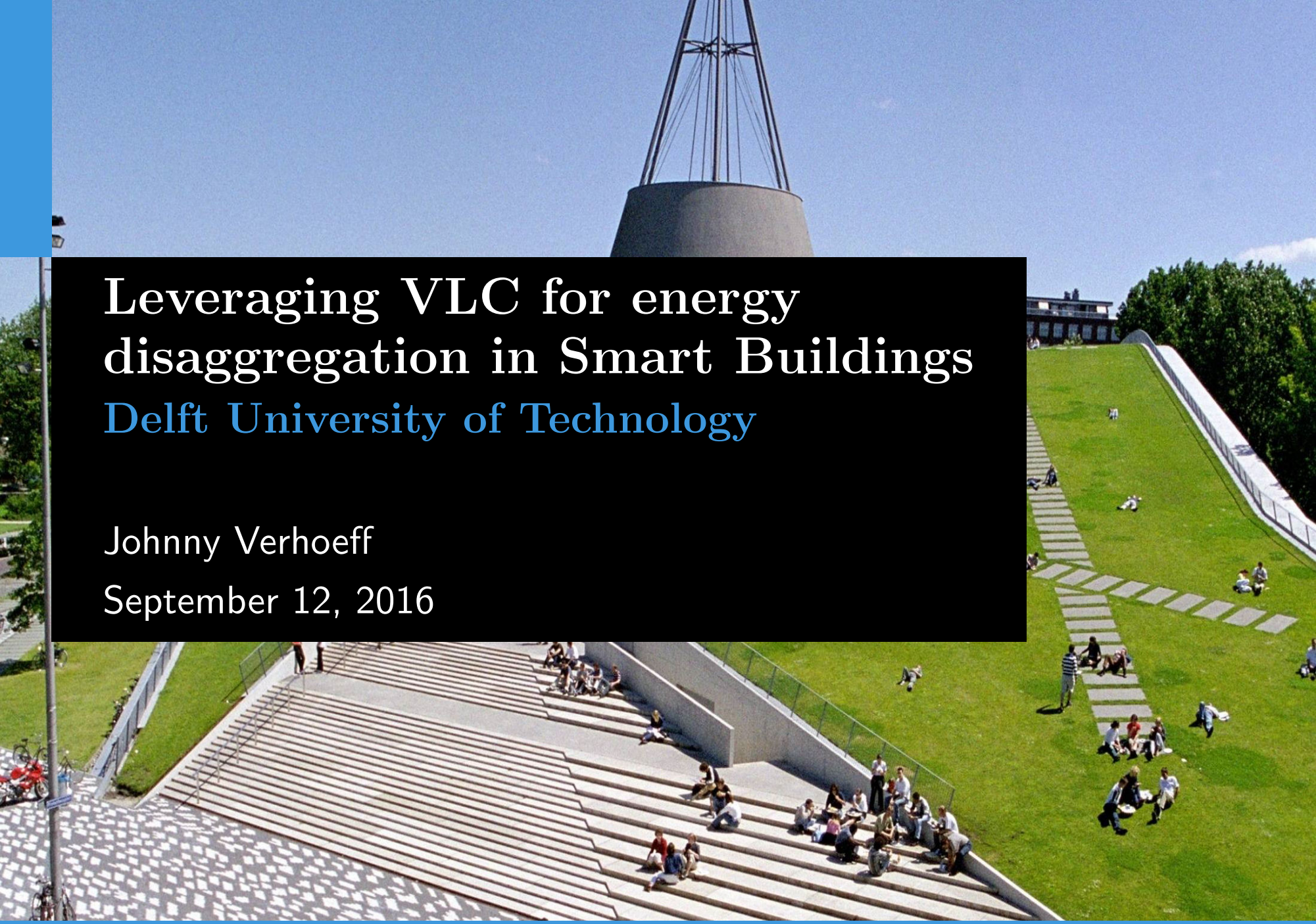

Leveraging VLC for energy disaggregation in Smart Buildings

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September 12, 2016

TITLE

Energy disaggregation successful for refrigerators and HVAC because they have unique signature

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Lighting doesn't have unique signature but is important because X % of energy is used for lighting

TITLE

Use VLC to modulate lights and give lighting an unique signature through the current they draw

TITLE

Easiest way to use VLC is with OOK, lighting currents will be superimposed

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DC: use current source per LED for constant and flat current curve, with nice superimposition results

TITLE

AC is not constant, LED require certain amount of voltage

TITLE

Detection circuit for a certain amount of voltage for LEDs and current source for constant and flat current curve, with nice superimposition results

TITLE

DC: use burden resistor with output to adc to measure DC current

TITLE

AC: hall effect too noisy, so also use burden resistor: will produce + and - voltage

TITLE

AC: burden resistor will produce + and - voltage so add half of adc vcc and then to ADC

TITLE

All LEDs are basically transmitters on same freq. and same time.

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Therefor TDM and FDM are out and CDM is used

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Concept of correlation: auto and cross

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Want low cross correlation with all time shifts and high autocorr. at zero time shift and low autocorr at all other time shifts.