Monday, June 25

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 12:15 PM   | Welcome remarks
             | Marc Bourgois (Eurocontrol)                                           |
| 12:30 - 6:00 PM | Data-Enhanced Trajectory Based Operations Workshop                     |
|            | ICRAT welcome reception (6:45 pm at the entrance)                     |
|            | Welcome remarks
             | Marc Bourgois (Eurocontrol)                                           |
|            | Xavier Prats (Universitat Politècnica de Catalunya)                   |
| 12:15 PM   | ICRAT 2018 registration is open!                                      |
Tuesday, June 26

**Sign-in and Breakfast (8:15 - 9:15 am)**

**Auditorium 001**

- **9:15 AM**
  - Introduction to the conference: Eric Neiderman
  - Marc Bourgois
  - Xavier Prats
- **9:25 AM**
  - Welcome address: Luis Alonso
  - Francesc Torres

**Tutorial sessions (9:45 - 10:45 am)**

- **Classroom 024C**
  - Use of Neurophysiological Measures to Assess Cognitive Performance of UAS Operators
  - Session Chair: Xavier Prats
- **Classroom 025V**
  - Safety hazard identification approach for future highly automated ATM concept of operation: experiences from AUTOPACE project
  - Session Chair: Sameer Alam

**Coffee / Tea break (10:45 - 11:15 pm)**

**Paper sessions (11:15 am - 1:15 pm)**

- **Classroom 024C**
  - Track 1: Human Performance
    - Session Chair: Sameer Alam
    - Eva Maria Pinto-Peña, Patricia Lopez de Frutos, Elena Lopez Ballestín, José Cañás, Pedro-Fernera, Víctor-Fernando Gómez and Francesca Lucini
    - Quantitative Prediction of Automation Effects on ATCO Human Performance
  - Session Chair: Yu Zhang
    - Somil Shah and Angela Campbell
    - Analyzing Pilot Decision-Making Using Predictive Modeling
  - Session Chair: Joost Ellerbroek
    - Duc-Thinh Pham, Sameer Alam, Su Vi-Lin and Yu Duong
    - A Machine Learning Approach on Past ADS-B Data to Predict Planning Controller’s Actions

- **Classroom 025V**
  - Track 2: System Performance
    - Session Chair: Mark Hansen
    - Max Li and Megan Byerson
    - Novel Terminal Arrival Airspace Robustness Metrics via Topological Density Clustering
  - Session Chair: Hartmut Fricke
    - Wei Dai, Rainer Koele, Lingling Ma and Yifei Zhao
    - Comparing Scheduled Block Time Setting in Europe and China based on Multiple Linear Regression
  - Session Chair: Shuli Gong
    - Lu Dai, Yulin Liu and Mark Hansen
    - In Search of the Upper Limit to Air Traffic Control Communication

- **Classroom 026V**
  - Track 3: Fuel and Emissions
    - Session Chair: Max Hansen
    - Estimation of Aircraft Fuel Consumption Based on Air Traffic 4D Trajectory Data
    - Ramon Dalmáu, Alex Ramonjiana, Xavier Prats and Santiago Soley
    - Estimating Fuel Consumption from Radar Tracks: A Validation Exercise using FDR Data from Desertin Trajectories
    - Agris Tang, Cheng-Lung Wu and David Tan
    - Quantification of WAFS Weather Forecast Uncertainties and its Effect on Fuel Burn using Historical Flight Data

**Lunch (1:15 - 2:15 pm)**

**Coffee / Tea break (3:15 - 3:45 pm)**

**Paper sessions (3:45 - 5:45 pm)**

- **Classroom 024C**
  - Track 4: Trajectory Optimization
    - Session Chair: Xavier Prats
    - Judith Rosenow, David Strunck and Hartmut Frickie
    - Trajectory Optimization in Daily Operations
  - Session Chair: Joost Ellerbroek
    - Ji Ma, Daniel Delahaye, Mohammed Shibli and Paolo Scala
    - Integrated Optimization of Arrival, Departure, and Surface Operations
  - Session Chair: Shuli Gong
    - Ramon Dalmáu, Marc Melgosa, Santi Villaragga and Xavier Prats
    - A Fast and Flexible Aircraft Trajectory Predictor and Optimiser for ATM Research Applications

