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Artificial Intelligence (AI): Paving the way for more efficiency in digital aviation

Lufthansa Systems is currently engaged in various AI initiatives and projects covering flight scheduling, turnaround processes and passenger apps

Raunheim, June 13, 2019 – Air traffic is growing at an average annual rate of five percent. In 2035 around 40,000 aircraft will share the airspace – twice as many as today. Already today there are sometimes bottlenecks, in the air as well as on the ground. This can lead to delays or even flight cancellations, resulting in frustrated passengers and high costs for the airlines. To meet these challenges, the industry is looking for solutions based on artificial intelligence (AI). As one of the world's leading airline IT specialists, Lufthansa Systems is involved in various projects in this field.

“Artificial intelligence is almost ubiquitous today, and its potential is huge. This is why we have been working on this topic for years,” explained Mubashir A. Tariq, Head of Innovation and Portfolio Management at Lufthansa Systems. “AI solutions are based on the extensive data that is already available from the many different solutions used by Lufthansa Systems’ broad international customer base. The aim is to make even more effective use of the limited resources available without compromising the stability of the systems”.

The trick is to use this data in a smart and practical way. Lufthansa Systems founded a subsidiary in 2015 to handle this. zeroG employs around 50 data scientists and data engineers. They are highly sought-after experts in the field of intelligent data use and the development of AI solutions, and they also have a deep understanding of airline processes. In all of their AI projects, Lufthansa Systems and zeroG involve their customers in the development process early on in order to adapt the solutions to specific conditions and work with the widest possible range of real data.

Deep Turnaround is all about avoiding delays in ground operations, specifically the turnaround process. Using video recording, an algorithm analyzes the turnaround process (e.g., passengers disembarking, cleaning starts, catering on site, fuel trucks missing) and

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keeps everyone updated on the current status in real time. If necessary, the parties involved can take measures to speed up the process or counteract any bottlenecks to ensure a punctual turnaround.

The aiOCC project is investigating how to simplify the work of ops controllers. In collaboration with zeroG, an AI solution is being developed which analyzes historical data and uses the findings to suggest ways of optimally adjusting current flight operations in the event of irregularities. Machine learning is also being used here, meaning that the system continually learns and gets smarter the longer it runs. aiOCC is now in an early research phase with selected customers of NetLine/Ops ++.

Intelligent network planning is the focus of a research project carried out with Lufthansa Group Hub Airlines and zeroG. AI will be used to analyze the behavior of revenue management systems in order to make forecasts for optimal network planning.

To improve the digital passenger experience, Lufthansa Systems has developed a mobile SDK for integration in passenger apps which calculates waiting times at airports using an AI-based prediction model. This makes it easier for passengers to plan how much time they need to reach the gate. The inTime SDK can be easily integrated into any existing passenger app offered by an airline.

“The various concepts are being developed and tested together with airlines,” Tariq said.

“From our perspective, AI will fundamentally change the way software solutions are developed. Instead of programming fixed or parameterized business processes, the algorithms of the future will be derived from data. AI-based technologies are paving the way for the digital future.”

Caption (Copyright: alphaspirt/Shutterstock.com): Lufthansa Systems addresses the topic of AI in various initiatives and projects in close cooperation with their customers

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Lufthansa Systems GmbH & Co. KG is a leading airline IT provider. Based on long-term project experience, a deep understanding of complex business processes and strong technological know-how, the company provides consulting and IT services for the global aviation industry. More than 350 customers worldwide rely on the know-how of IT specialists at Lufthansa Systems. Its portfolio covers innovative IT products and services which provide added value for its customers in terms of enhanced efficiency, reduced costs or increased profits. Headquartered in Raunheim near Frankfurt/Main, Germany, Lufthansa Systems has offices in 16 other countries.

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