND PARTS OF BOOKS

A1. Books

1. Linear Matrix Inequalities in System and Control Theory, by Boyd, S., El Ghaoui, L., Feron, E., and Balakrishnan, V., vol. 15 in Series in Applied Mathematics, SIAM, June 1994.
2. General Theory of Algebraic Equations, by E. Bezout, translation from French by E. Feron. Princeton University Press, 2006. Original publication date: 1779.
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4. Safety-Critical Cyber-Physical Systems, G. Boy, E. Feron, P.L. Garoche, E. Grolleau, M. Wolf. Under way.

A2. Refereed Book Chapters

1. Apkarian, P. and Feron, E. "Robust Control System Analysis and Synthesis via Parameter-Dependent Lyapunov Functions", in Progrès récents en commande Robuste, Jacques Bernussou, Ed. Editions Hermès. 1996.
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10. Craparo, E., Sheng-Ho Chang, F., Lee, J.W., Berwick, R. and Feron, E. "Natural Language Processing in Control of Unmanned Aerial Vehicles", Theory and Algorithms for Cooperative Systems, Don Grundel, Rob Murphey, Panos Pardalos, Eds., Kluwer. 2003
11. Feron, E. and DeMot, J. "Optimal Agent Cooperation with Local Information", Cooperative Control of Distributed Multi-Agent Systems, Jeff S. Shamma, Ed., Wiley, 2008.
12. Feron, E. and Johnson, E. "Aerial Robotics", in Handbook of Robotics, O. Khatib and B. Siciliano, Eds. 2009. Winner of PROSE Award,
13. Animesh Chakravarthy, Kyungyeol Song, Jaime Peraire and Eric Feron, "Study of Mobile Mixed Sensing Networks in an Automotive Context", Springer Optimization and Its Applications, 1, Volume 61, Sensors: Theory, Algorithms, and Applications, Part 3, Pages 165-198, 2011.
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A3. Other Parts of Books

A4. Edited Volumes

1. Boyd, S., El Ghaoui, L., Feron, E., and Balakrishnan, V., "Linear matrix inequalities in system and control theory," in Proceedings Annual Allerton Conference on Communication, Control and Computing, pp. 237-246, October 1993.
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5. Turevskiy, A. and Feron, E., "Flutter Boundary Prediction with Experimental Data", 2nd International Conf. on Non Linear Problems in Aviation and Aerospace, Miami, FL, May 1998. **
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B. REFEREED PUBLICATIONS

B1. Published and Accepted Journal Articles

1. Feron, E., "Analysis of Robust H₂ Performance Using Multiplier Theory," *SIAM Journal of Control and Optimization*, vol. 35, no. 1, pp. 160-177, January 1997.
2. Feron, E., Apkarian, P., and Gahinet, P., "Analysis and Synthesis of Robust Control Systems via Parameter-Dependent Lyapunov Functions," *IEEE Trans. on Automatic Control*, vol. 41, no. 7, pp. 1041-1046, July 1996.

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20. L. Pallottino, E. Feron, and A. Bicchi. Conflict Resolution Problems for Air Traffic Management Systems Solved with Mixed Integer Programming. *IEEE Trans. Intelligent Transportation Systems*, 3(1):3-11, March 2002.
21. Andersson, K., Hall, W., Atkins, S. and Feron, E., “Optimization-Based Analysis of Collaborative Airport Arrival Planning”, *Transportation Science*, 2004.
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38. Le Ny, J., Feron, E. and Frazzoli, E., "On the Curvature-Constrained Traveling Salesman Problem", *IEEE Transactions on Automatic Control*, 2011.
39. Chakravarthy, A., Song, K.-Y. and Feron, E., "Preventing automotive pile-up crashes in mixed communication environments", *IEEE Transactions on Intelligent Transportation Systems*, 2009.