- **Classroom 025V**
  - Track 2: System Performance
    - Session Chair: Yu Zhang
    - Emmanuel Sunil, Joost Ellenbroek and Jacco Hoekstra
    - CAMDA: Capacity Assessment Method for Decentralized Air Traffic Control
  - Session Chair: Hartmut Fricke
    - Florentin Goeyens, François Gorne, Raphael M. Jungers, Andrea Simonetto, Ettore Huyns and Joan Bouqux
    - A Probabilistic Model for Precedence Rules and Reactions Delay in Air Traffic Management
  - Session Chair: Shuli Gong
    - Yu Zhang, Huo-long Tang, Dave Kroon and Almira Ramadani
    - Measuring the Benefits of NextGen Metropolies in Convective Weather: Case Study of North Texas Metropolix

- **Classroom 026V**
  - Track 3: Fuel and Emissions
    - Session Chair: Joost Ellenbroek
    - Fei Liu, Nanjian Zhuang, Qiang Ren and Zhiquiang Wei
    - Estimation of Aircraft Fuel Consumption Based on Air Traffic 4D Trajectory Data
    - Ramon Dalmáu, Alex Ramonjiana, Xavier Prats and Santiago Soley
    - Estimating Fuel Consumption from Radar Tracks: A Validation Exercise using FDR Data from Desertin Trajectories
    - Agris Tang, Cheng-Lung Wu and David Tan
    - Quantification of WAFS Weather Forecast Uncertainties and its Effect on Fuel Burn using Historical Flight Data

**Keynote talk**

- **3:45 PM**
  - Parimal H. Kopardekar
  - NASA Ames Research Center
  - Innovate Relentlessly

**Beach valley & Tapas (~6:15 pm)**

Castelldefels beach. Look back page for details.

- Time to use your ICRAT flip-flops!
Wednesday, June 27

5K Fun Run! (7:00 am)

Sign-in and Breakfast (8:30 - 9:30 am)

Coffee / Tea break (8:30 - 9:30 am)

Keynote talk
Eric Neiderman - U.S. Federal Aviation Administration
Vu Duong - Nanyang Technological University Singapore
Trends in aviation research

Auditorium 001

Conference Committee meeting (6:45 pm)

Conference Committee dinner (8:30 pm) Salamanca Restaurant (Barcelona) Carrer de Pepe Rubianes, 34. Barcelona

Doctoral paper sessions (5:10 - 6:30 pm)

Room 028-2

Tutorial sessions (11:00 am - 1:00 pm)

Classroom 024G
11:00 AM
Banavar Sridhar
Air Traffic Metrics to Quantify Disruption from Natural and Man-Made Events

Classroom 025V
11:00 AM
Michael Ball
Collaborative Decision Making

Classroom 026V
11:00 AM
Damian Rivas
Analysis of Aircraft Trajectories considering Wind Effects

Lunch (11:00 - 2:00 pm)

Paper sessions (2:00 - 4:40 pm)

Classroom 024G
Track 4: Trajectory Optimization
Session Chair: David Lovell
#67 2:00 PM
Martin Lindner, Judith Rosenow and Hartmut Fricke
Dynamically Optimized Aircraft Trajectories Affecting the Air Traffic Management

#70 2:40 PM
Guodong Zou, Peng Wei, Robert Hoffman and Bert Hackney
Aggregate Multi-commodity Stochastic Models for Collaborative Trajectory Options Program (CTOP)

#41 3:20 PM
Peter Lubrani, Miguel Angel P´erez Lorenzo, Alexander Dorta Fumero and Manuel Villegas Díaz
Operational validation of the OPTAIN-SA Tool. Supporting optimized profile descent approach sequencing into Palma TMA

#75 4:00 PM
Yalin Liu, Mark Hansen, David Lovell and Michael Ball
Predicting Aircraft Trajectory Choice – A Nominal Route Approach

Classroom 025V
Track 5: Advanced Modelling
Session Chair: Michael Ball
#13 2:00 PM
Jerem Maas, Ronald van Gent and Jaco Hoekstra
Object Tracking in Images of an Airborne Wide Angle FMW Radar

#80 2:40 PM
Johannes Mund, Alexander Zouhar and Hartmut Fricke
Performance Analysis of a LIDAR System for Comprehensive Airport Ground Surveillance under Varying Weather and Lighting Conditions

#26 3:20 PM
Parker Vasvki, Harmsa Balakrishnan and R. John Hansman
Assessment of Air Traffic Control for Urban Air Mobility and Unmanned Systems

#43 4:00 PM
Md Shohel Ahmed, Sameer Alam and Michael Barlow
A Multi-Layer Artificial Neural Network Approach for Runway Configuration Prediction

Classroom 026V
Track 6: Safety
Session Chair: Ramon Dalmau

#18 2:00 PM
Fedja Netjasov and Dusan Cmogoresac
Potential Safety Occurences as Indicators of Air Traffic Management Safety Performances: A Network Based Simulation Model

