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## Detecting Periods of Flight with High Task Load

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### ABSTRACT

Tools that predict dangerous working conditions empirically in the cockpit could greatly improve aviation safety. In an effort to lay the groundwork for such tools, this study will investigate whether a link exists between task load and pilots' control strategies, their biometric data, and their planes' position data. Using X Plane simulation software, an experiment will be run in which licensed pilots will fly a 3-nautical-mile approach into Mineta San Jose International Airport 4 times, under different task load conditions. During the flight, participants' pupil diameters will be recorded along with the simulated aircraft position data and cognitive control modes. Future work will focus on applying these relationships to novel systems that will help pilots facing high task loads perform critical tasks without hindering the safety of those onboard the aircraft.

### KEYWORDS

Workload, cognition, task load, human-machine interaction, flight