Marcella Bona (QMUL), Jia-Chen Hua (QMUL), Adriana Lara (IPN),
Alberto Luviano Juárez (IPN), John Moriarty (QMUL),

SAPIENS Workshop, at IPN, QMUL and online
22/11/2021

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## From Dr Marcella Bona

Thanks a lot Karla and welcome everybody to our SAPIENS workshop.

It's a real honour to be here and also to have been given the possibility to create and develop the SAPIENS project. We have pioneered a international scientific collaboration between QMUL and IPN on a very important subject, such as air pollution. We focused on how we can gain and diffuse information and awareness on this problem exploiting data analysis and data modelling, which is what we do best as scientists.

SAPIENS is the product of the first QMUL-IPN Sandpit held here in Mexico City where four projects were developed in a week of discussion and SAPIENS was the winning idea.

We have developed it entirely online with lots of brainstorming in video conference. Important work has been carried on by IPN graduate students and crucially by our research assistant, Dr Jia-Chen Hua, who joined in February 2021 and has been instrumental to the development of the project.

It's a pleasure to finally be here in person to meet the students and the colleagues after so much work done online.

Three mathematicians, a particle physicist and an engineer.. seems the start of a joke..

However we think this is how interdisciplinary breakthroughs happen!

We look forward to more collaborations as we have lots of ideas on future projects and on how SAPIENS can be expanded and evolved in many directions.

Thanks again and I now hand over to Adriana.

SAPIENS

SMART AIR POLLUTION INFORMATION ENABLING NEW SOLUTIONS

## From Dr Adriana Lara

SAPIENS focuses on one of the biggest problems in Mexico City: air pollution. This project is about using openly available data, and frontier science to empower citizens to make the best decisions.

A smart city should allow its people to access good information and knowledge. These two elements should be given to their citizens, through modern technology, quickly and straightforwardly to take the best daily choices, and start actions that benefit their lives.

To mention just an example: consider the possibility to choose the best route on a particular day; two involved criteria can be time and cost; but also the air pollution exposure that comes with this route. This last criterion is essential for sensitive populations like children, the elderly, post COVID patients, or pregnant women.

Data science, intelligent algorithms, advanced mathematics for analysis and predictions, multi-criteria decision making, among other tools, are perfect ways to solve problems in cities nowadays.

We involved, in this project, some IPN graduate students during this work time; this has been a very enriching experience for them. Realizing this, we decided to organize a one-week workshop, to present the main tools used in this stage of the project, and those with more significant potential for its continuation.

We will have, during this week, short talks and tutorials for them. The workshop will allow students to get in touch with QMUL professors. We will also have presentations for parallel collaborations and ideas related to the future work of SAPIENS.

Finally, we want to thank all the people who supported this collaboration, especially in the Secretaria de Investigacion y Posgrado at the IPN and in the Research and Business Development office at QMUL.

We hope that the following days will be of great interest to our communities, fostering collaboration and creating new nets of knowledge.

SAPIENS

SMART AIR POLLUTION INFORMATION ENABLING NEW SOLUTIONS

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