#25 2:40 PM
Xavier Olive and Pierre Bieber
Quantitative Assessments of Runway Excursion Precursors using Mode S Data

#63 3:20 PM
Hartmut Fricke, Stanley Foerster and Markus Vogel
Using Agent-Based Modeling to Determine Collision Risk in Complex TMA Environments. The Turn-On-to-IILS-Final Safety Case

Conference paper sessions (2:00 - 4:40 pm)

Classroom 024G
Session Chair: Yanjun Wang
#7 11:10 AM
Nika Tikanashvili & Igor Kabashkin
Ontology-Based Approach for Human Competency Gap Analysis in Air Traffic Management. A Case Study of Georgia

#107 2:00 PM
Shawn Pruchnicki and David Woods
Inadequate Post Simulation Debriefings in Air Traffic Control and Pilot Training

Classroom 025V
Session Chair: Seth Young
#98 1:10 PM
Akinori Murata, Daniel Delahaye and Keki Takadama
Merging Flows and Optimizing Aircraft Scheduling in Terminal Maneuvering Area Based on GA

#48 2:50 PM
Timo Riedel, Masaki Takahashi and Eri Itoh
Conceptual Design of a Speed Command Algorithm for Airborne Spacing Interval Management

Classroom 026V
Session Chair: Dirk Schoefer
#50 1:10 PM
Mahmut Baik and Özmel Atakal
E-service quality performance measurement in airlines: An application on scheduled airlines in Turkey

#55 2:50 PM
Şahap Akan and Özmel Atakal
The airline brand personality in the context of neumarketing: FSC versus LLC

Conference Committee meeting (6:45 pm)

Conference Committee dinner (8:30 pm) Salamanca Restaurant (Barcelona) Carrer de Pepe Rubianes, 34. Barcelona
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Chair</th>
<th>Location</th>
<th>Topic</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 am</td>
<td>Luis Delgado</td>
<td>Classroom 024G</td>
<td>Coffee / Tea break</td>
<td></td>
</tr>
<tr>
<td>9:30 AM</td>
<td>Miquel Garcia</td>
<td>Auditorium 001</td>
<td>Keynote talk</td>
<td>Recent trends in GNSS industry: accuracy, affordability and robustness</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Michael Schultz</td>
<td>Classroom 025V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Prediction of Passenger Boarding Process using Neural Network Approach</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Kevin-Christian Garzon Galindo, Younes Sellam and Tobias Zocher</td>
<td>Classroom 026V</td>
<td>Lecture</td>
<td>Student Grand Challenge: Drone supported Weather Analysis at DFW</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Thomas Dubot</td>
<td>Classroom 024G</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Predicting Sector Configuration Transitions with Autoencoder-based Anomaly Detection</td>
</tr>
<tr>
<td>2:40 PM</td>
<td>Jacco Hoekstra, Joost Ellenbroek, Emmanuel Sunil and Jerom Maas</td>
<td>Classroom 025V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Geovectoring: Reducing Traffic Complexity to Increase the Capacity of UAV airspace</td>
</tr>
<tr>
<td>3:20 PM</td>
<td>Ivan Tereshchenko and Mark Hansen</td>
<td>Classroom 026V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Relative Trajectory Cost Estimation for CTOP Applications Using Multivariate Nonparametric Finite Mixture Logit</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>Hee Wei Gary Foo and Zhao-Wei Zhong</td>
<td>Classroom 024G</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Egg-shaped conflict envelopes with Fuzzy logic for airspace Collision Risk Modelling</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>Kwangyeon Kim and Irene Hwang</td>
<td>Classroom 025V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Terminal Airspace Anomaly Detection Using Temporal Logic Learning</td>
</tr>
<tr>
<td>5:10 PM</td>
<td>Max Li and Megan Ryerson</td>
<td>Classroom 026V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Detection of individual anomalous arrival trajectories within the terminal airspace using persistent homology</td>
</tr>
<tr>
<td>6:30 PM</td>
<td>Aymeric Cretin, Bruns Legend, Fabien Peureux and Alexis Verroite</td>
<td>Classroom 024G</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Increasing the Resilience of ATC systems against False Data Injection Attacks using DSL-based Testing</td>
</tr>
<tr>
<td>7:10 PM</td>
<td>Jungwoo Cho and Yoonjin Yoon</td>
<td>Classroom 025V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Assessing the airspace availability for sUAV operations in urban environments: A topological approach using keep-in and keep-out geofence</td>
</tr>
<tr>
<td>7:30 PM</td>
<td>Richard Alligier, Nicolas Durand and Gregory Alligier</td>
<td>Classroom 026V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Efficient Conflict Detection for Conflict Resolution</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Alexander Gillissen and Michael Schultz</td>
<td>Classroom 024G</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Formal Modeling of Air Traffic as System-of-Systems: Air Traffic as Systems of Interdependent Operational Decision Making Processes</td>
</tr>
<tr>
<td>2:40 PM</td>
<td>Junzi Sun, Henk A.P. Blom, Joost Ellenbroek and Jacco Hoekstra</td>
<td>Classroom 025V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Aircraft Mass and Thrust Estimation Using Recursive Bayesian Method</td>
</tr>
<tr>
<td>3:20 PM</td>
<td>Michael Schultz and Stefan Reitmann</td>
<td>Classroom 026V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Prediction of Passenger Boarding Process using Neural Network Approach</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Eulalia Hernández-Romero, Alfonso Valenzuela, Damián Rivas, Matthias Stein and James Pinto</td>
<td>Classroom 024G</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Probabilistic Aircraft Conflict Detection in the Terminal Maneuvering Area</td>
</tr>
<tr>
<td>2:40 PM</td>
<td>Ying Hui, Daniel Delahaye and Yanjun Wang</td>
<td>Classroom 025V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Sensitivity Analysis of Closest Point of Approach</td>
</tr>
<tr>
<td>3:20 PM</td>
<td>Richard Alligier, Nicolas Durand and Gregory Alligier</td>
<td>Classroom 026V</td>
<td>Paper sessions (2:00 - 4:00 pm)</td>
<td>Efficient Conflict Detection for Conflict Resolution</td>
</tr>
</tbody>
</table>

