ZAG ELSAYED, Ph.D., SMIEEE

Artificial Intelligence ▪ Neuroinformatics ▪ Translational Medicine ▪ Digital Health

School of Information Technology, University of Cincinnati

Contact

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Academic Identity

- Artificial Intelligence in Medicine
- Translational Neuroinformatics
- Computational Neuroscience
- Brain–Computer Interfaces
- Biomedical Signal Processing
- Digital Health
- Precision Medicine
- Clinical Decision Support
- Healthcare Cybersecurity

Impact at a Glance

70+
Peer-reviewed publications

$1.25M+
Awarded research funding

7
Ph.D. students advised

IEEE
Senior Member

Selected Honors

- CECH Faculty Incentive Awards
- Most Valuable Teacher Award
- Phi Kappa Phi Honor Society
- International keynote speaker
- Faculty Senate service

Professional Summary

Dr. Zag ElSayed is an interdisciplinary researcher and educator whose work bridges artificial intelligence, neuroinformatics, computational neuroscience, biomedical signal processing, and digital health. His research integrates machine learning, brain–computer interfaces, and clinical neuroscience to develop intelligent systems for neurological diagnosis, precision medicine, and AI-assisted healthcare.

As an Affiliated Researcher at Cincinnati Children's Hospital Medical Center, he collaborates with neurologists, psychiatrists, neuroscientists, and clinicians to translate computational discoveries into clinically meaningful solutions. His current work includes EEG biomarkers, pediatric neurodevelopmental disorders, adaptive neuromodulation, AI-driven neurodiagnostics, medical data science, healthcare cybersecurity, and secure medical AI systems.

He has built an interdisciplinary research portfolio spanning engineering, medicine, and education; developed graduate curricula; advised doctoral students; led funded research; and contributed to international scholarly and professional communities.

Current Appointments

University of Cincinnati 2021–Present
School of Information Technology
Assistant Professor; promotion to Associate Professor effective August 15, 2026.

Cincinnati Children's Hospital Medical Center 2023–Present
Affiliated Researcher, Division of Child and Adolescent Psychiatry.

Research Themes

Artificial Intelligence for Brain Health
EEG biomarkers, neurodevelopmental disorders, Fragile X syndrome, depression, and clinical neuroscience.

Neuroinformatics
Large-scale EEG analytics, vision-language AI, multimodal interpretation, and computational neuroscience.

Brain–Computer Interfaces
Adaptive neuromodulation, real-time neural decoding, edge AI, and human–AI interaction.

AI for Healthcare
Clinical decision support, digital health, medical cybersecurity, Internet of Medical Things, and secure AI systems.

Selected Research and Funding Highlights

- Co-PI on a $1,000,000 Ohio Department of Rehabilitation and Correction project developing mobile and web platforms to improve correctional practice implementation.
- Co-PI/collaborator on a $249,998 NSA-supported cybersecurity education initiative.
- Co-PI on a $25,000 neurorehabilitation pilot focused on electrophysiologic detection and recovery after stroke.

Selected Accomplishments

- Established an interdisciplinary research program at the intersection of AI, neuroscience, healthcare, cybersecurity, and digital health.
- Built sustained collaborations with Cincinnati Children's Hospital Medical Center and clinical investigators in psychiatry, neurology, rehabilitation, and pediatric neuroscience.
- Developed AI-based approaches for EEG interpretation, automated artifact classification, neuromodulation, and brain–computer interfaces.
- Designed and led graduate curricula in applied AI, cybersecurity, cloud computing, and infrastructure sustainability.
- Advised seven Ph.D. students, including four graduates, and served on numerous dissertation and thesis committees.
- Authored more than 70 peer-reviewed publications across AI, BCI, healthcare, signal processing, cybersecurity, and IoT.
- Served as keynote speaker, program chair, technical chair, session chair, and reviewer across major IEEE and interdisciplinary venues.
- Contributed to academic governance, curriculum development, faculty searches, graduate program reviews, and university service.

Education and Mentoring

Graduate Curriculum and Program Development

- Developed Data-Driven Cybersecurity / Applied AI for Cybersecurity.
- Redesigned Infrastructure Sustainability / Cloud IT.
- Contributed to graduate program development in intelligent cloud applications and AI-enabled solutions.
- Integrated AI, machine learning, cybersecurity, cloud platforms, and applied research into graduate education.

Graduate Mentoring

- Seven Ph.D. advisees: four graduated and three current.
- Two master's advisees and extensive service on dissertation and thesis committees.
- Mentoring areas include AI in healthcare, BCI, EEG, neuromodulation, IoMT cybersecurity, cryptojacking, smart cities, and explainable AI.

Professional Leadership and Visibility

- IEEE Senior Member and member of IEEE Brain, Signal Processing, and Computer Society communities.
- Invited talks and keynotes on AI, BCI, cognitive cybersecurity, and digital health.
- Reviewer for journals including IEEE Transactions on Biomedical Circuits and Systems, IEEE Access, European Psychiatry, and Frontiers in Digital Health.
- Leadership roles in IEEE and international conferences spanning AI, IoT, circuits, cybersecurity, and machine learning.

Research Vision

My long-term vision is to establish a multidisciplinary research ecosystem where artificial intelligence, computational neuroscience, neuroinformatics, and digital health converge to create clinically deployable technologies that transform neurological diagnosis, personalized treatment, rehabilitation, and medical education. By integrating advanced machine learning with translational neuroscience, my goal is to bridge the gap between computational discovery and patient care while training the next generation of researchers, engineers, and health professionals working at the intersection of AI and medicine.

Future Directions at FIU

Florida International University's Herbert Wertheim College of Medicine offers a highly collaborative environment for advancing AI, neuroscience, digital health, translational research, and medical education. I would contribute by expanding interdisciplinary partnerships, building externally funded research programs, mentoring future physician-scientists and engineers, supporting innovation in undergraduate and graduate medical education, and developing AI-enabled technologies that address meaningful clinical and community health needs.