

Topical Lunch – Carla Gomes and Chris Barrett

"Developing electronic resources and computational techniques for targeting humanitarian and development interventions"

May 19, 2010

12:00 – 1:00 PM

300 Rice Hall

Attendees

Host - Chris Barrett, cbb2

Host - Carla Gomes, carla.gomes@gmail.com

Helene Schember, hrs6

Mark Lawrence, mal64

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Aurelie Harou (AEM PhD student, aph53)

Bistra Dilkina (Computer Science PhD student, bistra@cs.cornell.edu)

Regrets

Robbert van Renesse, rvr@cs.cornell.edu

Susan Fussell, sfussell@cornell.edu

Frank DiSalvo, fjd3

Anurag Agrawal, aa337

Geri Gay, gkg

Zellman Warhaft, zw16

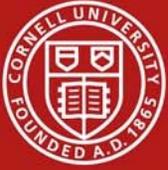
Others

Laura Forlano, lef45@columbia.edu

Zellman Warhaft

Notes

We were missing many of the development economists due to timing conflicts and we should try to tap the ORIE people and perhaps disease modelers worrying about developing countries.



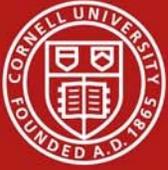
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A photograph showing two men in white traditional clothing and white caps sitting on the ground, sorting through large sacks of grain. One man is holding a metal lid. In the background, other people are visible, including a woman in a green patterned dress carrying a yellow jerrycan. The scene is outdoors on a dirt ground.

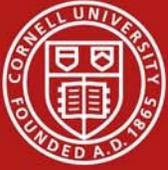
Developing Electronic Resources and Computational Techniques for Targeting Humanitarian and Development Interventions

Chris Barrett and Carla Gomes
Cornell Center for a Sustainable Future

Topical Lunch
May 19, 2010



- **Renewed interest and funding** for interventions targeted toward hunger and poverty reduction.
- **Increased flexibility** in instruments (e.g., no longer just food aid in responding to food emergencies).
- Rapid growth in **data availability**.
- Need to translate more dollars and data into **better choices**, now that there are choices to be made.
- **Need to know:**
 - i) **who is poor or hungry and how to identify them?**
 - ii) **what is best response to help them?**
- **Emerging computational challenges /opportunities.**
- **4 brief examples follow.**



Identifying the poor is the first essential step

Poverty maps:

- Use multiple data sets to estimate and map poverty patterns not directly measured.
- Machine learning and related methods can permit more efficient use of data from varied sources.

New collaboration between Cornell economists and computer scientists

Example: 2002 Uganda poverty map





Targeting the best response to reduce poverty

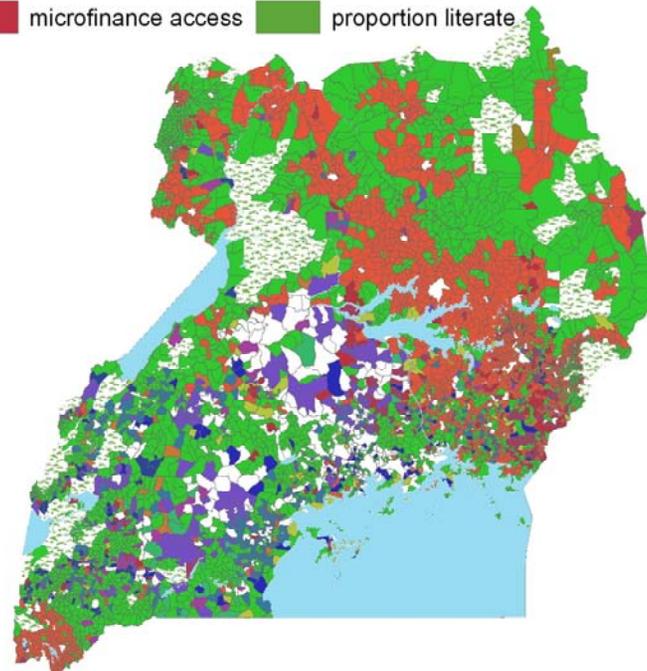
Targeting maps:

- Machine learning methods enable more efficient estimation of spatially explicit, time-varying returns to different interventions, tapping multiple data sources.

Nascent collaboration between Cornell economists and computer scientists

Example: Uganda targeting map

Asset providing maximum expected marginal return





Which response to address food insecurity?

