Student Name:Krish Patel
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Annotated Source List

El Arab, Rabie Adel, et al. “Integrative Review of Artificial Intelligence Applications in Nursing: Education, Clinical Practice, Workload Management, and Professional Perceptions.” Frontiers in Public Health, vol. 13, 1 Aug. 2025, https://doi.org/10.3389/fpubh.2025.1619378.

Summary (Scholarly Journal)
The 25 papers on AI applications in nursing that are summarized in this peer reviewed paper cover topics like task management, clinical decision assistance, and education. It demonstrates how AI powered monitoring tools and simulations can increase productivity and identify health problems early. The authors emphasize that when AI technologies change the nature of professional responsibilities, training and adaptation are essential.

Application to Research
This study demonstrates how incorporating AI into complex, human centered systems improves peeformance and dependability, despite its healthcare focus. The organized application of AI in the nursing sector is comparable to that in aviation engineering, where machines may monitor system performance, assist in decision-making and maximize workload balance.

Makridakis, Spyros. “The Forthcoming Artificial Intelligence (AI) Revolution: Its Impact on Society and Firms.” Futures, vol. 90, no. 90, June 2017, pp. 46–60, https://doi.org/10.1016/j.futures.2017.03.006.
Summary (Scholarly Journal)
Makridakis examines the possible social and economic implications of artificial intelligence, highlighting its advantages as well as its limirations (inequality, job displacement). It is argued that whether AI leads to advancement or harm will depend on its responsible integration.

Application to Research
The important context for comprehending the deployment of industrial AI in engineering and aviation can be found in this article. Its understanding of the moral and societal implications sets the scene for the ethical application of AI in workforce adaptability and technology design.

Vasquez, Brian A, et al. “Technological Machines and Artificial Intelligence in Nursing Practice.” Nursing & Health Sciences, vol. 25, no. 3, 18 June 2023, https://doi.org/10.1111/nhs.13029.
Summary (Scholarly Journal)
This study explores how healthcare workflows are changing due to robotics and artificial intelligence (AI) systems, which help out professionals with repetitious tasks and allow them to concentrate more on providing human centered care. It highlights the need for new skills to guarantee accuracy and safety in technologically advanced settings.

Application to Research
Research on industrial AI for aviation is directly supported by the focus on human machine collaboration. Aerospace engineers must maintain human oversight while utilizing AI for productivity, just like nurses do. This demonstrates how balanced automation promotes sustainability and dependability.

Vaughn College. “The Impact of AI on the Aviation Industry.” Vaughn College, 1 Oct. 2023, www.vaughn.edu/blog/how-artificial-intelligence-is-transforming-the-aviation-industry/.
Summary (Media Source)

The application of AI by airlines for staff scheduling, maintenance forecasting, flight forecasting, customer experience management, etc, is highlighted in this article. It uses case studies from well known airlines like JetBlue, Lufthansa, and Delta to show how AI increases operational effectiveness.

Application to Research
The examples show specific applications of AI in aviation and support the claim that predictive maintenance and data driven design (LLM) lead to more dependable and sustainable aviation systems. It also emphasizes how crucial it is to maintain human control in despite AI advancements.

"Next-Gen AI for Aerospace Engineering." Google Books, 2025, books.google.com/books?hl=en&lr=&id=4VqJEQAAQBAJ&oi=fnd&pg=PP1&dq=In+what+ways+can+industrial+AI+systems+and+large+language+models+help+engineers+design+reliable, https://doi.org/10.4271/EPR2025016). Accessed 4 Oct. 2025.
Summary (Book)
This paper explores the ways in which large language models (LLMs) and industrial AI systems are revolutionizing aerospace engineering. It describes how AI may work with engineers to produce technicalsolutions and automate testing.

Application to Research
This source shows how LLMs and machine learning models enhance design reliability and promote environmentally friendly solutions. It supports the integration of AI into the engineering design process conceptually and practically.

