Modernizing Maintenance in Army★Aviation:

A Call for Predictive Solutions

By CPT Brittany M. Haggett

Army Aviation has long prided itself on maintaining the highest standards of aircraft readiness and safety. However, even in such a highly structured environment, inefficiencies still exist, particularly around maintenance, especially since the rate of personnel turnover has increased, reflected in aviation retention decreasing. While the North Carolina Army National Guard Army Aviation Support Facility #2 Flight Facility Logistics Management Officer, I observed that even the most elite and disciplined teams struggle under the current reactive model. To support our personnel, reduce aircraft downtime, and strengthen mission readiness, Army Aviation must implement modern tools, specifically artificial intelligence (AI) and predictive maintenance scheduling systems.

As a technician at a demanding rotary-wing facility supporting state medical rescue operations, I managed maintenance and logistics alongside a team of highly trained Soldiers and General Schedule technicians. Despite their unwavering dedication, strict adherence to Army regulations, and technical expertise they consistently faced fatigue, long hours, and heightened stress levels. Through networking with other facilities, I noticed that all military maintenance programs have a common vulnerability: having one or two extremely experienced supervisors whose absence can significantly reduce program effectiveness. The root of the problem isn't incompetence or underperformance but the reactive nature of our current maintenance scheduling model.

Currently, Army Aviation maintenance relies heavily on fixed schedules, routine inspections, and time-based component changes with some reactive interventions. While partially effective, this method often results in unnecessary part replacements or missed early indications of failure, resulting in aircraft being grounded for extended periods. Transitioning to predictive maintenance scheduling, powered by AI and machine learning (ML), offers a viable solution to mitigate some risk and improve operational readiness.

Production control meetings, designed to balance airframe and flight hour usage with scheduled maintenance

A UH-60 MEDEVAC being loaded onto a C-17 at the Charlotte National Guard AF ramp, North Carolina. Photo provided by the author.

A UH-60 flies over North Carolina. Photo provided by the author.

requirements, typically involve senior maintainers, commanders, and operations personnel. However, these plans are frequently disrupted by unforeseen mission demands or last-minute training changes—Annual Proficiency and Readiness Tests, Readiness Level progression, Helo-Aquatic Rescue Team taskings, VIP movements, company commander requests, and Medic progression flights, to name a few. Each deviation triggers a cascade of adjustments and reactive maintenance needs, placing significant strain on an already stretched workforce, resulting in heightened urgency and fatigue. By integrating AI and predictive maintenance scheduling, the Army would be investing not only in technological superiority but in its most valuable asset, its people.

These scheduling systems would help streamline the unpredictability, reduce manual planning burdens, and enhance the responsiveness of the entire aviation maintenance structure. The civilian aviation sector has already embraced predictive analytics with remarkable success. According to Boeing, the commercial airline industry has seen a significant reduction in delays and maintenance-related costs since introducing predictive maintenance technologies (Boeing, 2025). If the Army adopts similar tools tailored to our mission needs, it can yield comparable gains across aviation units.

Furthermore, predictive systems can ease the burden on personnel. In my previous role, the maintenance team frequently worked long shifts, scrambling to recover aircraft experiencing grounding faults related to components that often fail without clear warning or that are difficult for technicians to anticipate. This cycle of urgency eroded morale and increased the risk of human error, a dangerous combination in aviation. Predictive insights enable proactive inspection and maintenance planning, reducing the reliance on last-minute troubleshooting and ensuring a more sustainable work environment. Predictive maintenance also enhances decision-making, providing commanders and maintenance leaders with actionable data for more confident mission planning.

Fortunately, the conversation surrounding the integration of AI-driven predictive maintenance is already gaining strong momentum within the Army Aviation community. Major General Lori L. Robinson reports that Army Aviation and Missile Command has "developed a data-analytics-based Enduring Fleet Management Tool (EFMT) that scores every aircraft in the Army's inventory" to determine higher-level maintenance priorities (Robinson, 2024, p.16). Additionally, Griffin, the Army's flagship AI/ML algorithm prototype, is being tested with notable success by XVIII Airborne Corps, Army Reserve Aviation Command, and Central Command to enhance rotary-wing asset tracking and management (Fairfield, 2024, pp. 82-87). However, despite the promise of innovative systems, full implementation across the Army Aviation fleet remains limited due to software complexity and program sensitivity. Civilian aviation has already demonstrated success in applying similar AI-based maintenance systems. Collaborating with established civilian AI

predictive maintenance programs may offer a realistic and attainable solution for broader Army adoption.

Understandably, any shift toward AI and predictive maintenance requires careful consideration. Concerns about over-reliance on technology and cybersecurity vulnerabilities are valid. Yet, some Army units have already begun experimenting with AI-enabled diagnostics, yielding positive outcomes in logistics tracking and management. Extending these trials to aviation units is a logical next step toward realizing "The Army of 2030" and supporting large-scale combat and multidomain operations (U.S. Army, 2022). Institutional resistance to change is often a hurdle in military environments, but the risk of maintaining the status quo is far greater.

In closing, the Army Aviation Enterprise stands at a critical juncture. We have the tools and data to revolutionize how we maintain our aircraft. What we need now is the will to lead that change. From my personal experience managing a high-performing but overburdened maintenance team, I can confidently say that predictive scheduling isn't a luxury—it's a necessity. By modernizing maintenance scheduling with AI and predictive analytics, we can reduce aircraft downtime, improve readiness, and provide our aviation professionals with the support they deserve.

CPT Brittany Haggett pictured with a UH-60. Photo provided by the author.

Biography:

CPT Brittany Haggett began her aviation career in the National Guard, flying UH-60A/L Black Hawks before transitioning to the U.S. Army Reserve C-12 fixed-wing community. She holds a kinesiology degree with a pre-medical concentration from Louisiana State University and brings a strong foundation in health and performance to her role as an aviator. Most recently, she graduated as the Honor Graduate of Aviation Captains Career Course Class 25-004.

A UH-60 MEDEVAC and C-17 at the Charlotte, North Carolina, National Guard AF Ramp. Photo provided by the author.

References:

Boeing. (2025, April 3). *Revolutionizing aviation: The power of predictive maintenance.* https://services.boeing.com/resources/insights/revolutionizing-aviation-power-of-predictive-maintenance

Robinson, L. L. (2024, October 31). Current, enduring, and future aviation fleet sustainment. *Army Aviation Magazine, 73*(10), 16-18.

Fairfield, H., Hyde, D, & McCormick, J. (2024, September 26). Commoditizing AI/ML models. *Army AL&T Magazine,* Fall, 2024, 82-87. https://asc.army.mil/web/altmag-news-commoditizing-ai-ml-models/

U.S. Army. (2022, October 5). *Army of 2030*. https://www.army.mil/article/260799/army_of_2030