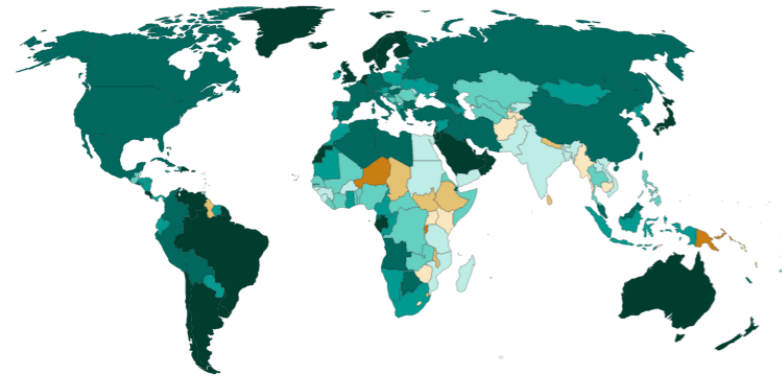


TUDflow - why?



Share of the population living in urban areas, 2050

Share of the total population living in urban areas, with UN urbanization projections to 2050.



Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources) OurWorldInData.org/urbanization • CC BY
Note: Urban areas are defined based on national definitions which can vary by country.

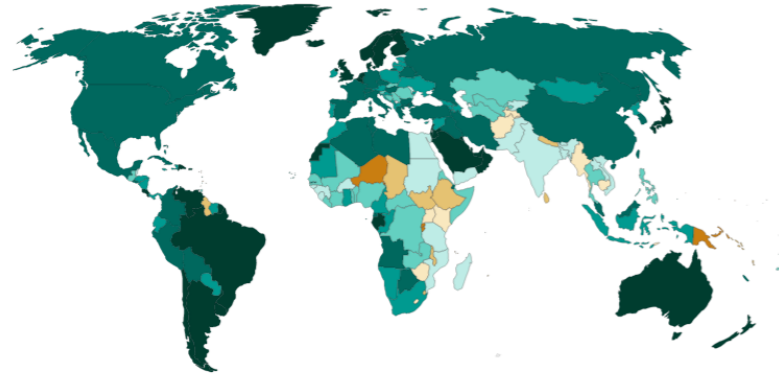
68% people live in cities by 2050!

TUDflow - why?



Share of the population living in urban areas, 2050

Share of the total population living in urban areas, with UN urbanization projections to 2050.



Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources) OurWorldInData.org/urbanization • CC BY
Note: Urban areas are defined based on national definitions which can vary by country.

68% people live in cities by 2050!

Support several global goals

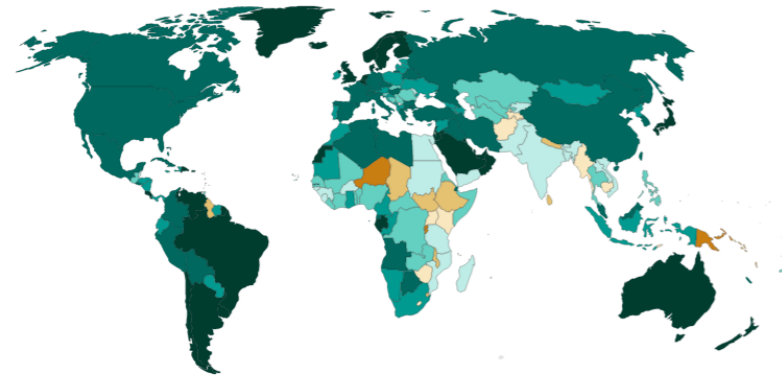


TUDflow - why?



Share of the population living in urban areas, 2050

Share of the total population living in urban areas, with UN urbanization projections to 2050.



Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources) OurWorldInData.org/urbanization • CC BY
Note: Urban areas are defined based on national definitions which can vary by country.

68% people live in cities by 2050!

Support several global goals

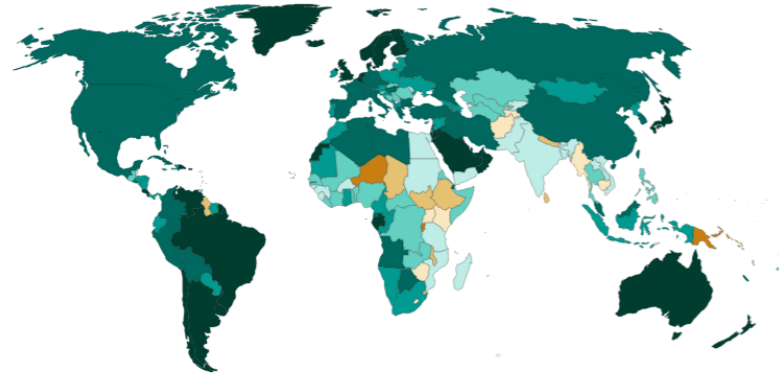


TUDflow - why?



