accu:rate

Institute for
crowd simulation

Towards realistic agent behaviour

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London, 7th March 2018

About accu:rate

- Spin-Off of the Technische Universität München in Munich
- We offer consulting services on crowd simulation as well as our simulation software crowd:it
- Awarded by several German ministries for innovative technology: i.e. BMVI, BMWi and Bavarian Ministry for Economics


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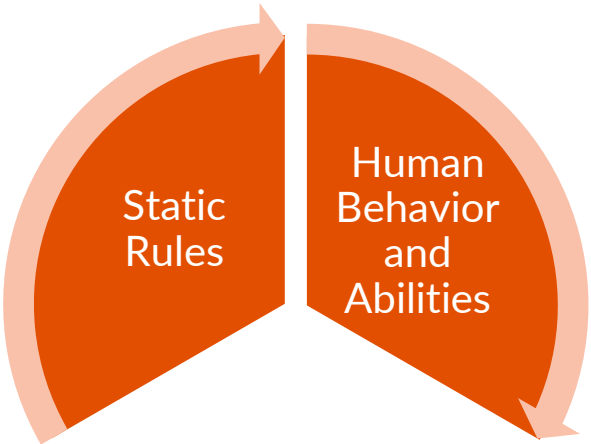
State of the art crowd analytics

- ✓ Regulations
- ✓ Laws



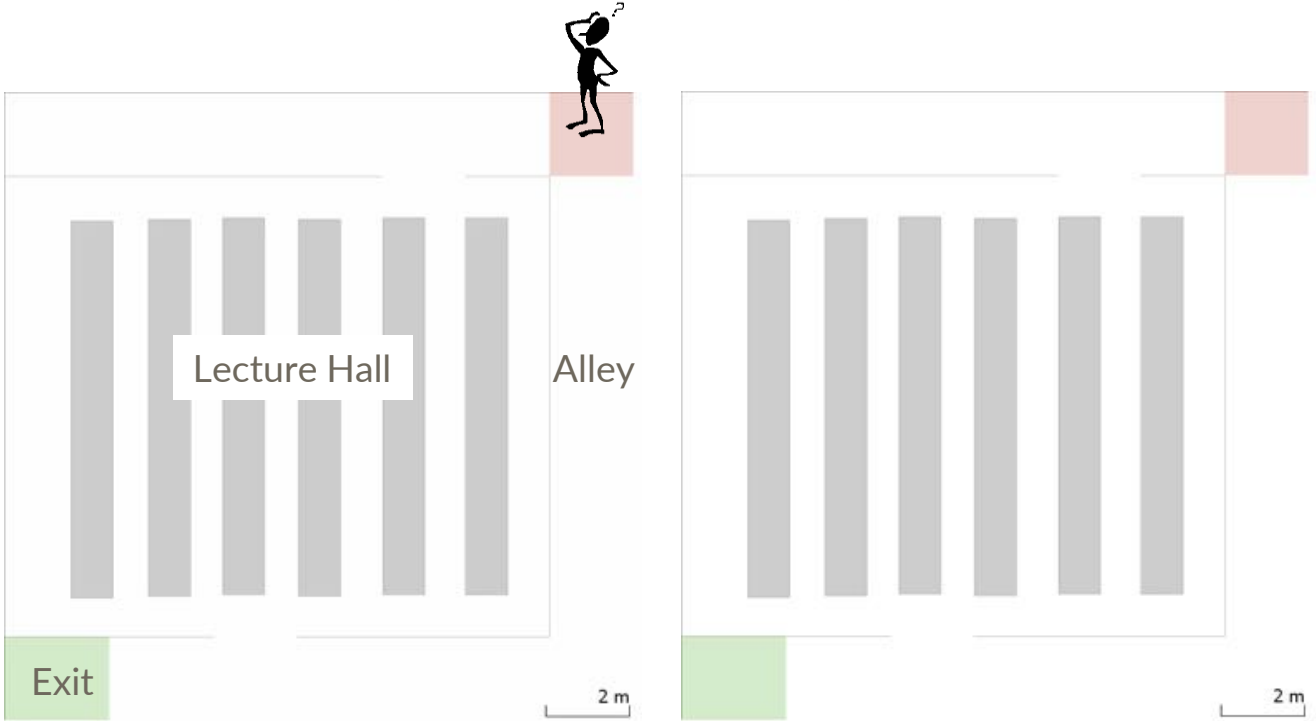
- ✓ Large crowds
- ✓ Model pattern of crowds
- ✓ Include dynamics of crowds

BUT…

- › **What about small crowds?**
- › **How can we model individual behaviour?**
- › **What does individual behaviour depend on?**