"Air Force Experiments with AI, Boosts Battle Management Speed, Accuracy." U.S. Department of War, 2025, www.war.gov/News/News-Stories/Article/Article/4311665/air-force-experiments-with-ai-boosts-battle-management-speed-accuracy/.
Summary (Government Report)
The Air Force's "Decision Advantage sprint" (dash 2) experiment, which evaluated AI enabled decision making tools, is described in the paper. AI technologies significantly increased response time and accuracy in high pressure situations by producing more precise recommendations in a short amount of time.

Application to Research
The challenges in aviation technology are reflected in this case study, which shows how AI can handle large datasets and improve reliability in real time decision-making systems. It offers concrete evidence that AI powered solutions may enhance human knowledge to boost efficiency and security.

"Educating the AI-Ready Warfighter: A Framework for Ethical Integration in Air Force Profes." Air University (AU), 17 June 2025, www.airuniversity.af.edu/Wild-Blue-Yonder/Article-Display/Article/4219340/educating-the-ai-ready-warfighter-a-framework-for-ethical-integration-in-air-fo/.
Summary (Website)
An approach for integrating AI and large language models into Air Force training in an ethical manner is offered in this article. It emphasizes that human oversight and governance are crucial for the responsible implementation of AI.

Application to Research
This approach is similar to engineering ethics because AI systems need to strike a balance between responsibility and innovation. It provides guidance on how ethical boundaries and transparency should exist with technology advancement in aviation design.

Wei, Qiuying, et al. “The Integration of AI in Nursing: Addressing Current Applications, Challenges, and Future Directions.” Frontiers in Medicine, vol. 12, no. 1, 11 Feb. 2025, https://doi.org/10.3389/fmed.2025.1545420.

Summary (Scholarly Journal)

The opportunities and difficulties of incorporating AI in healthcare are discussed in this article, as well as issues related to clinical support and data privacy. It shows how crucial it is to develop a staff in order to accommodate intelligent systems.

Application to Research

The investigation confirms that data management and human adaptation are essential for the safe implementation of AI. The findings provide a framework for how aviation engineers might get ready for comparable changes in system architecture and technical training.

Niyazi Ahmet Metin, et al. A Survey on the Use of Generative AI in Aviation 26 July 2019, pp. 106–113, set-science.com/?go=d1001a2417e2b87d5b7c53e16c5e1675&conf_id=95&paper_id=16, https://doi.org/10.36287/setsci.18.1.00106.

Summary (Scholarly Journal)

This study explores the use of generative AI models, including GANs, VAEs, and GAIL, in aviation for identifying anomalies, and air traffic control. The authors show how generative AI may increase the effectiveness and safety of aviation systems by predicting aircraft paths, failures, and other faults.

Application to Research

This journal makes a clear connection between aerospace engineering and AI modeling. By showing how generative models can assist engineers in creating more dependable and environmentally friendly aviation systems through enhancing predictability and lowering data restrictions, it helps my research.

Dai, Min. “A Hybrid Machine Learning-Based Model for Predicting Flight Delay through Aviation Big Data.” Scientific Reports, vol. 14, no. 1, 26 Feb. 2024, p. 4603, www.nature.com/articles/s41598-024-55217-z, https://doi.org/10.1038/s41598-024-55217-z.

Summary (Image)

This graphic shows how an AI system generates predictions based on data. Cleaning and organizing the training data is the first step in the process. After that the AI creates smaller models for each batch of data by grouping related data together. The same procedures are followed when a fresh sample is received, and it is paired with the appropriate group to obtain a prediction result.

Application to Research

I am more aware of the application of aI systems in aviation engineering due to this graphic. It illustrates how dividing data into smaller groups can improve forecast accuracy, which directly relates to my work.

Federal Aviation Administration. “Roadmap for Artificial Intelligence Safety Assurance (Version I).” Federal Aviation Administration, 23 July 2024, https://www.faa.gov/aircraft/air_cert/step/roadmap_for_AI_safety_assurance. Accessed 30 Oct. 2025.

