

Self-Nomination for IEEE SMCS Distinguished Lecturer Program (2026-2027)

Professor Yongduan Song, Ph.D.

Dean, School of Data Science, Lingnan University, China

Dean, Institute of Artificial and Intelligence, Chongqing University, China

Email: yongduansong@LN.edu.hk, ydsong@cqu.edu.cn



Dear Distinguished Lecturer Program Committee,

I am writing to **self-nominate for the IEEE Systems, Man, and Cybernetics Society (SMCS) Distinguished Lecturer Program** for the 2026–2027 term. As an active member of IEEE SMCS and a longstanding researcher in control science, intelligent systems, and neural adaptive control, I wish to contribute to the global SMCS community by delivering high-impact technical lectures that align with current trends and the interests of Society members.

Biographical Sketch

I am the Chair Professor in the Division of Industrial Data Science of the School of Data Science and the Dean of School of Data Science at Lingnan University. I also serve as the Dean of Institute of Artificial and Intelligence, Chongqing University. I am a Foreign Member of the Chinese Academy of Engineering and a Fellow of IEEE, the International Eurasian Academy of Sciences, the Chinese Automation Association, and the Chinese Association for Artificial Intelligence. I currently serve as the Editor-in-Chief of IEEE Transactions on Neural Networks and Learning Systems and the Founding Editor-in-Chief of the Journal of Automation and Intelligence. In 2025, I was awarded the IEEE Systems, Man, and Cybernetics Society Andrew P. Sage Best Transactions Paper Award.

I received my Ph.D. degree in Electrical Engineering from Tennessee Technological University, USA, in 1992. From 1993 to 2008, I was a tenured Full Professor at North Carolina A&T State University, Greensboro, NC, USA, and from 2005 to 2008 I was one of the six Langley Distinguished Professors at the National Institute of Aerospace (NIA), Hampton, VA, where I also founded and directed the Center for Cooperative Systems. My research interests include intelligent systems, guidance, navigation and control, and bio-inspired adaptive and cooperative systems. Over the course of my career I have published more than 400 refereed papers, authored 12 books, and been granted around 100 patents in China, the United States, and Japan.

I have extensive experience delivering invited, keynote, plenary, and distinguished lectures, and I have served in major conference leadership roles. I have been invited as a plenary/senior speaker at ECC 2025 and ICONIP 2022 and have delivered distinguished lectures at leading research institutions. My conference service includes invited speaking at ACC and IFAC events, organizing and chairing special sessions, and serving as session chair multiple times at ACC and IEEE CDC.

Proposed Lecturer Topics

I propose the following two lecture topics, which I believe strongly align with the interests and evolving needs of SMCS members:

1. ***Intelligent PID Control: Theory and Methods***

Abstract: PID control remains the workhorse of industrial automation, but classical linear PID often struggles with strong nonlinearities, uncertainties and time-varying dynamics. This talk revisits PID from an “intelligence-in-PID” perspective, interpreting the proportional, integral and derivative components as encapsulating elements of human decision making in feedback regulation. Building on this view, I introduce a family of nonlinear and intelligent PID schemes that enhance robustness, disturbance rejection and transient performance for nonlinear systems. I will outline key structures, basic stability properties and representative applications in multi-input–multi-output processes, time-delay systems and large-scale plants, and briefly discuss data-driven and learning-based tuning methods that point toward intelligent PID in next-generation smart manufacturing.

2. ***On the Reliability and Effectiveness of NN-Driven Control Systems***

Abstract: Neural network (NN)–driven and neuroadaptive controllers provide powerful tools for controlling complex nonlinear systems, yet their reliability and safety in practical deployment remain open concerns. This talk examines key issues in designing NN-driven control with verifiable performance, including how excitation and input conditions affect learning and approximation quality in closed loop. I will highlight recent neuroadaptive control techniques that enforce these conditions and improve tracking guarantees, and discuss “fail-secure” architectures that maintain stability and graceful degradation even when the NN component underperforms. Selected examples will illustrate how these ideas support trustworthy intelligent control in robotics, aerospace and industrial process automation.

These topics are informed by my recent research and publications in leading IEEE journals, and they address both foundational principles and emerging challenges in SMCS’s scope. They are suitable for a broad audience including systems and control researchers, AI/robotics engineers, and Ph.D. students.

Statement of Availability

I am willing and available to serve as an IEEE SMCS Distinguished Lecturer for the 2026–2027 term. My schedule permits active participation and timely responses to lecture requests from IEEE SMCS Chapters and Sections, for both in-person and virtual presentations. I have full employer support to participate in the program and will coordinate closely with host chapters to ensure high-quality and impactful lectures.

Thank you for considering my nomination. I would be honored to serve as an IEEE SMCS Distinguished Lecturer and to contribute to global exchange and education within the SMCS community.

Sincerely,
Yongduan Song, Ph.D., PE, IEEE Fellow
Editor-in-Chief
IEEE Transactions on Neural Networks and Learning Systems