First "Summer" School on

Modeling Heterogeneity: Advances in Behavioral Decision Analytics

November 3-16, 2021
University of Illinois at Urbana-Champaign

Organizers: Daniel Cavagnaro and Michel Regenwetter

Funded by National Science Foundation grant DRMS-2049896
(PI: Regenwetter, Co-PI: Cavagnaro)

Deadline for applications: July 15, 2021

What:

1. Intensive two-week training program in modeling heterogeneity of behavior and associated "order-constrained" data analytics, Nov 3-16, 2021.
2. Follow-up hands-on training through collaborative research.
3. Workshop at trainees' home institutions.
4. Trainees may be funded to present their resulting research at a conference of their choice.
5. Each participating lab will contribute at least one paper to an edited volume (anticipated publication in 2024).

Who:

We invite PhD students and postdocs who work in decision making in any disciplinary field. Priority will be given to all groups who are under-represented in DRMS or STEM. We will support a total of six trainees from three research labs.

Trainee Goals:

- Gain a deeper understanding of heterogeneity of behavior.
- Learn how to translate conceptual or verbal theories into probabilistic models.
- Acquire basic or advanced proficiency in quantitative analytics.

Research Topic Priorities:

PhD students and postdocs from any area of decision making are welcome. All else equal, we will prioritize applicants interested in theoretical, computational, or empirical topics that relate to at least one of

- choice variability,
- connecting individual and collective choice,
- context-dependent decision making,
- ethical/moral decision making,
- evidence/probability weighting,
- intertemporal choice,
- probabilistic choice,
- probabilistic inference,

- risky choice,
- strength of preference,
- theoretical scope of decision theories.

A major emphasis will be placed on joint modeling of heterogeneous behavior in two decision paradigms, such as the combination of moral foundations and evidence weighting, the interplay of context and probabilistic inference, or intertemporal risky choice.

Funding:
NSF-funded financial support will be provided for travel to Urbana-Champaign, including international travel. Trainees will be provided with room and board during Nov 3-16, 2021. Additionally, after the summer school, trainees may qualify for up to $1,000 support to travel to a conference. Trainees may also qualify for up to $500 to support a collaborator (who did not attend the summer school) to present related research at a conference. To be eligible for this support, trainees need to present the collaborative work they have carried out in the context of the summer school and resulting from collaborative efforts with the Cavagnaro lab and/or the Regenwetter lab. Likewise, the trainees' collaborators must present work that they and the trainees carried out jointly in the framework of this training program. There is also limited funding for human subject payments.

Notes: Collaborators cannot be of a higher rank than Assistant Professor to qualify for this support. National Science Foundation grants reimburse air-travel only on U.S. carriers. To qualify for financial support, full attendance of the training program is required.

Prerequisites:
PhD students and postdocs are welcome to apply. Applicants must have taken at least one quantitative course (e.g., a graduate level mathematics or statistics course) and need a letter of support from their faculty supervisor. While the Cavagnaro and Regenwetter labs will provide extensive collaborative support, mentorship of each trainee remains the responsibility of their home supervisor, who will also have final supervisory authority over the trainee's project.

Notes: International applicants should be aware that attending this training program counts as business travel, not as tourist travel. Attendees are responsible for obtaining the pertinent immigration documentation/permissions.

How to apply:
We will support a total of 6 trainees from 3 research labs. Ideally, each lab sends 2 trainees. However, groups of 1-3 trainees from the same lab may apply. Applicants should provide the following materials: A statement of research interests, preparation, and goals (1 page per trainee), a full CV (1 per trainee), a letter of support from their graduate advisor (1 per lab). Before final admittance to the program, international applicants will need to document proficiency in English (e.g., via a zoom call). Questions and applications should be sent to abda.workshop@gmail.com. The deadline for applications is July 15, 2021.

COVID:
This 2021 "summer" school is scheduled in November in hopes that in-person attendance will be possible and safe. The organizers reserve the right to change to an online or hybrid format if needed. At this point, we do not know what requirements, restrictions, or precautionary measures will be in place in Illinois and at the UIUC campus in November 2021. For past and current pandemic policies of the University of Illinois, please visit https://covid19.illinois.edu/. As of June 2021, UIUC has administered more than 2 million of its saliva-based COVID tests to faculty, staff, students and others (see also https://go.illinois.edu/COVIDTestingData) and extensive vaccination efforts are under way.

Selected Related Readings:
Davis-Stober, C. P. and Regenwetter, M. (2019). The 'paradox' of converging evidence. *Psychological Review*, 126:865–879.

Heck, D. W. and Davis-Stober, C. P. (2019). Multinomial models with linear inequality constraints: Overview and improvements of computational methods for Bayesian inference. *Journal of Mathematical Psychology*, 91, 70-87.

Regenwetter, M. and Cavagnaro, D. (2019). Tutorial on removing the shackles of regression analysis: How to stay true to your theory of binary response probabilities. *Psychological Methods*, 24:135–152.

Regenwetter, M., Cavagnaro, D.R., Popova, A., Guo, Y., Zwilling, C., Lim, S.H., Stevens, J.R. (2018). Heterogeneity and Parsimony in Intertemporal Choice. *Decision*, 5, 63-94.

Regenwetter, M., Dana, J. & Davis-Stober, C. (2011). Transitivity of preferences. *Psychological Review*, 118, 42-56.

Regenwetter, M. & Davis-Stober, C. (2012) Behavioral variability of choices versus structural inconsistency of preferences. *Psychological Review*, 119, 408-416.

Regenwetter, M., Davis-Stober, C. P., Lim, S. H., Guo, Y., Popova, A., Zwilling, C., Cha, Y.-C., and Messner, W. (2014). QTEST: Quantitative testing of theories of binary choice. *Decision*, 1(1):2–34.

Regenwetter, M. and Robinson, M. (2017). The construct-behavior gap in behavioral decision research: A challenge beyond replicability. *Psychological Review*, 124.

Zwilling, C., Cavagnaro, D., Regenwetter, M., Lim, S., Fields, B., and Zhang, Y. (2019). QTEST 2.1: Quantitative testing of theories of binary choice using Bayesian inference. *Journal of Mathematical Psychology*, 91:176–194.