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41. Feron, E., "From Control Systems to Control Software: Integrating Lyapunov-theoretic proofs within code", *IEEE Control Systems Magazine*, pp 50-71, december 2010.
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45. Abdallah, A., Feron, E.M., Hellestrand, G., Koopman, P. and Wolf, M. "Hardware/ Software Codesign of Aerospace and Automotive Systems", in [Proceedings of the IEEE](#), Vol. 98, Number 4, April 2010, pp. 584 – 602.
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48. Roozbehani, M., Megretski, A. and Feron, E., "Optimization of Lyapunov Invariants in Verification of Software Systems", *IEEE Trans. Aut. Control*, March 2013.
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57. M Pakmehr, N Fitzgerald, E Feron, J Paduano, A Behbahani, "Physics-Based Dynamic Modeling of a Turbohaft Engine Driving a Variable Pitch Propeller", *AIAA Journal of Propulsion and Power*, 1-13, 2016
58. T. Wang , R. Jobredeaux, M. Pantel, P.-L. Garoche, E. Feron, D. Henrion "Credible autocoding of convex optimization algorithms", *Optimization and Engineering*, pp 1-32, May 2016.
59. A. Marzuoli, E. Boidot ; P. Colomar ; M. Guerpillon ; E. Feron ; A. Bayen ; M. Hansen "Improving Disruption Management With Multimodal Collaborative Decision-Making: A Case Study of the Asiana Crash and Lessons Learned" , *IEEE Trans. Intelligent Transportation Systems*. April 2016.
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B2. Conference Presentation with Proceedings (Refereed)

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Aerospace, AIAA SciTech, (AIAA 2015-1571)

- 173.L. Dray, A. Marzuoli, A. Evans, I. Laplace, E. Féron “Air Transportation and Multimodal, Collaborative Decision Making during Adverse Events “ 11th USA/EUROPE Air Traffic Management R&D Seminar, Jun 2015, Lisboa, Portugal
- 174.M. Wolf and E. Feron “What don't we know about CPS architectures?” 2015 52nd ACM/EDAC/IEEE Design Automation Conference (DAC), Pages: 1 - 4, D
- 175.R. Cohen; A.-T. Bui Long; R. Jobredeaux, E. Feron, “A credible autocoding application within a rocket and its payload”Eric Feron, 2015 IEEE/AIAA 34th Digital Avionics Systems Conference (DASC) Year: 2015
- 176.E. Boidot, A. Marzuoli, and E. Feron. “Optimal Planning Strategy for Ambush Avoidance” AAAI Publications, Workshops at the Twenty-Ninth AAAI Conference on Artificial Intelligence, 2015
- 177.E. Boidot; A. Marzuoli; E. Feron, “Optimal navigation policy for an autonomous agent operating in adversarial environments”, 2016 IEEE International Conference on Robotics and Automation (ICRA), Pages: 3154 - 3160,
- 178.R. Breil, D. Delahaye, L. Lapasset and E. Feron, “Multi-agent Systems for Air Traffic Conflicts Resolution by Local Speed Regulation and Departure Delay”, best student paper, Digital Avionics Systems Conference, Sacramento, October 2016.
179. H. Piquet, G. Jarry, M. Luce and E. Feron, “Evaluation of New Enroute Performance Measures for Air Navigation Service Providers”, Digital Avionics Systems Conference, Sacramento, October 2016.
- 180.T. E. Wang, P.-L. Garoche, P. Roux, R. Jobredeaux, and É. Féron. 2016. Formal Analysis of Robustness at Model and Code Level. In Proceedings of the 19th International Conference on Hybrid Systems: Computation and Control (HSCC '16). ACM, New York, NY, USA, 125-134
181. T. Guillaumet, A. Sharma, E. Feron, M. Krishna, R. Narayan, P. Baufreton, and E. Grolleau, “Using Reconfigurable Multi-Core Architectures for Safety-Critical Embedded Systems”, Digital Avionics Systems Conference, Sacramento, October 2016.
182. T. Yucelen , W. M. Haddad and E. M. Feron “Adaptive control architectures for mitigating sensor attacks in cyber-physical systems” 2016 American Control Conference (ACC) Year: 2016 Pages: 1165 - 1170.
- 183.S. G. Park, J.-P. B. Clarke, E. Feron, and H. Jimenez. "Encounter Rate Estimation of Continuous Descent Arrival Procedures in Terminal Area", AIAA Guidance, Navigation, and Control Conference, AIAA SciTech, (AIAA 2016-1630)

