Alleviating Health Risks for Water Safety: A Systematic Review on artificial intelligence-assisted modelling of proximity-dependent Emerging Pollutants in Aquatic Systems

Rupin, M.D.J.V.[1], Mendoza, K.G.C. [1], Rubi, R.V.C.[2]

[1]Department of Chemical Engineering, Pamantasan ng Lungsod ng Maynila (University of the City of Manila), General Luna, corner Muralla St., Intramuros, Manila 1002, Philippines

[2]Chemical Engineering Department, Adamson University, 900 San Marcelino St. Ermita, Manila 1002, Philippines

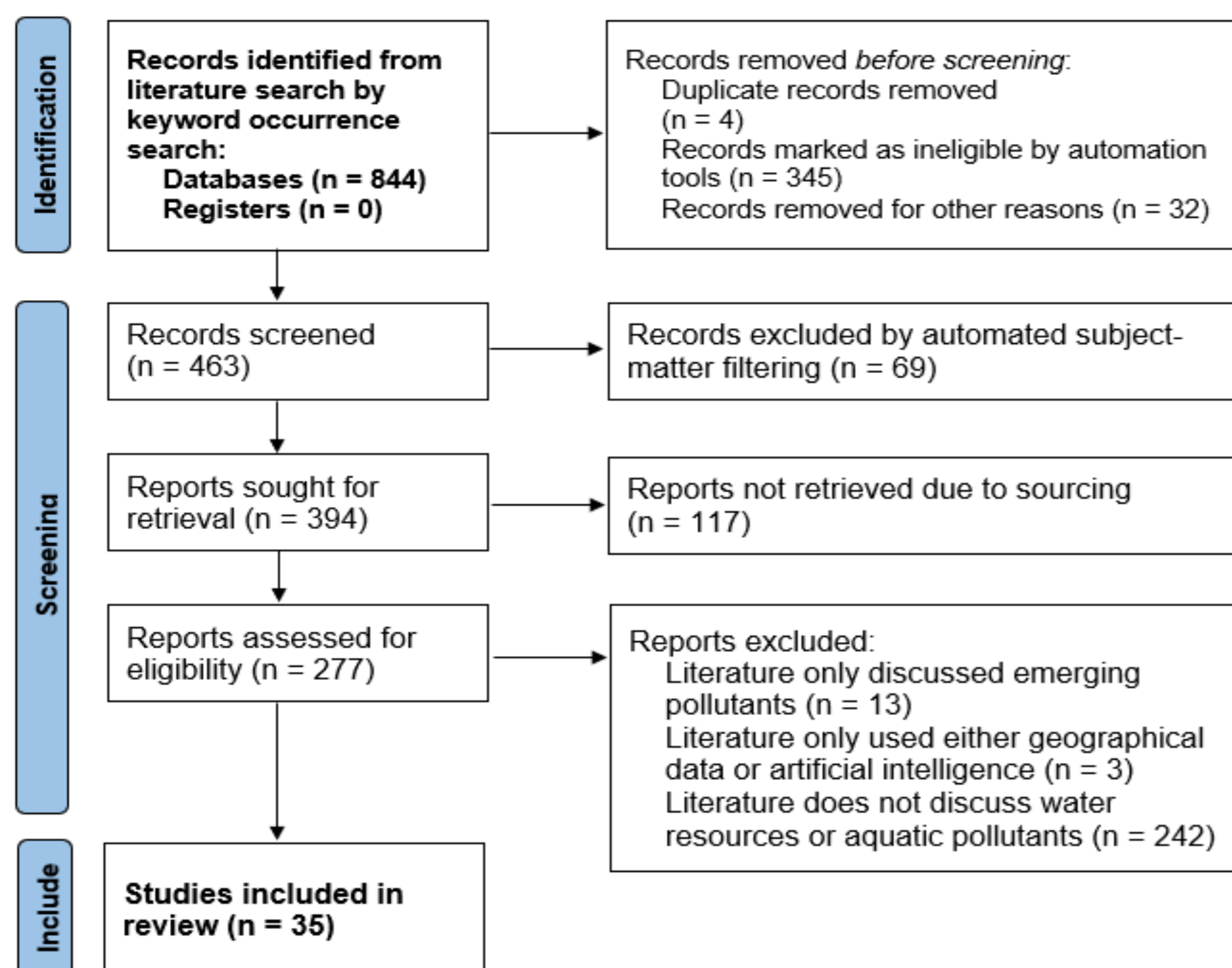rupin.marcdeo14@gmail.com, mdjvrupin2020@plm.edu.ph

INTRODUCTION

Emerging pollutants, such as pharmaceuticals and agrochemicals, remain as one of the growing concerns in different water systems such as groundwater and surface water. While studies are currently focused on detection of these pollutants, the research interests now shift towards data-driven modelling using geographical data and artificial intelligence to assist hazard mapping for communities utilizing these water systems for the fate and transport of emerging pollutants.