Share of the population living in urban areas, 2050

Share of the total population living in urban areas, with UN urbanization projections to 2050.



Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources) OurWorldInData.org/urbanization • CC BY
Note: Urban areas are defined based on national definitions which can vary by country.

68% people live in cities by 2050!

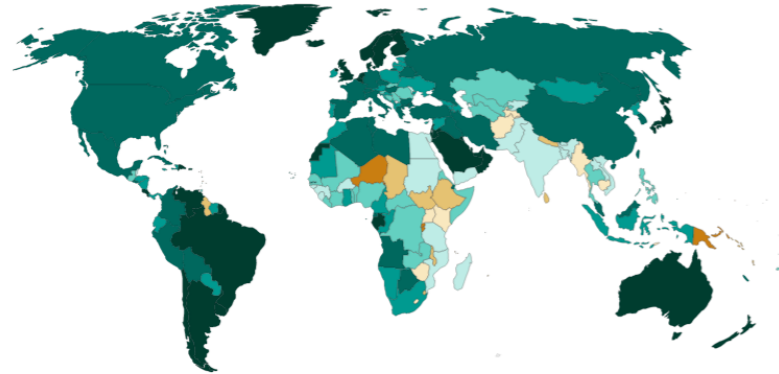
Support several global goals



TUDflow - why?



Share of the population living in urban areas, 2050
Share of the total population living in urban areas, with UN urbanization projections to 2050.



Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources) OurWorldInData.org/urbanization • CC BY
Note: Urban areas are defined based on national definitions which can vary by country.

68% people live in cities by 2050!

Support several global goals

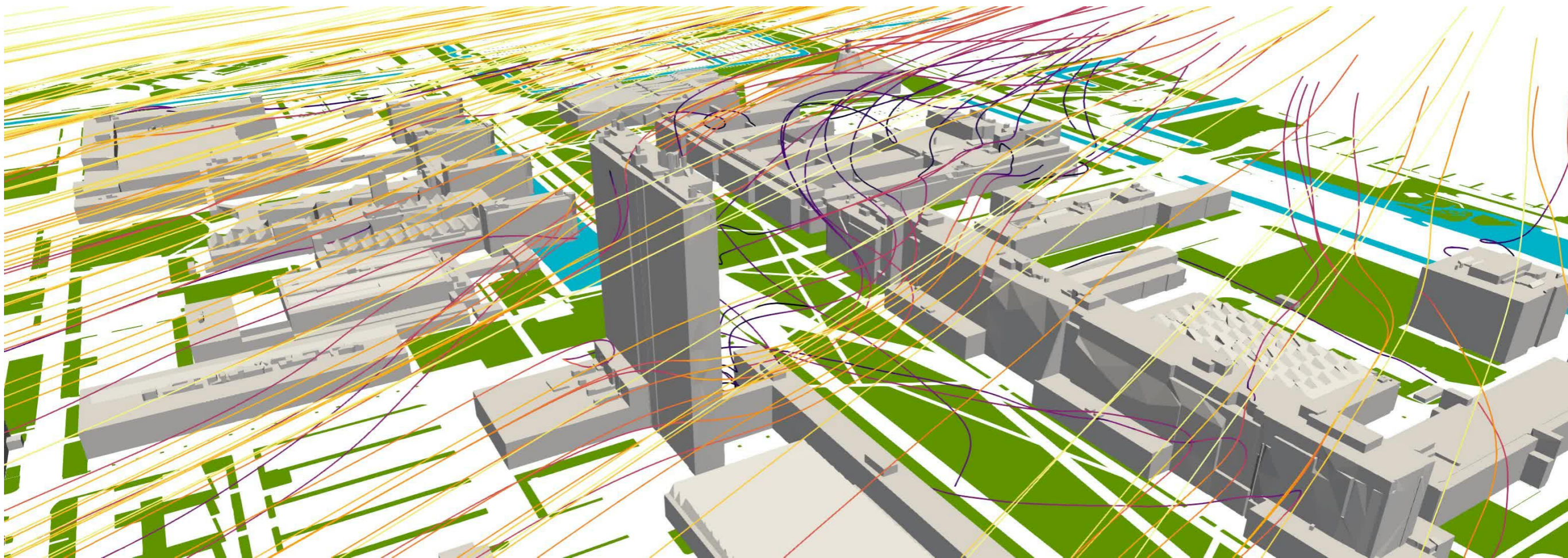


Address comfort and safety in cities

TUDflow - what?