C. OTHER PUBLICATIONS

1. JP Clarke, E Feron, SH Kim “Reducing ramp delay”, International Airport Review, 2013

D. PRESENTATIONS

D1. Invited Talks

August 1995, “More reliable robustness indicators for linear systems subject to parametric uncertainties,” California Institute of Technology, Pasadena, CA.

1996, “Robust and computational viewpoint on nonlinear systems,” United Technologies Research Center, Hartford, CT.

February 1997, “Robust control systems and identification,” Honeywell Research Center, Minneapolis, MN.

January-July 1997, “Time-Frequency Analysis for Transfer Function Identification and Application to F/A-18,” presented at: UCLA , Hughes Communications, Catholic University of Leuven (Belgium)

January 1998, “Design and Analysis of Conflict Resolution Algorithms via Positive Semidefinite Programming,” presented at: UC Berkeley, UCLA, UC Santa Barbara, Cal Tech.

March 1998, “Control of Linear Systems subject to Actuator Rate and Position Saturation,” U. of Minnesota, Minneapolis, MN.

January - November 1999, “Identification and control of departure processes at busy airports”, U. of Michigan, Catholic University of Leuven (Belgium), Eurocontrol Experimental Center (France), UCLA, UC Berkeley, Yale University, Boston University, ONERA (France), CNES (France), Stanford University.

May 1999, “Semidefinite Programming to Solve Conflicts Arising among many Aircraft”, invited talk, workshop on Advances in Linear Matrix Inequalities in Systems and Control, Compiègne, France.

May 1999 “Aggressive Maneuvering of small autonomous Aerial Vehicles”, invited talk, Catholic University of Leuven, Belgium.

August 1999, “Nonconvex quadratic programming”, UC Berkeley.

March-November 2000, “Robust Hybrid Control for Autonomous Vehicles Motion Planning”, United Technologies Research Center, Catholic University Leuven (Belgium), ESSI (Sophia-Antipolis, France), Stanford University, Princeton University.

March 2001 “Recent progress in Multi-Vehicle Coordination and Control”, University of Illinois, Urbana-Champaign.

June 2001 “L’Aéroportuaire du Futur”, Académie des Technologies, Séance plénière, Poitiers, France.

November 2001 “Acrobatic helicopter”, Upenn, Philadelphia, PA.

June 2002: “Engineering education Challenges”, National Academy of Air and Space, Ecole Nationale Supérieure de Techniques Avancées, Paris, France.

October 2002: “Real-time system requirements”, real time and embedded systems, CNES, Toulouse, France.

October 2003: “Highly Agile helicopter control”, Kyoto University, Hokkaido University, Japan. Host: Prof. Noboru Noguchi. Talk also delivered to Yamaha & Yanmar.

October 2003: “Collision avoidance issues in automotive applications” Talk delivered to Nissan and Subaru, Tokyo, Japan.

“Depression, a unique illness”, MIT Leonardo dinner, November 2003.

November 2003 “Automated and acrobatic flight”, Aircraft and Automation workshop, Marc Pélegrin host, Office National d’Etudes et Recherches Aérospatiales, Toulouse, France.

“Aerobatic autonomous helicopter flight”, Stanford University, 08/04.

“A new local 6-degree of freedom position sensor”, Columbia University, Oct 2005

“Slowdown warning system for pile-up crash avoidance”, MIT-ILP research conference, october 2004

“Bezout, French Mathematician in the XVIIIth century”, MIT Leonardo dinner, Nov. 2004

“Aerial Robotics: What’s ahead and what have we left behind?”, keynote, Information, Decision and Control conference, Adelaide, Australia, February 12, 2007 .

