

ICRAT 2022 Conference Schedule (v0.6)

Sunday, June 19, 2022

USF ENB Fishbowl

ICRAT welcome reception

Welcome remarks - Marc Bourgois (Eurocontrol) and Yu Zhang (University of South Florida)

Monday, June 20, 2022

Sign-in 8:15 - 9:15

Embassy Suites Salon F&G

Introduction to the conference - Eric Neiderman (U.S. Federal Aviation Administration), Marc Bourgois (Eurocontrol), Yu Zhang (University of South Florida)

Welcome address - Dr. Sylvia Thomas, Interim Vice President for Research and Innovation, University of South Florida

Tutorial Sessions 9:45 am - 10:45 am

Embassy Suites Palm

Embassy Suites Citrus

9:45 AM

Xavier Olive

Use of the traffic library for trajectory analysis

Pham Duc Thinh

Reinforcement Learning in ATM

Coffee break (Embassy Suites rest area) 10:45 - 11:15 am

Paper sessions 11:15 am - 1:15 pm

Embassy Suites Palm

Embassy Suites Citrus

Embassy Suites Magnolia

Session RP1: Track 7 - UAS / UAM / AAM

Session Chair: Joe Post

Session RP2: Track 2 - System Performance

Session Chair: Manuel Soler

Session RP3: Track 3 - Fuel / Emissions / Environment

Session Chair: Mark Hansen

11:15 AM

39

Zhengyi Wang, Daniel Delahaye, Jean-Loup Farges and Sameer Alam

Route network design in low-altitude airspace for future urban air mobility operations – A case study of urban airspace of Singapore

37

Junzi Sun, Tristan Dijkstra and Constantinos Aristodemou

Designing Recurrent and Graph Neural Networks to Predict Airport and Air Traffic Network Delays

8

Fateme Baneshi, Manuel Soler, Abolfazl Simorgh and Daniel González-Arribas

Climate Optimal Trajectory Planning at Network-Scale: Complexity Assessment

11:55 AM

45

Victor Qin and Hamsa Balakrishnan

Cost-Aware Congestion Management Protocols for Advanced Air Mobility

41

Hasnain Ali, Duc-Thinh Pham, Sameer Alam and Michael Schultz

Integrated Airside Landside Framework To Assess Passenger Missed Connections with Airport Departure Metering

6

Zhuoming Du, Junfeng Zhang, Honglan Miao and Rong Hu

Estimating Fuel Consumption based on Trajectory Data using Machine Learning Method

12:35 PM

46

Geoffrey Ding, Alex Berke, Karthik Gopalakrishnan, Kwassi H. Degue, Hamsa Balakrishnan and Max Li

Routing with Privacy for Drone Package Delivery Systems

33

Manuel Soler, Eduardo Andrés, Javier García-Heras, Daniel González, Damián Rivas, Alfonso Valenzuela, Antonio Franco, Juan Manuel Nuñez, Petar Andriasi and Tomislav Radšić

Probabilistic Analysis of Air Traffic in Adverse Weather Scenarios

22

Florent Vergnes, Judicaël Bedouet, Xavier Olive and Junzi Sun

Environmental Impact Optimisation of Flight Plans in a Fixed and Free Route network

Lunch (Embassy Suites Mangroves Grill) 1:15 - 2:15 pm

Embassy Suites Salon F&G

Keynote Address: John Bradley and Marty Suech, Federal Aviation Administration

Coffee break (Embassy Suites rest area) 3:15 - 3:45 pm

Paper sessions 3:45 - 5:45 pm

Session RP4: Track 4 - Trajectory Modeling / Optimization

Session Chair: Michael Schultz

Session RP5: Track 5 - Advanced Modeling

Session Chair: Lothar Meyer

Session RP6: Track 6 - Safety

Session Chair: Daniel Delahaye

3:45 PM

9

Thomas Zeh, Martin Lindner, Judith Rosenow and Hartmut Fricke

Optimization of Departure Routes Beyond Aircraft Noise Abatement

49

Ang Li and Mark Hansen

Scenario-based Strategic Flight Reassignment in Multiple Airport Regions

19

Wensin Zhang, Hyunki Lee, Tejas Puranik, Alexia Payan, David Anvid, Michelle Kirby and Dimitri Mavris

Modeling Aircraft Braking Performance and Runway Condition using Machine Learning

