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## Wash DC ComSoc Host Distinguished Lecturer Dr. Ender Ayanoglu

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## Machine Learning in NextG Networks via Generative Adversarial Networks

Hello, please join us online with guest ComSoc Distinguished Lecturer, Dr. Ender Ayanoglu on Saturday Dec 9, 2023, commencing at 1:30 PM. Dr. Ayanoglu will present “Machine Learning in NextG Networks via Generative Adversarial Networks.”

## Date and Time

## Location

## Hosts

## Registration

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Date: **09 Dec 2023**
Time: **01:30 PM to 02:40 PM**
All times are (UTC-05:00) Eastern Time (US & Canada)
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**To Attend Register** online at https://events.vtools.ieee.org/m/384682 by Dec 7, 2023, or email Debi at Siering@ieee.org. In the subject heading RSVP "**Machine Learning in NextG Networks via Generative Adversarial Networks.**" In the email include your name, email address, and your phone number. You will receive a link to join the meeting by noon on Saturday 12-09-2023.

Washington Section Chapter,COM19
Washington/Northern Virginia Jt Chapter,EMB18
Washington/Northern Virginia Jt Chapter,MTT17
Boston Section Chapter,C16
Washington/Northern Virginia Jt Chapter,RA24

Contact Event Hosts

Chris Fennig FennigCG@earthlink.net

Starts **18 November 2023 02:00 AM**
Ends **09 December 2023 11:59 PM**
All times are (UTC-05:00) Eastern Time (US & Canada)
No Admission Charge

Register Now

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## Speakers

**Dr. Ender Ayanoglu**

Topic: **Machine Learning in NextG Networks via Generative Adversarial Networks**

## Abstract

Due to the explosive growth of new users and new applications, it is expected that the wireless spectrum will need to be used in a dynamic fashion starting in the near future. This can be achieved by using the concept of cognitive radio, giving users access to the unused spectrum under dynamic spectrum access. It is generally accepted that conventional methods of cognitive radio will fall short of being able to handle the enormous demand for spectral resources, and therefore it is expected that techniques from artificial intelligence or machine learning will help provide dynamic control for spectrum sharing. The process of spectrum sharing begins with sensing the spectrum. Recently, several techniques for spectrum sensing employing machine learning have been introduced. In this talk, we employ a machine learning approach known as generative adversarial networks towards this purpose. This approach is known to be very successful for anomaly detection in image processing. We alter performance criteria used in this set of networks from image processing applications to wireless and employ such networks for spectrum sensing, both in conventional and cooperative spectrum sensing. Initial results show the efficacy of this approach.

Biography:

Dr. Ender Ayanoglu received his Ph.D. degree from Stanford University, Stanford, CA in 1986, in electrical engineering. Dr Ayanoglu was with the Communications Systems Research Laboratory, Bell Laboratories until 1999. From 1999 until 2002, he was a Systems Architect at Cisco Systems, Inc., San Jose, CA. Since 2002, he has been a Professor in the Department of Electrical Engineering and Computer Science, University of California, Irvine, Irvine, CA During 2000-2001, he served as the founding chair of the IEEE-ISTO Broadband Wireless Internet Forum (BWIF). From 1993 until 2014, Dr. Ayanoglu was an Editor, and since January 2014 is a Senior Editor of the IEEE Transactions on Communications. He served as the Editor-in-Chief of the IEEE Transactions on Communications from 2004 to 2008. From January 2015 until December 2016, he served as the Editor-in-Chief of the IEEE Journal on Selected Areas in Communications - Series on Green Communications and Networking, and from August 2016 to August 2020 the Founding Editor-in-Chief of the IEEE Transactions on Green Communications and Networking. From 1990 to 2002, he served on the Executive Committee of the IEEE Communications Society Communication Theory Committee, and from 1999 to 2002, was its Chair. Dr. Ayanoglu is the recipient of the IEEE Communications Society Stephen O. Rice Prize Paper Award in 1995, the IEEE Communications Society Best Tutorial Paper Award in 1997, and the IEEE Communications Society Communication Theory Technical Committee Outstanding Service Award in 2014. Dr Ayanoglu has been an IEEE Fellow since 1998. He is an IEEE Communications Society Distinguished Lecturer 2022-2023.

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## Agenda

1:30 PM - 1:40 PM Welcoming & Speaker Introduction

1:40 PM - 2:20 PM Presentation

2:20 PM - 2:30 PM Presentation Questions and Answers

2:30 PM - 2:35 PM Closing Remarks

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