“Helicopter flight in crowded environments”, LAAS-Toulouse, France, Jan 08.

“Certification of control systems”, UC Berkeley, Sep, 2008.

“Certification of control systems software”, MIT – LIDS seminar, february, 2009.

“Certification of control systems software”, Mathworks seminar, february, 2009.

“Certification of control systems software”, AFRL S45 symposium, june, 2009.

“Certification of Control Systems”, ONERA-Toulouse, July 2009.

“Certification of Control Systems”, CalTech Verification and Validation Workshop, Sep 2009,

“Certification of Control Systems”, Virginia Tech invited lecture, Spring 2010,

“Certification of Control Systems”, Keynote, Numerical Software Verification III, July 14, 2010, Edimborough, Scotland.

“Cascaded control system design with full proof support”, ACGSC forum, Denver, March 2011,

“Cascaded control system design with full proof support”, Georgia Tech Cyber-Physical Systems Seminar, june 2011

“Cascaded control system design with full proof support”, AFRL S5 symposium, june 2011.

“Aviation system safety Industry Panel”, NASA Aviation Safety Meeting, St Louis, may 2011.

“Cascaded control system design with full proof support”, Numerical Software Verification IV, Snowbird, Utah, July 2011,

“Supporting control designs from specification to code implementation”, Formal Methods in Robotics Workshop, Snowbird, Utah, July 2011,

“Control system verification and validation”, FMCAD ad hoc panel, Nov 2011, Lee Pike, Galois, Inc. organizer

“Collaborative Decision Making at Large Airports”, Ecole Nationale de l’Aviation Civile, October 2011, (European) Academy of Air and Space, February 2012. Plenary

“Credible autocoding of control systems”, ETH Zurich (January 2012), Ecole Nationale de l’Aviation Civile, March 2012.

“Credible autocoding of control systems”, 2nd International Conference on Model & Data Engineering (*MEDI2012*) October 3 - 5 2012. Poitiers, Futuroscope – France. Keynote

“How can automatic control support the certification of safety-critical, embedded software ?” Pluridisciplinary Optimization Seminar in Toulouse (POST), Jan. 7, 2013. Toulouse, France.

« Control of a distributed system with a large number of actuators. » Centres de Compétence Technique – Systèmes de Commande et Automatique. Centre National d’Etudes Spatiales (CNES). January 10, 2013.

"Credible autocoding and model-based control design and validation", Opening keynote, United Technologies Research Center controls conference, October 2013.

"Credible autocoding of control systems: Preserving high-level semantics for process-wide system validation", Massachusetts Institute of Technology, Cambridge, MA, May 2014.

"Verification and Validation of Autonomous Systems (a software view)", workshop on self-driving vehicles. Robotic Science and Systems (RSS) conference, Berkeley, CA, July 13, 2014.

"Path planning in the presence of ambushes", University of Pittsburgh (ECE), Pittsburgh, PA, October 14, 2014.

“Path Planning in the presence of ambushes”, KAUST, Saudi Arabia, November 2014.

Credible auto coding for autonomy algorithms, NSV, July 2016, Toronto, Canada

“Command and control software for safety critical cyber-physical systems: Carrying the burden of proof.”,

D2. Keynote Presentations

“L’Aéroportuaire du Futur”, Académie des Technologies, Séance plénière, Poitiers, France. June 2001.

“Credible autocoding of control systems”, 2nd International Conference on Model & Data Engineering (*MEDI2012*) October 3 - 5 2012. Poitiers, Futuroscope – France.

“Collaborative Decision Making at Large Airports”, Ecole Nationale de l’Aviation Civile, October 2011, (European) Academy of Air and Space, February 2012.

"Credible autocoding and model-based control design and validation", United Technologies Research Center controls conference, October 2013.