Understand the fluid dynamics of our campus



RANS simulation

TUDflow - how?



Urban flow simulation CFD process:



TUDflow - how?



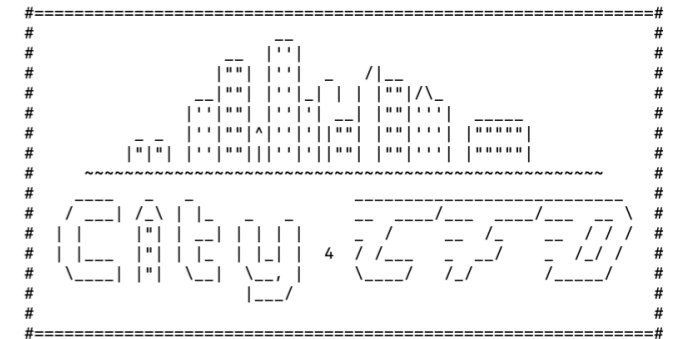
Urban flow simulation CFD process:



TUDflow - how?



Urban flow simulation CFD process:

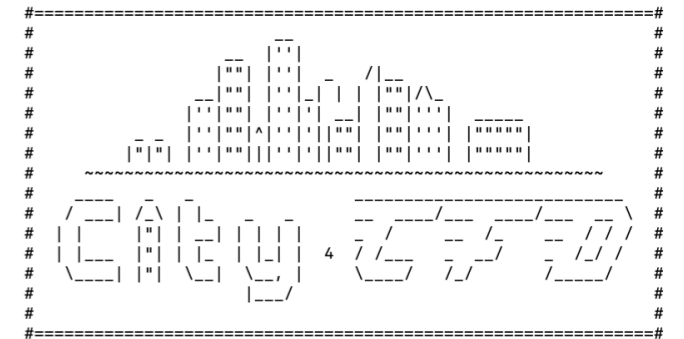


<https://github.com/tudelft3d/City4>

TUDflow - how?



Urban flow simulation CFD process:

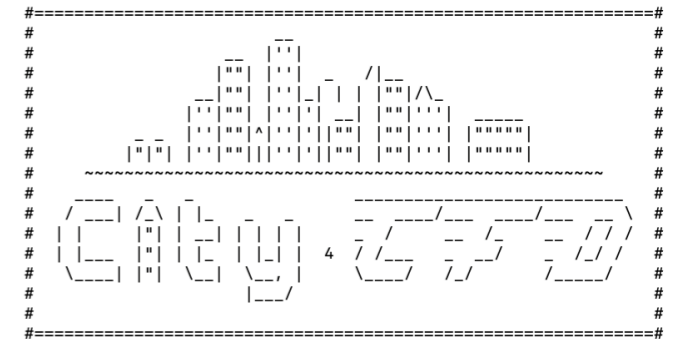
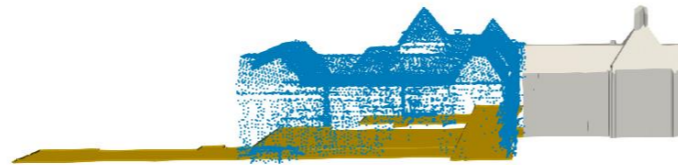


<https://github.com/tudelft3d/City4>

TUDflow - how?



Urban flow simulation CFD process:

