Welcome

Developmental Computational Psychiatry lab

HARTLEY LAB

Computational Model(l)ing in Development

Ali Cohen | Tobias Hauser

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Computational Model(l)ing in Development

What today will hold

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time (GMT)	
13:00	Welcome from the Organisers (Ali Cohen & Tobias Hauser) Computational modelling in development: Past, current, and future directions (Cate Hartley)
13:30	**What is Computational Modelling?** Introduction and examples 1. What is a computational model and why do we use it? (Nadescha Trudel & Alisa Loosen) 2. How to develop a computational model? (Tricia Seow, Sam Hewitt, & Noam Goldway) 3. Principles of modelling and model fitting (Magda Dubois, Naiti Bhatt, Greer Bizzell-Hatcher, & Vasilisa Skvortsova) 4. Model comparison, selection & validation (Kate Nussenbaum, Johanna Habicht, & Vasilisa Skvortsova)
16:00	*Break*
17:00	**Parallel modelling tutorials**: 1. Inferring cognitive models of reinforcement learning from choice data (Maël Lebreton & Stefano Palminteri) 2. Computational modeling of goal-directed and habitual reinforcement-learning strategies (Claire Smid & Wouter Kool) 3. Computational models of human gaze data (Angela Radulescu) 4. Uncovering heterogeneity in preferences and behavior with finite mixture models (Adrian Bruhin) 5. An introduction to drift diffusion modeling (Wenjia Joyce Zhao & Ian Krajbich)
19:00	Panel discussion: Promises and Pitfalls in Developmental Computational Modelling
19:30	virtual drinks / find-a-modeler & find-an-experimentalist session

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Acknowledgements

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Podium conferences (Casey Irelan & team)

Tutorial hosts & speakers

- Adrian Bruhin
- Angela Radulescu
- Claire Smid
- Ian Krajbich
- Maël Lebreton
- Stefano Palminteri
- Wenjia Joyce Zhao
- Wouter Kool

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- Alisa Loosen
- Greer Bizzell-Hatcher
- Johanna Habicht
- Kate Nussenbaum
- Magda Dubois
- Nadescha Trudel
- Naiti Bhatt
- Noam Goldway
- Sam Hewitt
- Tricia Seow
- Vasilisa Skvortsova

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Organisational comments

Problems?

Ali Cohen: ali.cohen@nyu.edu
Tobias Hauser: t.hauser@ucl.ac.uk

Resources?

Slides (and code) for morning session are available on
https://github.com/DevComPsy/2021FluxCompModellingWorkshop

Zooms

- Morning sessions and panel session (afternoon) are in the main Zoom channel
- Tutorials are in separate Zooms – log onto these directly after the break
- ‘Virtual drinks’ are in the main Zoom channel (using breakout rooms)
- Most sessions will be recorded and made (publicly) available

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Inspiration / further resources…

http://www.hannekedenouden.ruhosting.nl/RLtutorial/Instructions.html

https://www.rachelbedder.com/scientific-work

https://github.com/AnneCollins/TenSimpleRulesModeling

https://www.cpcourse.org/

https://www.translationalneuromodeling.org/cpcourse/

https://www.neuromatchacademy.org/

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Session 1

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What is Computational Model(l)ing?

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What is Computational Modelling?

Introduction and examples

1. **What is a computational model and why do we use it?** (Nadescha Trudel & Alisa Loosen)

2. **How to develop a computational model?** (Tricia Seow, Sam Hewitt, & Noam Goldway)

3. **Principles of modelling and model fitting** (Magda Dubois, Naiti Bhatt, Greer Bizzell-Hatcher, & Vasilisa Skvortsova)

4. **Model comparison, selection & validation** (Kate Nussenbaum, Johanna Habicht, & Vasilisa Skvortsova)

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Organisational comments

Questions?

- yes, please!
- morning session: post in Zoom chat, chairs will moderate them
  short question(s) after each section
  longer Q&A at the end of the session
- afternoon tutorials: as specified by tutorial leaders

Zoom procedures for session 1

- please stay muted
- if possible, please turn your cameras on during the Q&As
- use the “Raise Hand” feature under the Reactions button or type your question in the chat – a moderator will call on you or ask your question
- feel free to use the chat to discuss thoughts or questions as a group during the presentations

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