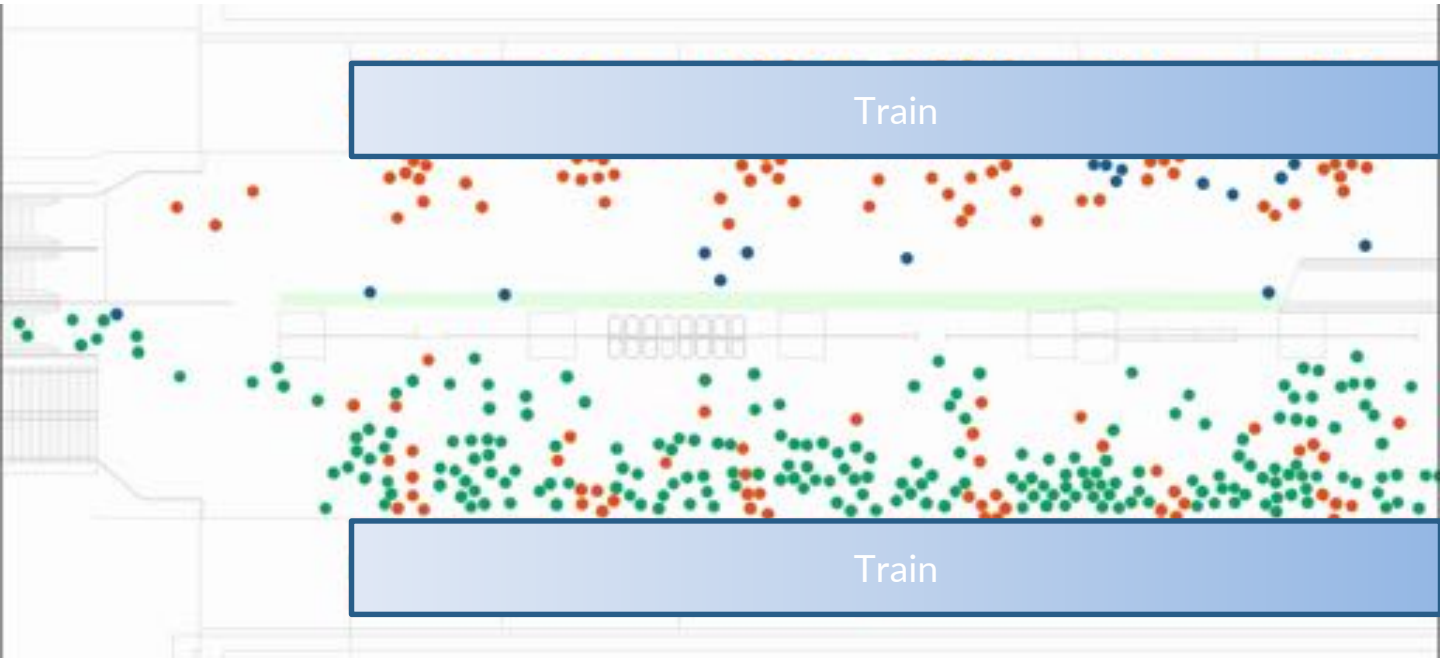
How can we apply realistic avoidance behavior when it comes to counterflows?

How can we teach agents Generalized Knowledge[1]?



[1]E. Andresen, M. Chraibi, and A. Seyfried, "A representation of partial spatial knowledge: a cognitive map approach for evacuation simulations," *Transportmetrica A: Transport Science*, vol. 0, no. 0, pp. 1–35, 2018.

Behaviour in front of Trains



The big wheel of Human Factors

Humans

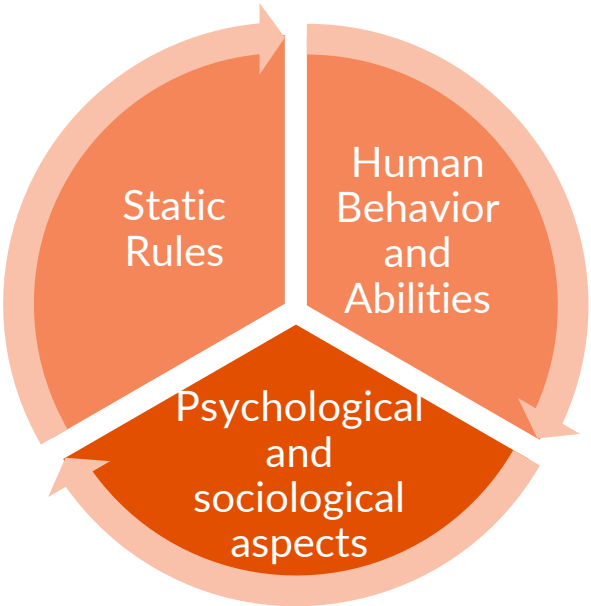
Environ-ment/ Infra-structure

Any impacts?

Occasion

Extend the components!

- ✓ Regulations
- ✓ Laws



- ✓ Large crowds
- ✓ Evacuation simulation
- ✓ Statistic runs

- ✓ Simulate even small crowds
- ✓ Model individual behavior

crowd:it

- ✓ Uses the Optimal Steps Model: Imitate peoples‘ stepping behaviour.
- ✓ Agent-based Model approach: Assign individual preferences of different „Personas“.
- ✓ Produces Valid Results: RiMEA test cases, NIST test cases, continuous comparison with real data.
- ✓ Is always Up-to-date: Close collaboration with research and continuous integration of latest research results.

The future of crowd simulations

- Integrate results from psychological studies
- Focus on agents and their individual behaviours
- Validate the models

- Simulation results get more realistic
- A variety of different scenarios can be supplied
- Crowd simulation will become an even more powerful tool whenever people and space interact!

simulate.visualise.improve.

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