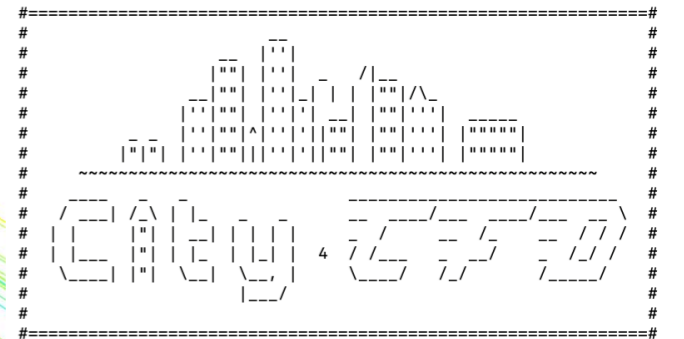
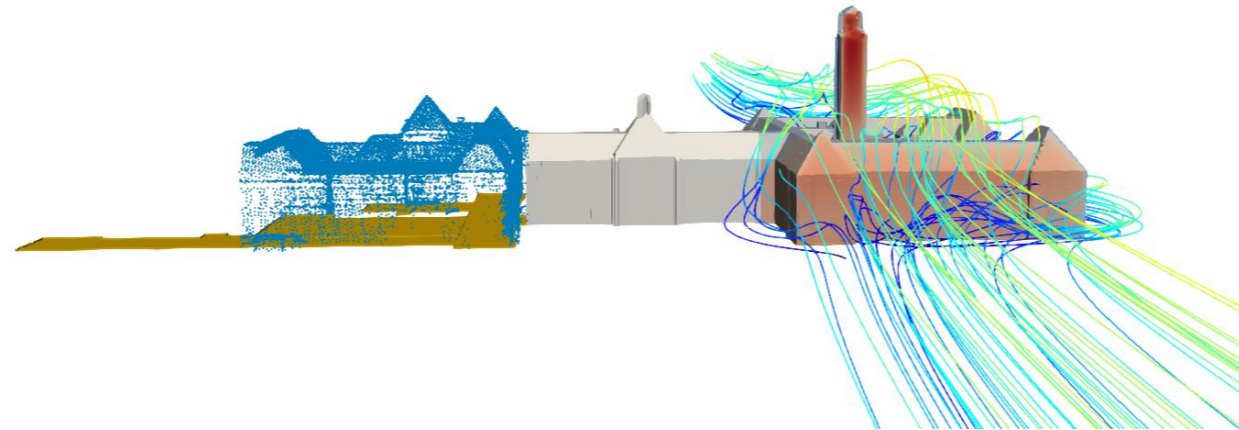
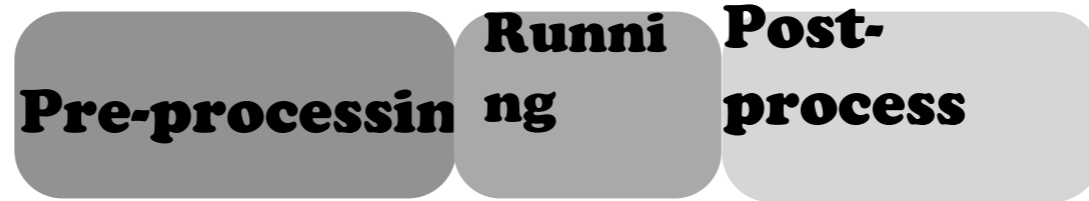


<https://github.com/tudelft3d/City4>

TUDflow - how?



Urban flow simulation CFD process:

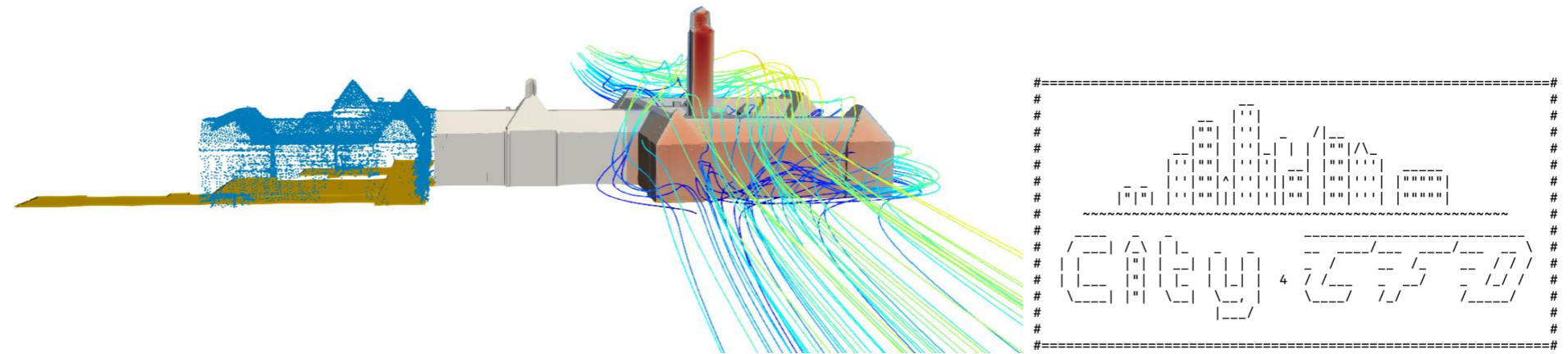


<https://github.com/tudelft3d/City4>

TUDflow - how?