**Thursday, June 28**

**Sign-in and Breakfast (8:30 - 9:30 am)**

**Coffee / Tea break (10:30 - 11:00 am)**

**Tutorial sessions (11:00 am - 1:00 pm)**

**Lunch (1:00 - 2:00 pm)**

**Paper sessions (2:00 - 4:00 pm)**

**Coffee / Tea break (4:00 - 4:30 pm)**

**Doctoral paper session (4:30 - 5:50 pm)**

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**ICRAT 2018 Gala Dinner (8:20 pm)**

Old Moritz Brewery Barcelona, Ronda de Sant Antoni, 41, Barcelona

Please, bring your badge to the dinner.

This event is free of charge for all ICRAT registered participants that conveniently checked the gala dinner option in the registration form. If you are changing your mind regarding your choice, please inform at the Registration Desk as soon as possible.

A welcome cocktail will start in the basement of the Old Moritz Brewery at 8:20 pm followed by the Gala Dinner.

Two buses will depart from the East entry of the UPC campus at 6:15 pm and 7:45 pm. If you prefer to go on your own to Barcelona and have a stroll there before, just join us directly at the Brewery.

Buses back to Castelldefels will be arranged after the dinner.
Thank you,
and have a save journey!
eduroam: Preferred option if you have already an eduroam account.

UPCguest: Follow the instructions and Sign up. You will need to provide a valid e-mail address and mobile phone number. You will receive an SMS with a password to log-in.

After the conference, a couple of beach volleyball nets are waiting for us next to a strategically located beach bar!! We will meet at 6:15 pm at the East entry of the UPC campus and walk together towards the beach. Yet, feel free to join us at any time (see map on the right). You can play volley, sunbath, swim or just relax with a beer watching how well your peers perform at volley.

At 8:00 pm approximately, an informal tapas dinner will be served for ICRAT registered participants at Chalito beach bar. You can order drinks free of charge during the dinner. Before / after the dinner, you will have to pay for any extra drink or food.

Following a long-standing tradition in ICRAT and ATM Seminar, the 5 km fun run will start on Wednesday at 7:00 am sharp. We will meet at 6:45 am at the East entry of the UPC campus. After a short briefing, we will cross the Canal Olímpic Avenue and start the run. Part of the course will be along the beach and will finish there, so prepare to take a healthy and reinvigorating early morning bath afterwards. For those too lazy to run, you can always meet us at the Chalito beach bar to see our brave runners arriving at the finish line.

Organized by: 
Hosted by: 
Sponsored by: 

UPC campus

Student Dorms

Conference venue

Classrooms available for private meetings or rehearsals:
027-3 / 021B / 022B

Beach volley & Tapas
Tuesday June 26th

From UPC to the beach

WIFI networks at UPC campus:
eduroam: Preferred option if you have already an eduroam account.

UPCguest: Follow the instructions and Sign up. You will need to provide a valid e-mail address and mobile phone number. You will receive an SMS with a password to log-in.