4:25 PM

50

Titilayo Fasoro and Hamsa Balakrishnan

High-Throughput Continuous Descent Approaches through Trajectory-Based Operations

27

Chuan Jie Woo, Sim Kuan Goh, Sameer Alam, Md Meftahul Ferdous and Mohamed Ellejmi

A Runway Exit Prediction Model with Visually Explainable Machine Decisions

20

Antoine Henry, Daniel Delahaye and Alfonso Valenzuela

Conflict resolution with time constraints in the Terminal Maneuvering Area using a distributed Q-learning algorithm

5:05 PM

53

Sarah Degaugue, Nicolas Durand and Jean-Baptiste Gotteland

Impact of Explicit Memory on Dynamic Conflict Resolution

7

Robert Brühl and Hartmut Fricke

Assessment of minimum ground time for air taxis based on turnaround critical path modeling

24

Jan Groot, Marta Ribeiro, Joost Ellerbroek and Jacco Hoekstra

Improving Safety of Vertical Manoeuvres in a Layered Airspace with Deep Reinforcement Learning

Break

Tuesday, June 21, 2022

Sign-in 8:45 - 9:15 am

Embassy Suites Salon F&G

Plenary Talk: Bastien Bernard, Director of Operations, Paris Charles de Gaulle Airport

Coffee break (CUT lobby) 10:00 - 10:30 am

Tutorial Session 10:30 am - 12:30 pm

USF ENG CUT 143

USF ENG CUT 202

USF ENG CUT 102

10:30 AM

Joost Ellenbrook

Blue Sky - Setup

Judith Rosenow

Model condensation trails in multicriteria trajectory optimization

Ramon Dalmau

Machine Learning for ATFM

Lunch (Embassy Suites Mangroves Grill) 12:30 - 1:30 pm

8:45 AM	Wednesday, June 22, 2022 Sign-in 8:45 - 9:15 am					
	Embassy Suites Salon F&G					
9:15 AM	Ryan Graves, Quantum Technology Program Manager, Quantum Generative Materials					
10:00 AM	Coffee break (Embassy Suites rest area) 10:00 - 10:30 am					
	Tutorial Session(s) 10:30 am - 12:30 pm					
	Embassy Suites Palm		Embassy Suites Citrus		Embassy Suites Magnolia	
10:30 AM	Joost Ellenbrook	Blue Sky - Application	Tony Diana	Natural Language Processing	Almira Ramadani	TBO analyses and harmonization with the ICAO framework
12:30 PM	Lunch (Argos Center) 12:30 - 1:30 pm					
	Paper sessions 1:30 - 3:30 pm					
	Embassy Suites Palm		Embassy Suites Citrus		Embassy Suites Magnolia	
	Session RP7: Track 1 - Human Performance 1 Session Chair: Dirk Schaefer		Session RP8: Track 8 - Network Management 1 Session Chair: Joost Ellerbroek		Session RP9: Track 9 - Economics / Policy / Equity Session Chair: Eric Neiderman	
1:30 PM	5	Zhenna Lu, Sameer Alam, Nimrod Lilith and Billy Josefsson	The Impact of Mental Model Switching on Air Traffic Controller's Workload in Multi Remote Tower Operations	10	Jan Evler, Judith Rosenow and Hartmut Fricke	Airline Schedule Recovery at Hub Airports including Dynamic Cost Indexing and Re-Routing
	30	Andy Eskenazi, Landon Butler, Arnab Joshi and Megan Ryerson	Democratizing Aviation Emissions Estimation: Development of an Open-Source, Data-Driven Methodology			
2:10 PM	13	Goran Pavlović, Radosav Jovanović and Milan Stanojević	Rostering practices and ATCO productivity in Area Control Centres	12	Geoffrey Scozzaro, Ji Ma, Daniel Delahaye, Eric Feron and Catherine Mancel	Flight Rescheduling to Improve Passenger Journey during Airport Access Mode Disruptions
	38	Shriya Karam, Stephanie Nam and Megan Ryerson	AIMing for Equity in Aviation Accessibility: Development of the Aviation-accessibility Integrated Mobility Metric			
2:50 PM	15	Maximilian Peukert and Lothar Meyer	The Influence of Rostering Factors on Fatigue in an Irregular Shift System in Air Traffic Control	31	Chunyao Ma, Sameer Alam, Qing Cai and Daniel Delahaye	Sector Entry Flow Prediction Based on Graph Convolutional Networks
	47	Kaijing Ding, Lu Dai and Mark Hansen	Benefits of Shifting Passenger Traffic from Air to Rail: A Case Study of California High-Speed Rail			
3:30 PM	Coffee break (Embassy Suites rest area) 3:30 - 4:00 pm					
	Doctoral paper sessions 4:00 - 5:20 pm					
	Session DS1 - Small Airport Capacity Modeling Session Chair: Seth Young		Session DS2 - Terminal / Airport / Airspace Modeling Session Chair: Sameer Alam		Session DS3 - AAM / UAM 1 Session Chair: Hartmut Fricke	
4:00 PM	16	Zhuoxuan Cao and David Lovell	Identifying Aviation Operation Types Using Flight Trajectories	23	Hong-Cheol Choi and Inseok Hwang	Toward Real-Time Stochastic Conformal Anomaly Detection in Terminal Airspace
	18	Andres Morfin Veytia, Joost Ellerbroek and Jacco Hoekstra	Improving Conflict Prevention in Constrained Very Low-Level Urban Airspace, U-Space			
4:40 PM	44	Aishwarya Bokil and Seth B. Young	Development of QGIS tools to aid in airport operations modeling using ADS-B data	28	Huang Feng and Yu Zhang	A Multi-Branch Convolutional Neural Network for Predicting Airport Throughput – Using ATL Airport as Case Study
	21	Calin Andrei Badea, Joost Ellerbroek and Jacco Hoekstra	Conflict Prevention, Detection, and Resolution in Constrained Very Low-Level Urban Airspace			
5:20 PM	Break					
6:30 PM	Gala Dinner - Tampa Club (101 E Kennedy Blvd #4200, Tampa, FL 33602) - shuttles will be available from the conference hotels, departing at 6:00 PM					