E. OTHER SCHOLARLY ACCOMPLISHMENTS

Patents and Patent Applications Pending:

US Provisional Patent Application

Optimal Emergency Termination System for Unmanned Aerial Vehicles by Destructive Rotor Surface Reduction

Application No.: 62/378,923

Filing Date: 24 August 2016

GTRC ID No.: 7329

Our Ref. No.: GTRC7329PRV

Major New Products, Processes, Designs, or Systems:

Wavetool: A software tool to perform transfer function identification via wavelets. (In use at NASA). 1997.

AOCMOD: A discrete-event software simulation of an Airline Operations Center. (In use at United Airlines). 1999.

Autonomous agile helicopter: Product manufactured under MIT license by Nascent Technology Corp. and delivered to Oregon Graduate Institute (1 copy), Lockheed Martin Owego (2 copies), University of North Carolina (1 copy). Other derivative products: Simulations of small aerobatic helicopters. 2003.

Gene-Auto*/Gene-check: The next generation, credible autocoding suite for embedded systems. 2014.

• SERVICE

A. PROFESSIONAL CONTRIBUTIONS

<u>Employer</u>	<u>Position</u>	<u>Beginning</u>	<u>Ending</u>
École National de l'Aviation Civile	Visiting Professor	2011	2011
Institut Supérieur de l'Aéronatique et de l'Espace	Visiting Professor	2012	2012
École National Supérieure de l'Électricité, Électronique Informatique et Hydraulique	Visiting Professor	2012	2012

Consulting Record:

<u>Firm</u>	<u>Beginning</u>	<u>Ending</u>
ONERA-CERT	05/94	06/98
United Technologies	05/95	05/95
United Technologies	02/97	04/97
Northwest Airlines	06/00	12/00
Valeo	02/04	02/04
Nascent Technology Corp.	01/02	08/05
Firstec, Daejeon, Korea	09/13	09/93
United Technologies	02/15	12/15
A ³ by Airbus Group	02/16	08/16
<u>Committee</u>	<u>Beginning</u>	<u>Ending</u>
Third SIAM Conference on Control Theory and Applications, Technical Committee	09/93	04/95
Reviewer for AFOSR and NRC proposals.	09/93	----
Guest Editor for the International Journal of Robust and Nonlinear Control, special issue on Linear Matrix Inequalities.	09/93	09/96
Guest Editor for the Journal of Ecole Polytechnique, France (equivalent MIT Technology Review), special issue on Air Traffic.	03/97	05/98
Associate Editor, IEEE Transactions on Automatic Control.	10/97	12/00
Technical Committee Program Member, 1999 American Control Conference.	12/97	12/98
ONERA Airport Research Project Evaluation	03/00	03/00
Member, panel on "Future Directions in Control and Dynamical Systems", sub panelist in Aerospace and Transportation. Organized by SIAM.	05/00	07/00
NSF proposal review panel member	06/00	06/00
DARPA/NSF hybrid systems panel member	10/00	10/00
Chairman, IEEE Technical Committee on Robust		

Control	11/00	11/03
North America Advisor for Académie Nationale des Technologies (French equivalent to National Academy of Engineering)	12/00	----
Technical Committee Program Member, 2002 American Control Conference	12/00	12/01
NSF proposal review panel	04/01	---
Associate Editor, International Journal of Robust and Nonlinear Control	01/02	01/03
Chair, Local arrangements, 2004 ACC	01/02	08/05
Safety area Program manager, MIT-Ford Alliance	01/02	08/05
US Girls Scout Aeronautical Instructor	01/02	08/05
MIT Museum: Participant and Presenter during National Engineers Week. Theme: Stability and Instability	03/02	04/04
Review of several (>15) promotion cases (tenure, full)	2001	---
Autonomous Intelligent Network and Systems Conference	2004	2004
Associate Editor, Journal of Field Robotics	2004	---
Abstractions, Robustness and Computations Workshop Upenn co-organizer with Patrick Cousot	2004	08/05
NSV-II: Second International Workshop on Numerical Software Verification.	01/09	04/09
NSV-II: Second International Workshop on Numerical Software Verification.	01/11	07/11
Associate Editor, IEEE Trans. Systems, Man And Cybernetics, part A	07/11	---
Committee Member, NASA Formal Methods	06/12	04/13