Market information for food insecurity response analysis (MIFIRA):

Decision support tool for humanitarian agencies - in a given food emergency, do they distribute food or cash? If food, where to procure? Data mining and artificial intelligence tools can help a lot.

Nascent collaboration between Univ. of Rochester computer scientists, Cornell economists, international NGOs (CARE, Catholic Relief Services) and World Food Program.

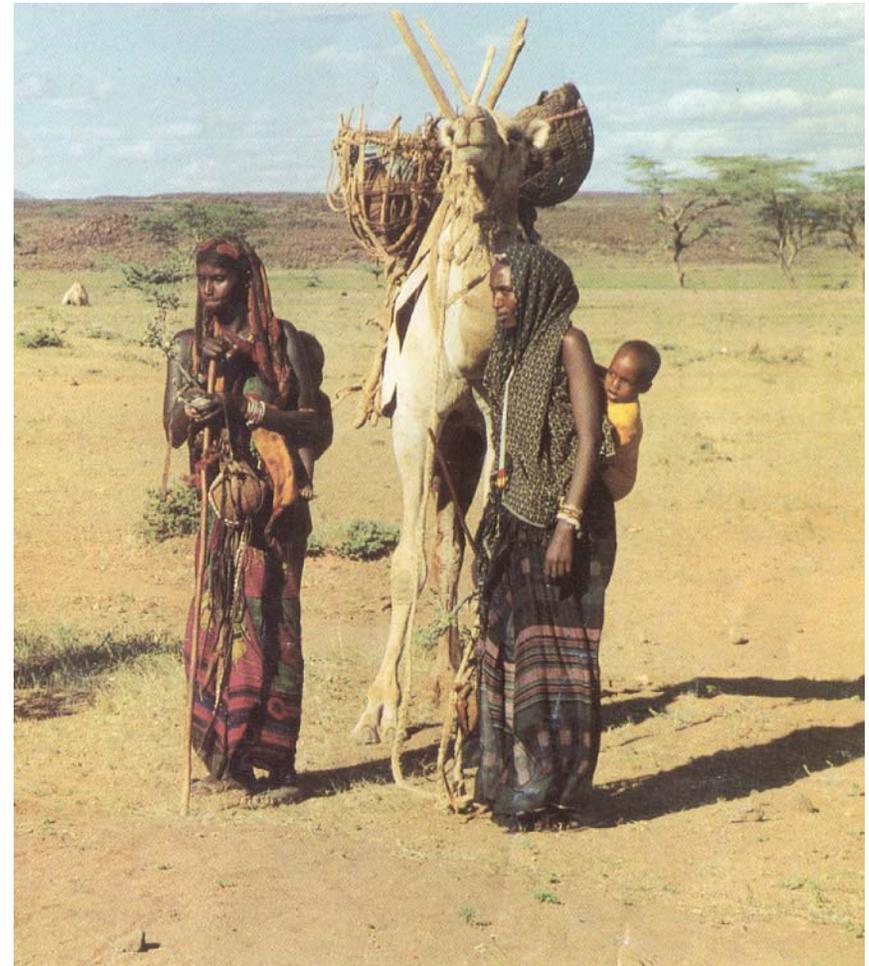


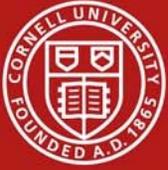


How to protect pastoral lives and livelihoods?

How to reinforce adaptive migration among poor east African pastoralists so as to avoid catastrophic herd collapse? Need to understand herder behavior. But structural estimation of spatio-temporally explicit pastoralist migration behavior infeasible using traditional econometric methods. Machine learning methods show considerable promise.

New collaboration between Cornell economists and computer scientists.





Emergent Groups, But No Real Movement Yet

[Artificial Intelligence for Development \(AI-D\)](#)

Emergent new research community, with limited academic engagement and based mainly in computer science and with public health applications.

Spring symposium at Stanford this year.

[Global Alliance for Information Technology for Development](#)

(UN-GAID) – more focused on bring ICT to poor populations than on research

[Information for Development \(infoDev\) program](#)

World Bank-based, inter-agency ICT4D financing program.



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Conclusion

There is considerable demand among donors, international humanitarian organizations for **effective decision support tools** to help them make better use of **newfound flexibility** in aiding **hunger and poverty reduction** through humanitarian and development interventions.

Thank you for your interest.

