

# Dr Kelvin Ka Yin Wong

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## SUMMARY

Dr Kelvin Wong is a Senior Product Manager at Risk Management Solutions (RMS). He is a Chartered Geographer and Fellow of The Royal Geographical Society. At RMS, he works alongside a unique mix of climatologists, designers, seismologists, and mathematicians to design the best user experience for market-leading catastrophe modelling applications. Using science as a practical tool for solving real-life problems, his research to date applies to a wide range of domains, from autonomous vehicles to human behaviour understanding to transport planning. A full list of Kelvin's publications can be found at <http://kelvinwong.co.uk/>.

## EXPERIENCE

<b>Risk Management Solutions, Models and Data Content Experience</b> Senior Product Manager	London, UK Mar. 2020 – Present
<b>University of Tokyo, Institute of Industrial Science</b> Postdoctoral Research Fellow–Japan Society for the Promotion of Science (JSPS)	Tokyo, Japan Nov. 2018 – Nov. 2019
<b>Department for Transport, Maritime Security and Resilience Division</b> GIS consultant	London, UK May 2018 – Aug. 2018
<b>EuroSDR, GeoBIM project</b> Researcher	London, UK May 2018 – Oct. 2018
<b>University College London, Department of Computer Science, Open3D project</b> Researcher	London, UK May 2018 – Oct. 2018
<b>University College London, Department of Civil, Environmental and Geomatic Engineering</b> Module Coordinator–Undergraduate GIS (maternity cover)	London, UK Sep 2017 – Apr 2018
<b>EuroSDR, Economic Value of 3D Geographic Information project</b> Researcher	London, UK Oct. 2014 – Dec. 2015
<b>WSP Group, Planning and Development Department</b> GIS Analyst	London, UK Jan. 2013 – Sep. 2013

## EDUCATION

<b>University College London, Department of Computer Science.</b> Engineering Doctorate (EngD) in 3D Geographic Information Science. <i>Thesis: Towards a National 3D Mapping Product for Great Britain.</i> EngD Industry sponsor: Ordnance Survey (National Mapping Agency of Great Britain).	London, UK Apr. 2018
<b>University College London, Department of Computer Science.</b> Master of Research (MRes) in Virtual Environments, Imaging & Visualisation - <b>Distinction</b> . <i>Thesis: Designing 3D Geographic Information for Navigation Using Google Glass.</i>	London, UK Sep. 2014
<b>University College London, Department of Civil, Environmental, and Geomatic Engineering.</b> Master of Science (MSc) in Geographic Information Science - <b>Distinction</b> . <i>Thesis: Enhancing Positioning of Photovoltaic Panels Using 3D Geographic Information.</i>	London, UK Sep. 2012
<b>University of Southampton, Department of Geography.</b> Bachelor of Science (BSc) in Geography – <b>2:1</b> . <i>Thesis: Assessing Photovoltaic Potential in Hawaii.</i>	Southampton, UK Jul. 2011
<b>York University, Department of Geography.</b> Second Year Exchange Program.	Toronto, Canada Jan. – Apr. 2010

## TECHNICAL SKILLS

<b>Programming, Scripting &amp; Markup</b>	Java, JavaScript, SQL, HTML, CSS, Python, PHP, R, Markdown
<b>Frameworks, Libraries &amp; Technologies</b>	Mapbox.js, leaflet.js, CesiumJS, GeoServer, d3.js, plotly.js, scikit-learn, Android SDK
<b>Geospatial</b>	ESRI GIS Products, QGIS, FME Desktop, Oracle Database, PostgreSQL, MySQL
<b>Authoring and Design</b>	Microsoft Office–Word, Excel, PowerPoint, OneDrive, Outlook, OneNote Google G Suite–Docs, Drive, Sheets, Forms, Sites, Apps Script Adobe–Photoshop, Illustrator, Acrobat, InDesign
<b>Other Related Software</b>	Atlassian–Jira, Confluence, Jira Query Language (JQL), Jira Cloud platform REST API
<b>Languages</b>	English (Native), Cantonese (Conversational), Japanese (Beginner)

## SELECT WORK ACHIEVEMENTS

### UNIVERSITY OF TOKYO

**Developed seven map evaluation metrics for autonomous vehicle localization error** – Designed metrics specific for vector-based geographic information, applying them to OpenStreetMap and Geospatial Information Authority of Japan data. For Shinjuku, Tokyo, the metrics enabled 87.4% of localization error predictions to be within 5 cm.

