

Discovery

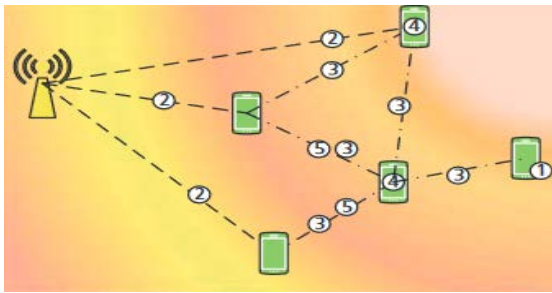
We SHARE to inspire and ignite ideas for
Information Systems Technology & Design (ISTD) Pillar!

The titles featured here are to give you a peek into the wealth of resources we have. We hope, through this will encourage you to explore and read further. Share with us topics of importance to ISTD and we can introduce relevant titles from some [400,000 eBooks](#) we carry.

June 2016

PUBLICATIONS BY ISTD

Location-aware device communication design: exploration and exploitation on energy

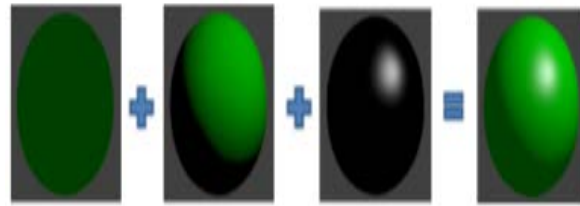


Co-authored by Assistant Professor Tony Quek

Devices working collaboratively are essential to green communication. This [article](#) emphasizes the benefits of conserving energy when location-aware devices work together. This is discussed from two aspects, namely the exploration of energy and the exploitation of energy. When both technologies work in tandem, communication between location-aware devices was found to be energy efficient.

Source: [IEEE Wireless Communications](#) (April 2016)

Information-theoretic analysis of Blinn-Phong lighting with application to mobile cloud gaming



Co-authored by Assistant Professor Ngai-Man Cheung

In mobile cloud gaming, images are rendered, compressed, and delivered to mobile devices from cloud servers. The authors' research will be useful in online optimization of rendering images. Their model may also be applied to remote-assisted rendering techniques, such as the virtual reality with 3D vision synthesis.

Source: [ICIP](#) (2015)

ARTIFICIAL INTELLIGENCE

Letting Artificial Intelligence in Education Out of the Box: Educational Cobots and Smart Classrooms



Read about recent developments and future projections in Artificial Intelligence in Education (AIED) [here](#). AIED will work in tandem with robotics and sensor devices in schools. There may be educational cobots to help teachers and smart classrooms that make use of sensors to support learning. This is an interesting insight into the educational landscape of the future.

Source: [International Journal of Artificial Intelligence in Education](#) (June 2016)

Can artificial intelligence create the next wonder material?



Researchers in the past discovered new materials by stumbling upon them by chance. However, in recent times, computer modelling and machine-learning techniques have been able to generate vast libraries of materials for research. Researchers can then narrow down which materials are worth synthesizing by searching through their predicted properties.

Source: [Nature](#) (May 2016)

INTERNET OF THINGS (IoT)

Cloud-assisted Industrial Internet of Things (IIoT) – Enabled framework for health monitoring

Secure and efficient data transmission in the Internet of Things



Discover a [HealthIoT-enabled healthcare monitoring framework](#). In this framework, healthcare data will be captured by mobile devices and sensors and sent to healthcare professionals to analyze. HealthIoT allows healthcare professionals to access patient information, store it, and analyze it in a real-time manner to monitor and track the patient.

Source: [Computer Networks](#) (June 2016)



Introducing a heterogeneous ring signcryption scheme for secure communication from sensors to servers! This scheme has protection against ciphertext attacks. Find out more about the two advantages this scheme has that can be used for data transmission in the IoT.

Source: [Telecommunication Systems](#) (May 2016)

MACHINE LEARNING

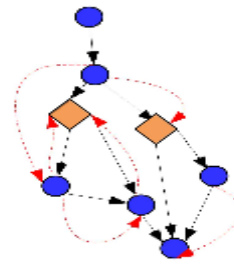
A Machine Learning Approach to Meter Placement for Power Quality Estimation in Smart Grid



The authors worked to lower the cost of power quality (PQ) monitoring in power networks. They devised a device latent feature model, which captures the device behaviour as a PQ transition function. Their work allows PQ monitoring to be done at lower cost and also allows for PQ to be best predicted in various situations.

Source: [IEEE Transactions on Smart Grids](#) (May 2016)

Predicting metamorphic relations for testing scientific software: a machine learning approach using graph kernels



Learn about a machine learning approach for predicting metamorphic relations that uses a graph-based representation of a programme to represent control flow and data dependency information. This approach can eventually be extended to incorporating dynamic properties of programmes to predict metamorphic relations.

Source: [Software Testing, Verification and Reliability](#) (May 2016)