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UWF professor receives U.S. patent for early Alzheimer's detection technology

PENSACOLA, Fla. – May 14, 2026 – Dr. James Arruda, professor of psychology at the University of West Florida, has received a Notice of Allowance from the U.S. Patent and Trademark Office for an electroencephalographic, or EEG, platform capable of detecting mild cognitive impairment due to Alzheimer's dementia, a milestone that brings a non-invasive, accessible early-detection tool one step closer to clinical use.

The allowed patent covers the Flash Visual Evoked Potential-P2, or FVEP-P2, platform, which Dr. Arruda developed and refined over the course of his research career. The technology measures the speed at which the brain responds to brief flashes of light, a response that is selectively delayed in patients with the type of mild cognitive impairment that often precedes Alzheimer's disease. This neurophysiological marker may allow clinicians to detect abnormalities years before cognitive symptoms appear. Unlike diagnostic approaches such as positron emission tomography, or PET, imaging and cerebrospinal fluid analysis, the EEG-based platform uses widely available clinical equipment and offers a non-invasive, lower-cost alternative for identifying patients who may be at risk.

"This Notice of Allowance brings us closer to giving clinicians a tool that is less expensive, more accessible and less invasive than the current standard for early Alzheimer's detection," Arruda said.

Alzheimer's disease is typically diagnosed after symptoms are already present, limiting the effectiveness of available treatments. With the recent U.S. Food and Drug Administration approval of the first disease-modifying therapies for early Alzheimer's disease, the need for accessible tools that can identify patients earlier in the disease process has become increasingly urgent. Dr. Arruda's newly patented platform offers a non-invasive, cost-effective method to enable earlier detection and intervention, potentially slowing disease progression and improving quality of life for patients and caregivers.

In 2022, UWF entered a licensing agreement with BIOPAC Systems Inc., a California-based biomedical research company, to support continued development of the FVEP-P2 platform and potential

commercialization of the technology to be used in primary care practices, memory clinics, neurology offices and more. The agreement marked UWF's third licensing agreement and a significant milestone in the University's efforts to translate faculty research into real-world solutions, with the newly allowed patent representing another critical step toward advancing the technology as a scalable clinical or research tool.

"The FVEP-P2 developed by Dr. Arruda is a significant innovation that allows non-intrusive detection of early cognitive declines," said Jerry Lin, associate vice president of Research Administration and Engagement. "This is a unique technical advancement with commercialization potential that will benefit many patients in need and substantially reduce the medical costs associated with treating cognitive impairments."

Initial clinical trials conducted at Brown University produced results supporting continued development. With the patent now allowed and clinical work continuing, Dr. Arruda and BIOPAC are preparing for pre-submission with the FDA on the regulatory pathway toward clinical deployment, a process that may be expedited by the fact that the underlying EEG hardware is already an established, FDA-cleared medical device.

"BIOPAC is proud to continue working alongside Dr. Arruda and the University of West Florida to advance this promising technology toward clinical use," said Frazer Findlay, CEO of BIOPAC Systems, Inc. "The patent allowance marks an important milestone in the commercialization process, and as we move into the next phase of development and engage with the FDA, we remain focused on bringing this innovative diagnostic tool to clinicians and, ultimately, to the patients who could benefit from earlier intervention."

For Dr. Arruda, the patent represents the culmination of decades of research, clinical investigation and collaboration aimed at developing a more accessible approach to detecting Alzheimer's disease in its earliest stages. As the technology advances toward regulatory review and potential clinical deployment, the milestone marks both a significant professional achievement and a promising step toward bringing the platform from the research lab to the patients and clinicians it was designed to serve.

"I have been studying this particular brain response for the past 29 years," Arruda said. "It is gratifying to know that my work has contributed to the scientific and medical community's understanding of information processing in general, and that it may also prove clinically useful to those with mild cognitive impairment and Alzheimer's dementia."

To learn more about UWF's Usha Kundu, MD College of Health, visit uwf.edu/ukcoh.

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