Department of the Navy SBIR/STTR Transition Program

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.
ONR Approval #2025-8-18-1281

Topic # PA20-265
Continuous, best-in-class open source sleep classification with extreme runtimes
Arcascope

WHO

SYSCOM: ONR

Sponsoring Program: Warfighter Performance (Code 34)

Transition Target: Command Readiness, Endurance, and Watchstanding (CREW) program

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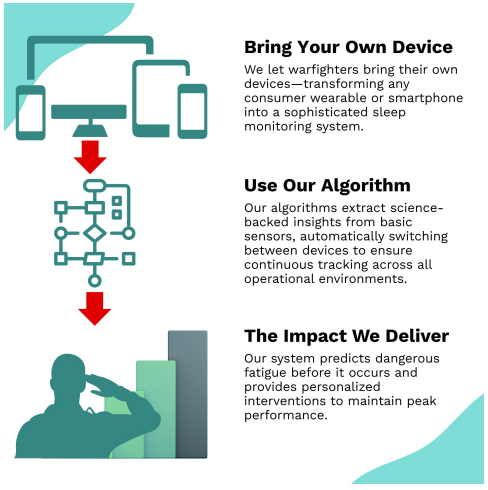
Other Transition Opportunities: Arcascope's monitoring applications are wearable device agnostic, and already available in the commercial sector for use.

Notes: Arcascope uses Artificial Intelligence (AI), mathematical models, and wearable data to fully characterize real world circadian rhythms and pave the way for innovations that optimize not only sleep but every vital function where timing matters. We are pleased to offer a customized version of our software for Warfighter use to combat fatigue and improve readiness!



Arcascope has the flexibility and validated tools to support Warfighter readiness. Image provided by Arcascope 2025.

WHAT

Operational Need and Improvement:

Operational schedules, heavy workloads, and staffing challenges are all challenges that can lead to inadequate crew rest, leading to fatigue that if left unresolved can reduce alertness and Warfighter effectiveness. Wearable technology exists that can monitor physiologic functions, and software exists to provide advanced scheduling recommendations based on user data, but to date there is no DoD approved application that provides a secure, reliable method of tracking fatigue in the military.

Specifications Required:

The Navy has a current requirement to systematically collect timely and quality fatigue data from Sailors that are accessible to operational commanders to support underway decision-making.

Technology Developed:

Arcascope's algorithms are a tested and validated fatigue assessment tool, using data from any wearable health monitoring system to accurately and reliably provide information to the individual Warfighter, medical support teams, and Commanding Officers regarding their individual and unit readiness.

Warfighter Value:

Warfighter fatigue affects alertness and decision-making. Improving individual and unit readiness by improving fatigue assessment will reduce risk and improve Warfighter safety on and off the battlefield.

WHEN

Contract Number: N68335-25-C-0173 **Ending on:** Apr 08, 2026

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Define Arcawatch Hardware Kit v.1 specifications	Low	Custom application modifications made for shipboard operations.	3	4th QTR FY25
Collect environmental acceleration from 3 ship classes	Medium	Data collection complete.	3	1st QTR FY26
Collect 100 nights of acceleration and EEG data on ships	Medium	Data collection complete.	6	2nd QTR FY26
Benchmarking of shipboard algorithm v1 vs. gold standard ground truth for overnight sleep	Medium	Data analysis complete.	4	3rd QTR FY26
Benchmark algorithm for nap accuracy against gold standard truth for multi-day sleep/naps	Medium	Data analysis complete.	4	4th QTR FY26
Report accelerator performance across consumer wearables	Low	Final report submitted.	7	1st QTR FY27
Report on battery consumption/algorithm performance trade-offs	Low	Final report submitted.	7	1st QTR FY27

HOW

Projected Business Model: Arcascope currently uses a subscription model for their wearable application to provide customized analysis of customer physiology. We anticipate extending this subscription model as an option for purchase through standard government purchasing methods.

Company Objectives: Arcascope is built on a model of customized healthcare through wearable data collection and tailored analysis. By remaining device agnostic, we can reach the largest customer base. By retaining the best sleep and fatigue researchers, we will remain a leader in circadian rhythm analysis for the commercial, military, and industrial sectors.

Potential Commercial Applications: Arcascope already has three applications available for commercial use - Arcashift, Chronomedicine, and Arcasync. Arcashift and Arcasync are the commercial applications most closely resembling our customized military application; Chronomedicine is designed for the pharmaceutical industry Contract Research Organizations (CROs) that provide clinical research services for drug development.

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