Summary (Government Report)

This FAA roadmap explains how aviation can introduce AI safely by adapting existing aviation safety practices to AI systems. It highlights the difference between “learned” (static) AI and “learning” (adaptive) AI and recommends an incremental approach, industry collaboration, and workforce readiness.

Application to Research

This is directly useful for your question because it shows the regulatory mindset engineers have to design around: evidence, verification, and risk management for reliability in real flight operations. It supports the idea that AI improves systems only when it is introduced with structured safety assurance methods.

European Union Aviation Safety Agency (EASA). EASA Artificial Intelligence Roadmap 2.0: A Human-Centric Approach to AI in Aviation. 10 May 2023. Accessed 9 Nov. 2025.

<u>Summary (Government/Regulatory Publication)</u>

EASA's roadmap explains how aviation can introduce AI while keeping safety and ethics central, and it outlines planned guidance/rulemaking activities. It frames AI as something that must be integrated with accountability and human oversight.

<u>Application to Research</u>

This helps explain how engineers should design AI assisted aviation systems so they remain certifiable and trustworthy, especially when decisions are shared between humans and automated tools. It also informs me on the possible solutions to ethical concerns.

International Civil Aviation Organization. "Artificial Intelligence (AI) Contribution to Aviation." ICAO Assembly 42nd Session Working Paper A42-WP/489, 25 Aug. 2025, https://www.icao.int/sites/default/files/Meetings/a42/Documents/WP/wp_489_en.pdf. Accessed 8 Nov. 2025.

<u>Summary (International Organization Report)</u>

This working paper provides an overview of AI's growing role in aviation and is meant to support dialogue among states and stakeholders. It highlights AI's use across operations, maintenance, and broader system planning while recognizing the need for coordinated approaches as adoption expands.

<u>Application to Research</u>

This supports my research because it shows that industrial AI is not just for one task and that its value comes from improving endto end reliability and efficiency across aviation systems. Since ICAO focuses on global aviation, it also emphasizes why standardization and shared expectations matter when AI affects safety and interoperability. For engineers, this means designing AI tools that can operate under consistent procedures and shared constraints, which increases both effectiveness and long term sustainability.

National Institute of Standards and Technology (NIST). NIST AI 600-1: A Profile for the AI Risk Management Framework (AI RMF) for Generative AI. NIST, 2024, https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.600-1.pdf. Accessed 15 Nov. 2025.

<u>Summary (Government Framework)</u>

This NIST profile adapts AI risk management specifically for generative AI systems, focusing on risks like hallucinations, data leakage, misuse, and evaluation gaps. It emphasizes monitoring, documentation, and guardrails so generative tools remain dependable in real world use.

<u>Application to Research</u>

This is important for the LLM part of my question because aviation engineering cannot afford outputs that are confident but wrong. The framework helps engineers justify when LLMs can be used safely (like drafting documentation, organizing requirements, or assisting with troubleshooting) and when they must be restricted. It also supports reliability by emphasizing continuous evaluation and monitoring, which matches aviation's need for ongoing assurance rather than "one time" testing.

Aerospace Industries Association. Securing Artificial Intelligence and Machine Learning in Aviation. Civil Aviation Cybersecurity Subcommittee, Feb. 2024, https://www.aia-aerospace.org/wp-content/uploads/Securing-Artificial-Intelligence-Machine-Learning-Aviation.pdf

Summary (Industry Report)
This report explains how AI/ML introduces new cybersecurity risks (such as adversarial inputs, poisoning, and system manipulation) that can impact both safety and operations. It argues that aviation must treat security as part of AI assurance, not as an add on after deployment.

Application to Research
This supports my research because aviation technology cannot be "reliable" if it can be manipulated or compromised. The report shows engineers must design AI systems with secure data pipelines, robust validation, and threat aware testing to keep performance stable in real environments. It also ties into sustainability because stronger security reduces disruptions, emergency maintenance, and wasted resources caused by avoidable failures or attacks.