Urban flow simulation CFD process:



<https://github.com/tudelft3d/City4>

High-fidelity urban flow simulations:



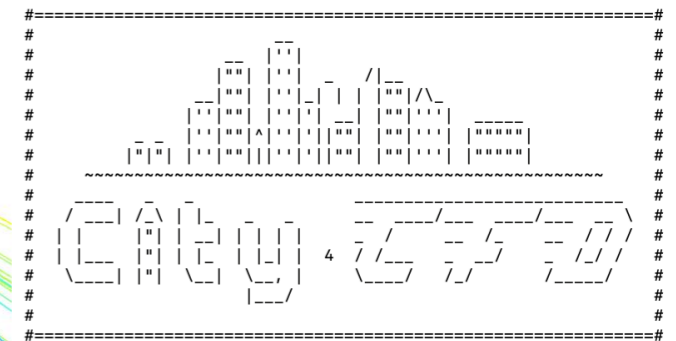
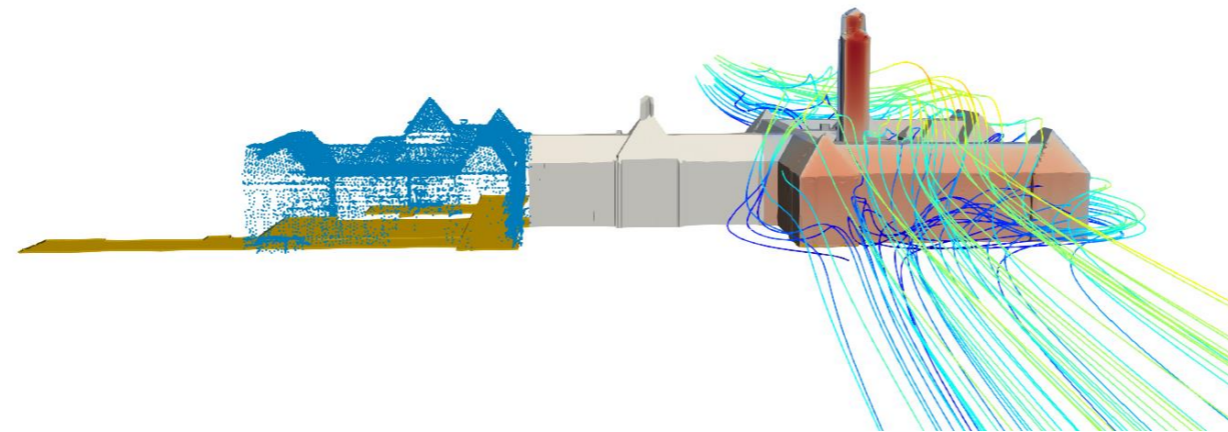
[GitHub.com/CaNS-World/CaNS](https://github.com/CaNS-World/CaNS)

- runs efficiently up to ~10,000 GPUs in parallel, leveraging an hardware-adaptive implementation
- tailored numerical method allowing for high-fidelity simulations of flows bounded by solid walls

TUDflow - how?



Urban flow simulation CFD process:

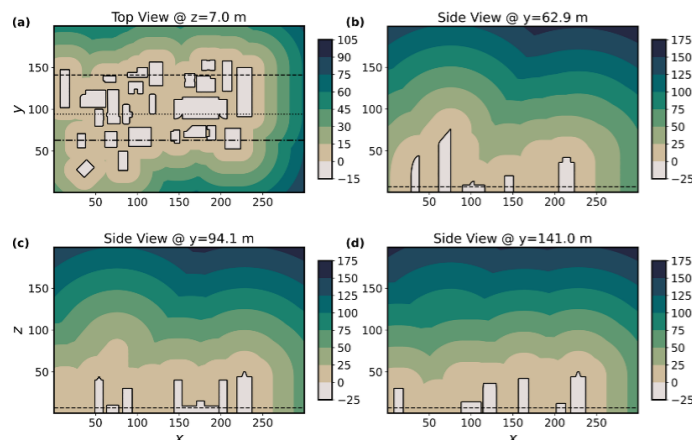


<https://github.com/tudelft3d/City4>

High-fidelity urban flow simulations:



[GitHub.com/CaNS-World/CaNS](https://github.com/CaNS-World/CaNS)



Dr. A. Patil

Scale model 792 (H=95 → H=0.12) $Re\tau=1300$



Dr. A. Patil

C.García-Sánchez, A. Patil, P.C

<https://github.com/AkshayPatil1994/stl2sdfMPI>