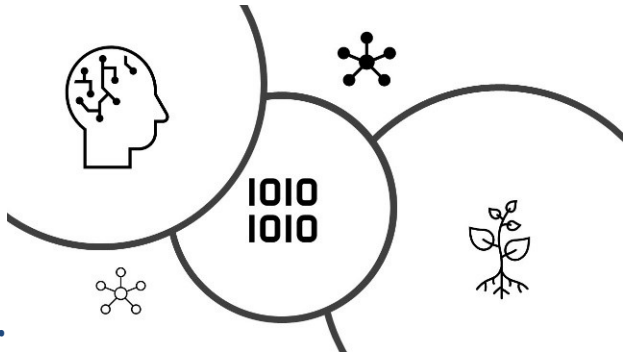
HKAEE 香港能源工程師學會
Hong Kong Association of Energy Engineers

Organizer



Webinar

Technical Talk on Application of Artificial Intelligence (AI) and Big Data Analysis for Optimizing Energy Performance of HVAC Systems

HVAC consumes most of the energy in buildings and for decades we found many ways to reduce that. With the proliferation of Artificial Intelligence, Machine Learning, and more and more data availability with IoT and Big Data approach, we are now moving to a new era of technology. We are happy to have speakers from various fields and they could share their successful cases by applying different approaches, namely, scientific and theoretical, empirical, algorithmic, artificial intelligence and even different combinations of these. There are five topics that we are going to share with the below details:

- **Talk 1:** ***Speaker: Ir Charles Chau***
  Understanding Your Building From the Inside Out: Unlock its Green Potential

- **Talk 2:** ***Speaker: Ir David Ying***
  Application of Artificial Intelligence Control system on Chiller Plant Operations

- **Talk 3:** ***Speaker: Ir Daniel Kwong***
  AI Cooling Control for Green Data Center

- **Talk 4:** ***Speaker: Dr. Yu Fu Wing***
  Energy Management of Chiller System with Association Rule Mining

- **Talk 5:** ***Speaker: Dr. Pan Lee, Ir Franco Mok & Mr Darren Wong***
  Deploying Artificial Intelligence into Action for Driving Energy Optimization

Format:
Webinar Talks via Zoom

Language:
The webinar will be conducted in Cantonese with English Terminology

Tentative Supporting Organizations:

ASHRAE Hong Kong Chapter
BSOMES
CIBSE Hong Kong
AEE Hong Kong Chapter 美國能源工程師學會香港分會
energy institute Hong Kong
HKGBC 香港綠色建築議會
HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會 Building Services Division 屋宇裝備分部
機電工程署 EMSD

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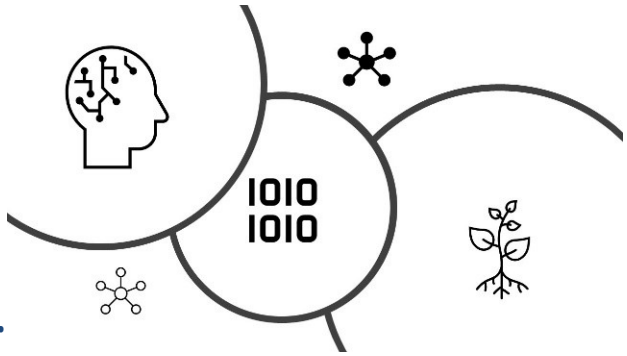

Webinar

Technical Talk on Application of Artificial Intelligence (AI) and Big Data Analysis for Optimizing Energy Performance of HVAC Systems

Date:	**Time:**
Talk 1 – 29 Apr 2022 (Fri)	6:00 pm - 7:30 pm
Talk 2 – 6 May 2022 (Fri)	6:00 pm - 7:30 pm
Talk 3 – 13 May 2022 (Fri)	6:00 pm - 7:30 pm
Talk 4 – 20 May 2022 (Fri)	6:00 pm - 7:30 pm
Talk 5 – 27 May 2022 (Fri)	6:00 pm - 7:30 pm

