

# He-in Cheong CEng MEng(Hons) ACGI (she/they)

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## SUMMARY

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An extremely diverse yet thorough researcher with a background in technical engineering design of large infrastructure projects. Emerging interests and specialisations are in transportation equity, humanitarian engineering, and mixed-methods approach. Vast experience in agent-based modelling development of in-house tools for varying applications.

## EDUCATION

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**Imperial College London, United Kingdom**

Oct 2018 - Present

*Working towards Doctor of Philosophy* – Department of Civil Engineering

Thesis topic: Development of computational agent-based model of movement of internationally forcibly displaced people using mixed-methods approach

**Imperial College London, United Kingdom**

Oct 2008 - Jun 2012

*Master of Engineering* – Department of Mechanical Engineering

## SELECTED WORKS

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**Policy and Strategy Evaluation of Ridesharing Autonomous Vehicle Operation: A London Case Study**

*Conference* (Podium presenter)

Jan 08-12, 2023

Transportation Research Board (TRB) 102nd Annual Meeting, Washington DC, USA

Authors: **He-in Cheong**, Jose Javier Escribano Macias, Renos Karamanis, Arnab Majumdar, Marc Stettler, Panagiotis Angeloudis

Link: To be released after the conference.

**Improving Strategic Planning of Increasing Transportation Equity of Public Transit: A London Case Study**

*Pre-print*

Aug 2022

Authors: **He-in Cheong**, Jose Javier Escribano Macias, Eduardo Candela, Petrina Constantinou, Arnab Majumdar, Panagiotis Angeloudis

DOI: <https://dx.doi.org/10.2139/ssrn.4178099>

**Feasibility of Equity-driven Taxi Pricing Strategy based on Double Auction Mechanism in Bangkok Metropolitan Region, Thailand**

*Conference* (Poster presenter)

Jan 09-13, 2022

Transportation Research Board (TRB) 101st Annual Meeting, Washington DC, USA

Authors: **He-in Cheong**, Jonathan Sanz Carcelen, Manlika Sukitpaneent, Panagiotis Angeloudis, Arnab Majumdar, Marc Stettler

DOI: [doi.org/10.48550/arXiv.2207.06981](https://doi.org/10.48550/arXiv.2207.06981)

**Aberrant Driving Behavior Prediction for Urban Bus Drivers in Taiwan Using Heart Rate Variability and Various Machine Learning Approaches: A Pilot Study**

*Conference* (Podium presenter)

Jan 09-13, 2022

Transportation Research Board (TRB) 101st Annual Meeting, Washington DC, USA

Authors: Cheng-Yu Tsai, Youxin Lin, Wen-Te Liu, **He-in Cheong**, Robert William Houghton, [...], Arnab Majumdar

DOI: 10.1177/03611981221123802

**One-Way Coupling of Fire and Egress Modeling for Realistic Evaluation of Evacuation Process**

*Publication*

Oct 2021

Transportation Research Record Journal of the Transportation Research

Authors: **He-in Cheong**, Zhiyu Wu, Arnab Majumdar Washington Yotto Ochieng

DOI: 10.1177/03611981211032636

**Coupling Of Evacuation And Fire Modelling Through Soot Level Analysis**

*Conference* (Video presenter)

Sep 09-11, 2020

The Fire and Evacuation Modeling Technical Conference (FEMTC), Online

Authors: **He-in Cheong**, Kelvin Loh Chu Xian, Arnab Majumdar, Washington Yotto Ochieng

Link: <https://www.femtc.com/events/2020/d2-05-cheong/>

## CAREER HISTORY

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**Imperial College London, London, United Kingdom** Jan 2019 - Jun 2022

*Graduate Teaching Assistant (GTA)*

Regular GTA for UG3 Transport Systems, UG1 Surveying, UG1 and UG2 Creative Design. I designed and ran a seminar on Introduction to Python and had open-door debugging sessions. I was given the Departmental GTA of the Year Award in 2022 and obtained the Fellowship of Higher Education Academy (FHEA).

**Imperial College London, London, United Kingdom** Jun 2020 - Feb 2021

*Research Assistant*

Developed an agent-based model of shared autonomous vehicles (<http://shift-project.tslab.org>)

**Imperial College London, London, United Kingdom** Jun 2019 - Apr 2022

*Manager of Intelligent Infrastructure and Transport Systems Laboratory (IITS Lab)*

Achievements include successful proposal for membership with International GNSS Service (IGS) for a new continuously operating station at Imperial College London (<https://igs.org/imaps/station.php?id=LICC00GBR>), co-development of small-scale autonomous vehicles testing lab, and support for varying lab tasks.

**Simudyne, London, United Kingdom** Sep 2019 - Nov 2019

*Software Engineering Intern*

Developed an agent-based model of financial transactions of various markets to detect fraud

**Arup, London, United Kingdom and Sydney, Australia** Jan 2016 - Sep 2018

*Senior Tunnel Mechanical, Electrical, Public Health (MEP) and Ventilation Engineer*

Roles incl. leading tunnel ventilation designs, 1D/3D Computational Fluid Dynamics (CFD) analysis of air movement and fire development in tunnel networks, electrical wiring design, tunnel MEP design, train station mechanical design, light rail lighting design, carbon emissions analysis of rail projects

**Mott MacDonald, Croydon/Southampton, United Kingdom** Apr 2013 - Jan 2016

*Tunnel MEP and Ventilation Engineer and Intelligent Transport Systems Engineer*

Roles incl. tunnel MEP design, interface coordination on site, project cost monitoring, 1D/3D CFD

analysis, electrical wiring design for tunnel and street lighting, Smart Motorway algorithm development, traffic congestion analysis on major highways in Highways England Area 10 (Northwest England)

**AVL Powertrain Ltd, Laidon/Coventry, United Kingdom**

Jun 2012 - Mar 2013

*Junior Systems and Simulations Engineer*

Roles incl. 1D energy analysis of powertrains with carbon-based fuel-powered engines for forward and backward driving simulations to calculate realistic performance of vehicle designs

## **CERTIFICATIONS / ACHIEVEMENTS**

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- ❖ Postgraduate Travel Award from The Old Centralians' Trust 2022
- ❖ Departmental Graduate Teaching Assistant (GTA) of the Year Award in 2022
- ❖ President's Award for Excellence in Societal Engagement 2022
- ❖ Obtained Fellowship of Higher Education Academy (FHEA) in 2022
- ❖ Winner of Collaboration Award of Gravity Challenge 2020
- ❖ Selected for Fellowship Program at Technical University Munich (TUM) in 2019
- ❖ Winner of IET Fire Safety Hackathon in 2019 (featured in BBC Radio)
- ❖ Winner of TfL Public Transport Hackathon in 2018
- ❖ Top 20 Rising Stars by Women in Rail in 2017
- ❖ Obtained Chartered Engineer status in June 2016
- ❖ BS7671 Certified (17th Edition IET Wiring Regulations) in October 2013

## **TECHNICAL STRENGTHS**

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<b>Modeling and Analysis</b>	Oasys MassMotion, FDS, ANSYS CFX, IDA Tunnel
<b>Software Languages</b>	Python, MATLAB & Simulink, Java, L <sup>A</sup> T <sub>E</sub> X

## **LANGUAGES**

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**English** Fluent; **German** Fluent; **Korean** Conversational