**Co-supervision of 2x PhD and 6x MSc students** – Responsible for the day-to-day management, supervision, and pastoral care of postgraduate students from a wide range of domains including computer vision, machine learning, deep learning, human behaviour understanding, indoor navigation and intelligent transport systems.

**Research and presentation skills training** – Identified a lack of research skills teaching within the department. Designed a program to teach research and presentation skills to postgraduate students within the lab to improve their studies. This increased the quality of written work (specifically chapters of their theses) as well as improved presentations during the fortnightly seminars.

**Industrial research collaboration** – Worked closely with industrial partners (including automotive, and entertainment domains) to define business-oriented research collaborations between the Kamiyo Lab and the companies. This enabled the lab to collaboratively conduct business-relevant research to find solutions to complex social, environmental and economic challenges.

### UNIVERSITY COLLEGE LONDON & ORDNANCE SURVEY

**Defined user requirements for 3D national mapping dataset for Great Britain** – Designed, piloted, and conducted multiple rounds of user requirements gathering over three years, including web-based questionnaires and face-to-face user interviews. The interviews were conducted across multiple domains, from local government to transport services to construction. This resulted in an in-depth understanding of user requirements for 3D data in Great Britain across multiple domains for Ordnance Survey.

**Automated, geometry-based metrics for assessing 3D city model quality** – Developed seven intrinsic, geometry-based metrics to assess the quality and fitness-for-purpose of 3D city models. This work addresses the gap in existing literature for better ways to communicate and describe the complexity and quality of 3D data. The metrics were applied and tested on 28 datasets. The geometry-based metrics contributes to the field by providing benchmarking measures for users to assess fitness-for-purposes but also data producers for error detection.

**A set of recommendations for Ordnance Survey for 3D data production** – Based on the Doctorate research, a set of recommendations for Ordnance Survey were synthesised. This was presented over a two-day workshop in January 2017 with 13 participants ranging from Research Scientists to Product Development Consultants. This enabled effective knowledge transfer, taking the output of the Doctorate, and implementing it into the business.

**Teaching at the undergraduate and postgraduate level** – Five years of teaching experience, starting from a Postgraduate Teaching Assistant, ending as a Module Coordinator. Developed a series of lectures, seminars, and practical sessions. Taught BSc and MSc modules including: Web & Mobile GIS; Representations, Structures and Algorithms; Design and Professional Skills Year 2: GIS; Introduction to Programming, FME Engineering Toolkit, and; Spatial Databases and Data Management.

### DEPARTMENT FOR TRANSPORT

**Development of a web-based spatial decision support system (SDSS)** – Designed a geospatial web-based decision support system to help the Maritime Security and Resilience Division manage major disruptions in the ports and shipping industry as the result of Brexit. This enabled the users to transition from a manual process taking around half an hour, to a semi-automated GIS system providing up-to-date information and the necessary visualisations within a few minutes.

**Understanding business needs and eliciting user requirements** – Conducted a series of individual and group interviews across all levels, from the Users to Directors. As part of an iterative user centred design approach, this ensured specific user requirements for the new decision support system were fit-for-purpose.

**Deployment of the new system and internal training**– Worked directly with the Head of Software Development from Digital Services to ensure an efficient migration to the live Google Cloud Platform environment. This ensured that the application passed the quality assurance and security checks during the handover. Conducted a series of internal training sessions to ensure effective knowledge transfer. Created a series of detailed user manuals as well as data update and system maintenance guidelines.

### WSP GROUP

**Enhanced street network dataset** – Conflated existing NAVTEQ road dataset with OpenStreetMap data to enrich the street network information for transport planning. This enabled more accurate modelling of vehicular and pedestrian movement.

**Established cross-departmental GIS efficiencies** – Worked as the sole GIS team member for the London office within a distributed UK team. Established links with the Environmental Department to encourage sharing of geospatial resources and methodologies. This reduced duplication of efforts and maximised the use of existing geospatial resources within the London office and beyond.

**Ran own internal GIS training module** – Remotely taught an internal GIS training module to colleagues across the UK through Microsoft Lync. Taught basic map creation skills as well as more advanced network analysis to transport planners.