Registration

Fee:

HK$250 for five talks *(Organizer: HKAEE)*
HK$500 for five talks *(Supporting Organizations: EMSD / ASHRAE-HKC / BSOMES / CIBSE-HKR / EI-HKB / HKGBC / HKIE-BSD & AEE-HKC)*
HK$800 for five talks *(Other professionals out of the members of above organizer and supporting organizations)*

Registration & payment:

- Register online via https://forms.gle/Sjmi3irHAi1hGhyt6 or before **22 Apr 2022**.
- FPS 轉數快 (FPS Identifier 快速支付系統識別碼): **165647405**
- Bank-in to HKAEE's bank account
  Bank Name: Bank of China (Hong Kong) Limited
  Account Name: **Hong Kong Association of Energy Engineers Limited**
  Account Number: **012-886-1-024587-2**
- Please screenshot the page of successful payment / scanned copy of the bank-in slip and send to HKAEE's treasurer Mr. Thomas Li by email at ✉ thomas.ys.li@linkreit.com, or mail the cheque to Room 7, 13/F, Yue Fung Industrial Building, 35-45 Chai Wan Kok Street, Tsuen Wan, N.T.
- Number of participants for the webinar is limited to 200. (Priority will be given to Organizer / Supporting Organizations)
- Only successful applicant will be notified on or before the webinar.
- 7.5 hours e-CPD certificate will be presented via registration email address after the webinar.

Enquiry:

Please contact Mr. Mike Cheng at ✆ 90738458 or via ✉ mcmcmc74@gmail.com.

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Webinar

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Talk 1: Understanding Your Building From the Inside Out: Unlock its Green Potential

Ir Charles Chau

In an era when more organisations are embracing sustainability goals, we see an increased opportunity for green business planning. They are implementing energy management systems with the objective of achieving sustainability. This webinar will discuss how energy saving can be optimised from the inside to the outside of your building, as well as how smart solutions can increase your operation productivity.

Speaker: Ir Charles Chau

Ir. Charles Chau is the Senior Business Development Manager of CLP Innovation Enterprises Ltd, Charles is dedicated to digitalise traditional building energy management with big data and AI. He holds a Bachelor degree in Chemical Engineering and a Master degree in Environmental Engineering from The Hong Kong University of Science and Technology. He got the Certified Energy Manager (CEM) and Certified Building Commissioning Professional (CBCP) qualification from AEE, US in 2009 and 2018 respectively. He became a BEAM Professional from the HKGBC in 2011 and Corporate Member in HKIE in Energy Discipline in 2014.

Talk 2: Application of Artificial Intelligence Control system on Chiller Plant Operations

Ir David Ying

Application of Artificial Intelligence control system on Chiller plant- The formulation of AI system using data-driven machine learning models and numerical optimization, and the comparison of actual energy performance of the system against rule-based optimization in conventional control

Speaker: Ir David Ying

David Ying completed his master's degree in Control Systems from Imperial College London and his MBA from Manchester Business School. He is a Chartered Engineer from IET and a Certified Energy Manager of AEE. With wealth of experience in energy and automation industry. He is currently the Lead of JEC's Digital Solution (Jardine Engineering Digital Insights, JEDI) driving energy saving with data-driven technologies.

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Talk 3: AI Cooling Control for Green Data Center

Through AI and ML to optimize CRAC operations of Data Center to make Green data center and CO2 reduction. Improved rack temperature compliance; reduce overall temperatures; cooling energy saving with lower PUE, decreased carbon footprint and reduces wear & tear on cooling equipment.

Mr Daniel Kwong

Speaker: Mr Daniel Kwong

Daniel got his Bachelor of Engineering Degree in Building Services Engineering in the CityU. He has 25yrs E&M consultant working experience and now focused on the Data Center design. Major projects that he has handled include DLR, Global Switch, HKJC, PolyU, UST, Goldman Sachs, Macquarie, CICC, Kerry, Fidelity, DBS, JOS, level 3 etc.