METHOD

This review followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines for the identification of the relevant literature in the topic of proximity-based artificial intelligence modelling of emerging pollutants.

CAPSULE REVIEW

The most ubiquitous artificial intelligence models use supervised learning (random forests, multilayer perceptron) and deep learning (long short-term memory, convolutional neural network). DRASTIC models and topographical data were used for the geographical data, usually in the form of satellite imagery or meteorological data.

Figure 1.

Identification of relevant literature and studies for the systematic review

Figure 2.

Components of proximity-supported artificial intelligence models
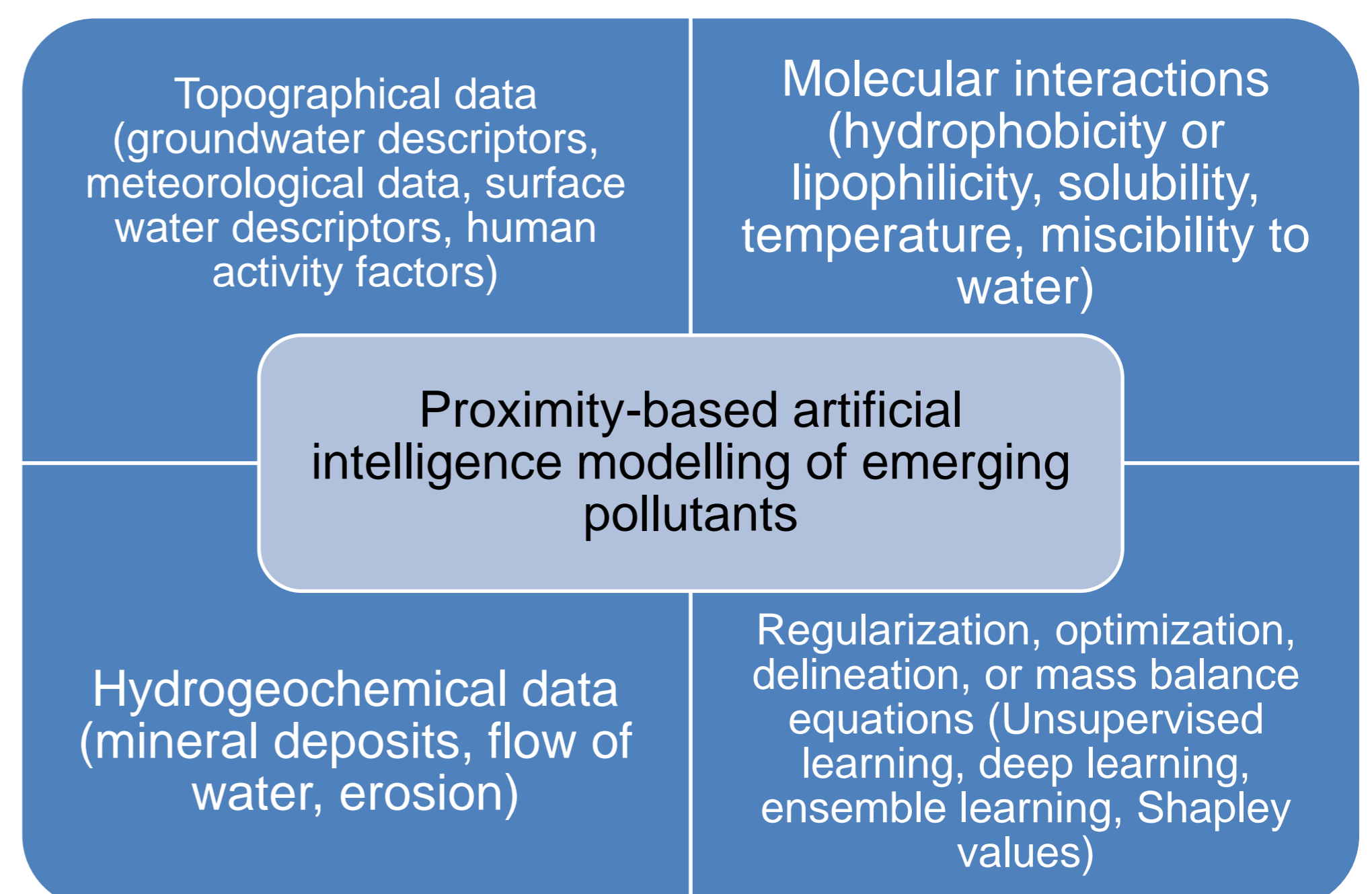
RESEARCH GAPS

The research shifts towards the idea of including stakeholder perspectives on these proximity-based artificial intelligence models and to include game theory to further optimize resource management and develop better wastewater treatment planning.

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