Su, Hanqi. Personal conversation. UMD Industrial AI Center, University of Maryland, College Park. Accessed 16 Nov. 2025.

Summary (Human Source / Personal Conversation)
In a personal conversation, Hanqi Su (a current UMD graduate student working at the UMD Industrial AI Center) explained how industrial AI is used in real engineering projects. He emphasized that reliable AI depends on strong data quality, testing, and human oversight, especially in high stakes systems.

Application to Research
This conversation supports my research because it connects AI theory to how engineers actually build dependable systems. It also clarified how LLMs can assist engineering work (summaries, documentation, troubleshooting) while still requiring verification to avoid unsafe errors.

Hunter, Gary W., et al. A Concept of Operations For An Integrated Vehicle Health Assurance System (NASA/TM—2013-217825). NASA, Mar. 2013. Figure 6.7: "Notional block diagram of Propulsion Health Monitoring Assurance Concept." https://ntrs.nasa.gov/api/citations/20130011783/downloads/20130011783.pdf

Summary (Image)
This figure maps out a propulsion health monitoring loop: real time monitoring feeds a health assessment/reasoner, which then drives maintenance actions (no action/repair/replace) and stores results for fleetwide trend analysis.

Application to Research
This image supports my research question because it shows how industrial AI can make aviation systems more reliable by turning sensor data into actionable decisions and long term "fleet learning." It also connects to effectiveness and sustainability by reducing unnecessary maintenance while catching faults earlier, which cuts downtime and extends component life.

Patel, Dev. Personal conversation. Fourth year mechanical engineering student, University of Maryland; internship experience at Northrop Grumman. Accessed 9 Dec. 2025.

Summary (Human Source / Personal Conversation)
In a personal conversation, Dev Patel explained how industrial AI tools are used in engineering workflows, based on what he learned during his internship at Northrop Grumman. He emphasized that AI is most useful when it supports engineers with analysis and decision making, while humans still verify results.

Application to Research
This conversation supports my research because it connects AI and LLM ideas to real aerospace engineering work instead of just theory. It also reinforced that reliability comes from strong validation, testing, and human oversight when AI is involved.

Yang, Longxing, and Yixing Luo. “Evaluating Large Language Models for Requirements Question Answering in Industrial Aerospace Software.” FSE Companion ’25 (ACM), 2025, https://dl.acm.org/doi/10.1145/3696630.3728560. Accessed 18 Dec. 2025.

Summary (Paper)

This study evaluates how well LLMs can answer questions using aerospace software requirements documents in an industrial setting. It highlights that requirements work is difficult and high risk due to complexity and strict safety standards.

Application to Research

This helps answer my research question because requirements are one of the biggest sources of downstream design failures in aviation software. If LLMs can reliably support requirement navigation and question answering, engineers can reduce misinterpretations, improve traceability, and catch contradictions earlier. However, the paper also reinforces that reliability depends on verification and oversight, meaning LLM use must be structured as decision support rather than unquestioned authority.

He, Rui, et al. “Using Large Language Models for Aerospace Code Generation: Methods, Benchmarks, and Potential Values.” Aerospace, vol. 12, no. 6, 2025, article 498, https://www.mdpi.com/2226-4310/12/6/498

Summary (Scholarly Journal)

This paper evaluates LLM based code generation in aerospace contexts and discusses why performance can drop in specialized safety oriented domains. It also emphasizes benchmarking and evaluation strategies to measure how dependable LLM outputs are in real engineering use.

Application to Research

This supports my research because it shows LLMs can improve engineering speed (drafting code, generating test scaffolds, summarizing repos) but only with strong guardrails. In aviation, reliability depends on preventing subtle software errors, so the paper’s focus on benchmarks and domain constraints is essential. It also suggests a realistic role for LLM such as assisting engineers rather than replacing safety critical reasoning, which aligns with dependable human centered design.