Organizer, Workshop on Future Directions in Decision and Control in Aerospace	09/11	05/12
Advisory Board member, AIAA JACIC	06/12	----
Member Committee “Habilitation à Diriger des Recherches” (HdR~Tenure)		
Daniel Delahaye	03/12	
Stephane Puechmorel	12/12	
David Gianazza	11/15	
Pierre-Loic Garoche	09/16	
Xavier Thirioux	09/16	
Jerome Hughes	02/17	
co-Organizer, workshop on "Controls Systems Software Verification", NASA Ames,	06/13	
Organizer, "Aerospace 2050", a workshop to honor Professor Marc P��legrin, ISAE,	12/13	
NSF Cyber-Physical Systems review panel,	07/14	
co-Organizer, “Semantics of Optimization for Real-Time Embedded Systems”, Silverthorne, CO.	03/15	
co-Organizer, “Semantics of Optimization for Real-Time Embedded Systems”, Silverthorne, CO.	03/15	
NASA Formal Methods (NSV 2017)	07/16	
NSF review panel,	10/16	
Member, Career, Technical & Agricultural Education advisory committee, Frederick Douglass High School, Atlanta	05/15-	
Examiner and “Rapporteur de s��ance”	09/16	

B. CAMPUS CONTRIBUTIONS

<u>Committee</u>	<u>Beginning</u>	<u>Ending</u>
Organizer, Workshop on Control software Verification, Georgia Tech,	08/11	11/11
co-Organizer, 2-day workshop on "Aerospace Engineering and health sciences", Georgia Tech, (France-Atlanta events)	10/13	
co-organizer, 2-day workshop on Unmanned Aviation, Georgia Tech (as part of France-Atlanta) organizer,	10/14	
Faculty Senate	2012 – 2015	
Research Faculty Promotion committee	2014-	
Faculty Executive Board	2015 -	

HONORS AND AWARDS

<u>Award received</u>	<u>Date</u>
Charles Stark Draper Chair	11/93
NSF Research Initiation Award	09/94
NASA Certificate of Recognition (wavelet analysis)	02/98
ONR Young Investigator Award	02/99
Best paper award, Airport Arrival and Departure Management track, 3 rd USA/Europe Air Traffic Management R&D Seminar	06/00
Advisor, French Academy of Technologies	01/01
Member, Think Tank 30 Club of Rome (resigned 08/01 for lack of time)	7/01
Best paper award, 2001 Digital Avionics Systems Conference, (Unmanned Systems avionics)	10/01
Dutton/Ducoffe Professorship in Aerospace Software Engineering	09/05
Certificate of appreciation, Thank a Teacher Program,	

Georgia Institute of Technology	03/09
American Publishers Award (PROSE award) (Handbook of Robotics)	04/09
Andrew Sage best paper award, IEEE Transactions on Systems, Man and Cybernetics (Driver drowsiness detection)	10/10
Best track paper award, 2011 Digital Avionics Systems Conference (air transportation)	10/11
"Top 10" paper for 2000-2009 period, <i>IEEE Trans. Intell. Transp. Systems</i> (air traffic control conflict avoidance)	08/13
Best student paper award, Digital Avionics Systems Conference, (autocoding of engine control functions)	10/14
Certificate of appreciation (outstanding community contributor) , Atlanta Public Schools	06/16
Best student paper award, Digital Avionics Systems Conference, (agent-based air traffic control simulation)	10/16
“So Toulouse” Ambassador (representative of the city of Toulouse abroad)	06/16