

Special Section Guest Editorial: Biomimetic Optical Microsystems

Young Min Song,^{a,b} Cunjiang Yu,^{c,d,e} and Gil Ju Lee^f

^aGwangju Institute of Science and Technology, School of Electrical Engineering and Computer Science, Gwangju, Republic of Korea

^bGwangju Institute of Science and Technology, AI Graduate School, Gwangju, Republic of Korea

^cPennsylvania State University, Department of Engineering Science and Mechanics, University Park, Pennsylvania, United States

^dPennsylvania State University, Department of Biomedical Engineering, University Park, Pennsylvania, United States

^ePennsylvania State University, Department of Materials Science and Engineering, University Park, Pennsylvania, United States

^fPusan National University, Department of Electronics Engineering, Busan, Republic of Korea

The diverse optical structures and systems found in nature provide attractive design inspiration to solve a number of the prominent problems that we have been facing. Recent advances in micro- and nano-technology and materials engineering open up lots of opportunities for bioinspired optical microsystems. Many scientists and engineers have continuously pursued mimicry of biological optic systems to implement optically outstanding products, which have resulted in significant progress in sensors, optic components, biomaterials, displays, and imaging systems among others.

A biomimetic optical microsystem (BOM) is an applied subset of the optics/photonics field. It involves the design, fabrication, and utilization of optical materials/systems whose structure or functionality is inspired by what is found in nature. In this special section, we have three original papers for the BOMs. [K. Kim et al.](#) reported a new type of intraoral camera system inspired by the insect's compound eye. The proposed intraoral camera has superior imaging characteristics, which enables multi-functional dental imaging. [Zyla et al.](#) experimentally demonstrated biomimetic optical structures inspired by butterfly wings using two-photon polymerization. The optimized condition for two-photon polymerization provides unprecedented possibilities to explore the broad diversity of natural functional systems. [D.H. Kim et al.](#) reported compact zooming optical systems for panoramic and telescopic applications. The curved photoreceptor arrays in an animal's eye exemplifies an idea for reducing the complexity of optical systems. We hope that this special section would inspire new research directions and novel concepts in BOMs. Finally, we appreciate Editor-in-Chief Hans Zappe for his continuous support of this special section.

Young Min Song is a professor in the School of Electrical Engineering and Computer Science and AI Graduate School at the Gwangju Institute of Science and Technology (GIST), Republic of Korea. Prior to joining to the GIST, he was an assistant professor at the Pusan National University from 2013 to 2016. He received an MS and a PhD in information and communications from the Gwangju Institute of Science and Technology (GIST) in 2006 and 2011, respectively, after a BS degree in biomedical engineering from Yonsei University in 2004. From 2011 to 2013, he was a postdoctoral research associate in the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign. His research interests include advanced optoelectronic devices/systems, multifunctional nanophotonics, and optical healthcare systems. He is a senior member of Optica, a member of SPIE, and MRS. He is serving as a senior editor of the *IEEE Photonics Journal* and an editorial board member of the *Journal of Optical Microsystems (JOM)* and *Soft Science*.

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Cunjiang Yu is the Dorothy Quiggle Career Development Associate Professor of Engineering Science and Mechanics, Biomedical Engineering, and Materials Science and Engineering at Pennsylvania State University, University Park, USA. He got a BS in mechanical engineering (2004) and an MS in electrical engineering (2007) from Southeast University, China. He obtained his PhD in mechanical engineering at Arizona State University (2010) and pursued post-doc training at the University of Illinois at Urbana-Champaign (2010-2013). His recent research mainly concerns the fundamentals and applications of soft and curvy electronics. He is a recipient of a list of awards, including the Society of Engineering Science Young Investigator Medal Award, NSF CAREER Award, ONR Young Investigator Award, NIH Trailblazer Award, MIT Technology Review TR35 Top Innovator of China, SME Outstanding Young Manufacturing Engineer Award, AVS Young Investigator Award, SPIE Rising Researcher Award, etc. He is the editor of *Soft Science*, an associate editor of *IEEE Transaction on Nanotechnology*, and an editorial board member of a few other journals.

Gil Ju Lee has served as an assistant professor in the Department of Electronics Engineering at Pusan National University, Republic of Korea, since September 2021. He received a BS degree in electronics engineering from Pusan National University in February 2016. He received a PhD in electrical engineering and computer science from GIST in February 2021. Continuing on, he worked as a postdoctoral research associate in electrical engineering and computer science at GIST from March 2021 to August 2021. His research interests focus on advanced photonics and optoelectronics such as multifunctional nanophotonics, radiative cooling, optical security devices, and next-generation optoelectronics. He is serving as a guest editor of *Frontiers in Electronics* and an editorial board member of the *Journal of Optical Microsystems* (JOM).