

# **SAMUEL ACHILEFU**

Professor and chair, Department of Biomedical Engineering  
The University of Texas Southwestern Medical Center

## **Education**

- Ph.D., University of Lorraine, Nancy, France

## **Technical Activities/Interests**

- Biomedical optics, imaging, and image-guided surgery
- Microscopy, confocal microscopy, and spectroscopy
- Nanotechnology and nanomedicine
- Optical imaging and sensing of cancer and pathogens

## **Services to the Technical Community**

- Member, National Advisory Council for Biomedical Imaging and Bioengineering (2020–2024)
- Chair, Joint American Association for Cancer Research (AACR)-African Organization for Research and Training in Cancer (AORTIC)-US National Cancer Institute Center for Global Health (NCI/CGH) Beginning Investigator Grant for Catalytic Research (BIG Cat) Review Panel (2022–2025)
- Chair, AIMBE Fellows Imaging (B) Review Committee (2021–2022)
- Chair, co-chair, and member of grant proposal review and advisory panels for the US National Institutes of Health and Department of Defense Congressionally Directed Medical Research Programs, including Medical Imaging and Small Business Innovation Research panels (2002–2020)
- Editor-in-Chief, Current Analytical Chemistry (2013–2022)
- Member, Imaging Panel, National Comprehensive Cancer Network (2014–2020)
- Member, Board of Trustees, Loma Linda University, CA (2012–2016)
- Program Chair, Optics in Life Science Congress, Optical Society of America (2015)
- Program Chair, Photonic Nanotechnology and Probes, Optical Society of America Optics & Photonics Congress (2010)
- Co-Conference Chair, Engineering Foundation Conference - Advances in Optics for Biotechnology, Medicine, and Surgery (2007)

## **Service to SPIE (selected from over 40 services)**

- Chair, SPIE Awards Committee (2023–present).
- Chair, SPIE Britton Chance Award Committee (2022–2023).
- Conference Chair, Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications, Annual Photonics West of SPIE Meetings (2009–2021)
- Conference Chair, Genetically Engineered and Optical Probes for Biomedical Applications, Annual Photonics West Meetings (2003–2008)
- Session chair and committee member, multiple BIOS conferences at Photonics West (2003–2023)
- Guest Editor, Special Section on Fluorescence Molecular Imaging Honoring Prof. Roger Tsien, Journal of Biomedical Optics (2013)
- Guest Editor, Special Section on Chemical and Genetic Sensors in Biomedical Research, Journal of Biomedical Optics (2005)
- Editor, Proceedings of the SPIE for “Genetically Engineered and Optical Probes for Biomedical Applications” and “Reporters, Markers, Dyes, Nanoparticles, and Molecular Probes for Biomedical Applications” (2003–2020)
- Editorial Board member, Journal of Biomedical Optics (2001–2021)
- Founding Sponsor and Faculty Advisor, Washington University in St. Louis Student Chapters of the SPIE and OSA–Optica (2010–2021)

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## **Professional Honors (selected)**

- Member, US National Academy of Medicine (2021)
- Fellow, US National Academy of Inventors (2018)
- Fellow of SPIE (2011), Academy of Science - St. Louis (2015), Royal Society of Chemistry (2016), OSA-Optica (2017), AAAS (2018), American Institute for Medical and Biological Engineering (2019), Royal Society of Medicine (2020)
- SPIE Community Champion (2019 and 2020)
- Member, National Advisory Council for Biomedical Imaging and Bioengineering (2020-2023)
- Britton Chance Award in Biomedical Optics, SPIE (2019)
- Distinguished Investigator Award, the Academy for Radiology & Biomedical Imaging Research (2018)
- Carl and Gerty Cori Faculty Achievement Award, Washington University (2018)
- Distinguished Investigator Award, Department of Defense Breast Cancer Research Program (2016)
- St. Louis Award (2015)
- Medical Inventor Award, St. Louis Business Journal (2014)

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## **Election Statement**

When I first ventured into the field of optical imaging, there were very few professional organizations that welcomed researchers in biomedical optics. However, SPIE provided a home for many of us, fostering a community and network that has stood the test of time. Over the years, SPIE has evolved, embracing inclusivity, expanding its global outreach, championing advances in optics and photonics, and empowering the next generation of engineers in both industry and academia. Thanks to the remarkable efforts of SPIE members, we now live in a world where technological innovation has brought transformative changes. From self-driving cars and mixed reality to point-of-care devices for disease prevention and treatment, we have witnessed groundbreaking advancements that benefit society and the environment. However, these advancements also present new challenges. As a leading professional society, SPIE's role in advocacy and education has become increasingly relevant in our rapidly changing world.

I am running for membership on the SPIE Board of Directors to leverage my leadership experience in industry, academia, governmental institutions, and professional societies to support SPIE's mission of creating and sustaining a vibrant future for our members and the global community we serve. My career began in industry, and I later transitioned to academia, where I now hold the chair position in a biomedical engineering department. I have been fortunate to study and work in various countries across Europe, Asia, and the Americas. Throughout my professional journey, I have actively engaged with SPIE, taking on diverse leadership and advocacy roles. These services range from being a course instructor, committee member, and conference chair to my current position as chair of the Awards Committee. These experiences have equipped me with a relevant skill set and perspective on policies that will shape the future of SPIE's educational, advocacy, and inclusivity missions on a global scale.

While SPIE's mission encompasses many dimensions, I am particularly passionate about championing three core pillars of the organization. (1) **Fostering the Expansion of SPIE Activities:** I believe in expanding SPIE's reach to institutions with limited resources that currently miss out on the extensive networking and training opportunities provided by the organization. One way to achieve this is by creating regional SPIE networks for groups that may not qualify for student chapter membership. Additionally, leveraging advancements in virtual networking can support remote mentoring, and readily accessible didactic courses can facilitate online learning. (2) **Promoting Policies and Advocacy Programs for the Next Generation:** As artificial intelligence-driven platforms, like ChatGPT, continue to advance, we need to reimagine the future workforce of our trainees. With its diverse pool of experts from industry, academia, philanthropy, and regulatory agencies, SPIE is uniquely positioned to initiate global strategies addressing these challenges and opportunities. I aim to promote policies and advocacy programs that prepare the next generation of optical and photonics engineers and scientists. I will also support new initiatives to improve the careers of our current members at all levels. (3) **Honoring Accomplishments:** Given the rapid evolution of our field, it is essential to revisit the current awards and recognition programs available to SPIE members. I will encourage the creation of focused recognitions for areas that may be overlooked within the current system. This effort will require collaboration with members from both established and emerging areas in our field to ensure adequate representation.

If elected, I eagerly anticipate becoming a voice for the entire academic, industry, and regulatory institutions represented within the SPIE membership. Together, we can sustain SPIE's enduring legacy, fostering a strong sense of community and pioneering paradigm-shifting solutions to the challenges that lie ahead.

Thank you for your consideration.