Talk 4: Energy Management of Chiller System with Association Rule Mining

Chiller systems in buildings take up the highest proportion of electricity consumption and provide the major energy management opportunities. Medium to large scale chiller systems have many components which are controlled automatically under building management systems. Trend logs are increasingly provided to measure and verify system performance. Association rule mining (ARM) is a rule-based machine learning method to examine interesting features in a big data set. Compared with sophisticated models, ARM is easily applied to analyze which operating conditions give a good or poor coefficient of performance. This study will share a case study on applying ARM to evaluate energy improvement measures of an existing chiller system serving an institutional building.

Dr. Yu Fu Wing

Speaker: Dr. Yu Fu Wing

F.W. Yu is a senior lecturer at Division of Science, Engineering and Health Studies, College of Professional and Continuing Education, PolyU. He is a corporate member of HKIE and CIBSE. He has studied chiller systems for over 10 years since his PhD study. His current research interest is on applying artificial intelligence in the operation of air-conditioning systems to optimize their energy performance. He has been published over 80 peer-reviewed journal and conference papers.

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Technical Talk on Application of Artificial Intelligence (AI) and Big Data Analysis for Optimizing Energy Performance of HVAC Systems

Talk 5: Deploying Artificial Intelligence into Action for Driving Energy Optimisation

AI works best when large amounts of data are available. This characteristic is particularly suitable for the building energy management field where large sets of building operating data can be obtained through building management systems (BMS). This presentation will introduce an AI-based approach to energy optimisation in HVAC systems, compare different types of optimisation methods, and examine different applications with case studies.

Speaker: Dr. Pan Lee

Dr. Lee is currently a R&D Manager at ATAL Building Services Engineering Ltd. He obtained his Doctor of Philosophy (in Energy Performance Contracting) at the Hong Kong Polytechnic University in 2016. Dr. Lee specialises in smart building applications and energy management. At ATAL, he leads a R&D team in developing innovative solutions, including HVAC energy optimisation, fault detection and diagnosis (FDD), data visualisation, as well as artificial intelligence in building control. In 2021, he won an international award - 'Energy Innovator of the Year' from the Association of Energy Engineer.

Dr. Pan Lee

Speaker: Ir Franco Mok

Ir Franco Mok, CEng, R.P.E., REA, MIMechE, MHKIE, MBSOMES, MAEE, BEAM Pro, CEM, CBCP, RCx Pro is Energy Service Manager at ATAL Building Services Engineering Ltd, specialising in the fields of energy management and retro-commissioning (RCx). Franco has over 20 years of substantial experience in managing energy-related projects with particular focuses on energy optimisation for HVAC systems, energy audit and RCx. He has extensive experience in applying big data and IoT technologies in retro-commissioning and energy optimisation. He successfully completed many RCx and energy saving projects in both commercial and government sectors including an award-winning energy saving project at a Grade-A office building in Wanchai.

Ir Franco Mok

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Technical Talk on Application of Artificial Intelligence (AI) and Big Data Analysis for Optimizing Energy Performance of HVAC Systems

Talk 5: Deploying Artificial Intelligence into Action for Driving Energy Optimisation

Speaker: Mr Darren Wong

Mr. Darren Wong is currently a Service Engineer at ATAL Building Services Engineering Ltd. Darren received his B.Sc. degree in Energy Science & Engineering from the City University of Hong Kong and obtained his M.Eng. in Building Service Engineering from the Hong Kong Polytechnic University. Darren has solid experience in the fields of building management system (BMS) and Internet-of-Things (IoT). He was one of the core members in the smart facility management project for the Hong Kong Convention and Exhibition Centre using Internet-of-Things (IoT) technology. He received the Best Graduate Trainee Award from ATAL.

Mr Darren Wong