Thursday, June 23, 2022						
USF ENG CUT 143				USF ENG CUT 202		
9:10 AM	Doctoral paper sessions 9:10 - 10:30 am			Paper sessions 9:10 - 10:30 am		
	Session DS4 - AAM / UAM 2 Session Chair: David Lovell			Session RP10: Track 1 - Human Performance 2 Session Chair: Judith Rosenow		
9:10 AM	51	Zhiqiang Wu and Yu Zhang	Exploration of On-Demand Urban Air Mobility: Demand Forecast, Infrastructure Location and Capacity Identification, and Vehicle Fleet Size Design	36	Lothar Meyer, Maximilian Peukert, Tatiana Polishchuk and Christiane Schmidt	Investigating Ocular and Head-Yaw Measures as Indicators for Workload and Fatigue under Varying Taskload Conditions
	32	Hualong Tang and Yu Zhang	Airspace Design and Conflict-free Flight Planning for Urban Air Mobility	52	Justin Serwinski, Patricia Shewokis, Jaime Kerr, Pratusha Reddy and Kurtulus Izzetoglu	Study of Different Task Loading and Cognitive Workload Changes Using Functional Near Infrared Spectroscopy
9:50 AM						
10:30 AM	Coffee break (CUT lobby) 10:30 - 11:00 am					
	Doctoral paper sessions 11:00 - 1:00 pm			Paper sessions 11:00 am - 1:00 pm		
	Session DS5 - Data Driven Modeling Session Chair: Marc Bourgois			Session RP11: Track 8 - Network Management 2 Session Chair: Max Li		
11:00 AM	2	Esther Roosenbrand, Junzi Sun, Irene Dedoussi, Daphne Stam and Jacco Hoekstra	Assessing and Modelling Climate Optimal Flights Using Open Surveillance and Remote Sensing Data	1	Christopher Chin, Hamsa Balakrishnan, Karthik Gopalakrishnan and Max Li	Airline Disruption Management with Delay Ledgers
11:40 AM	25	Jan Groot, Joost Ellerbroek and Jacco Hoekstra	Enabling Safe and Efficient Separation through Multi-Agent Reinforcement Learning	48	Ke Liu and Mark Hansen	Excess Delay from GDP: Measurement and Causal Analysis
12:20 PM	43	Hasnain Ali and Sameer Alam	Data-Driven Optimization of Airside Operations Under Uncertainty	26	Henrik Hardell, Tatiana Polishchuk and Lucie Smetanová	Automated Traffic Scheduling in TMA with Point Merge to Enable Greener Descents
USF ENG CUT 102						
Awards and Closing Remarks						
1:00 PM						