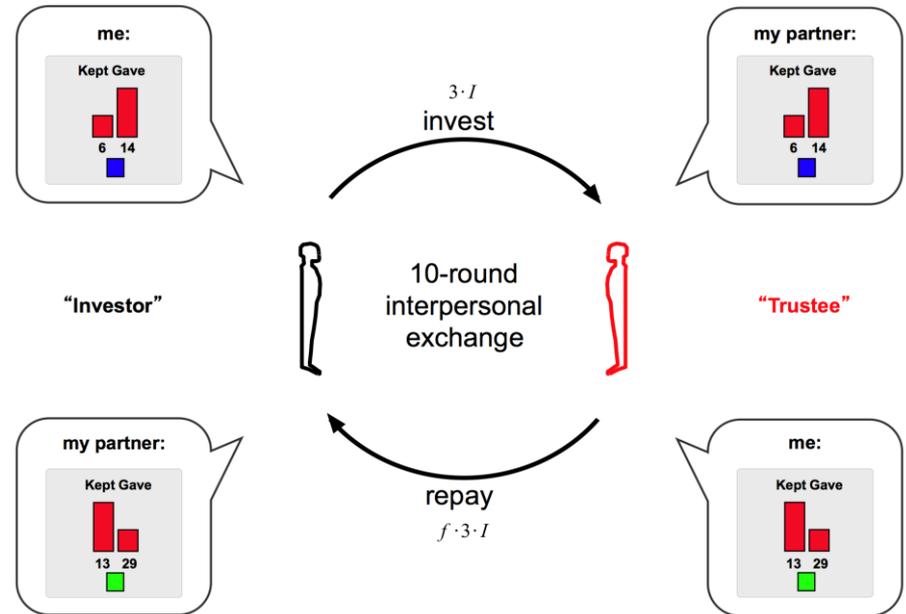


Toward neurobehavioral metrics of social function: Examples from autism

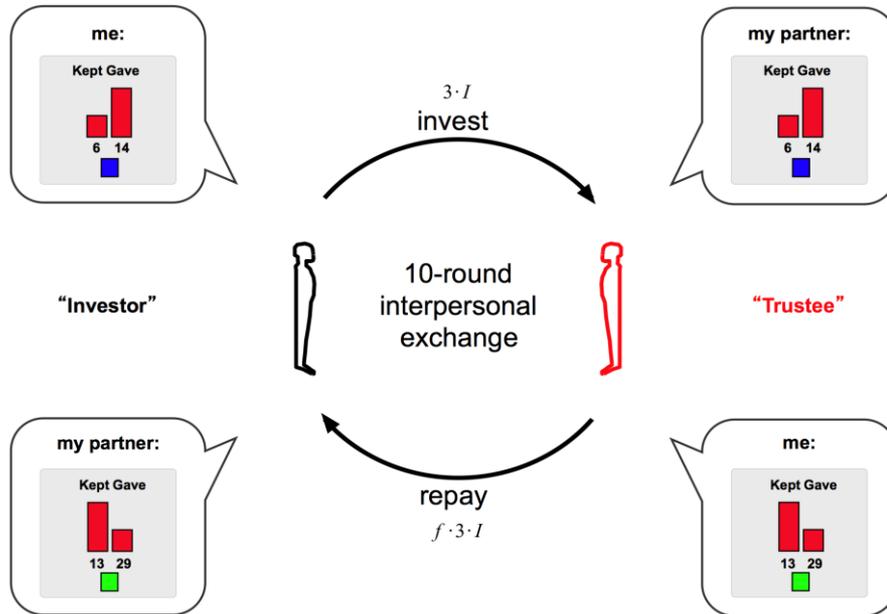
Pearl Chiu, PhD
Assistant Professor
Virginia Tech Carilion Research Institute
Department of Psychology, Virginia Tech
VTC School of Medicine

VT Center for Autism Research Conference, August 2012

Translational (social) decision neuroscience

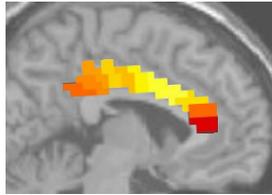


What do behavioral economic games offer?

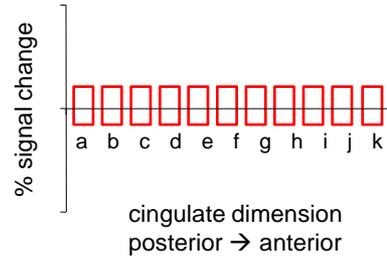


- quantify the pursuit of rewards in complex environments
- presumed rational economic agents make irrational decisions
- develop parametric assays to identify neural correlates

How do we reduce complex data to be “useful”?

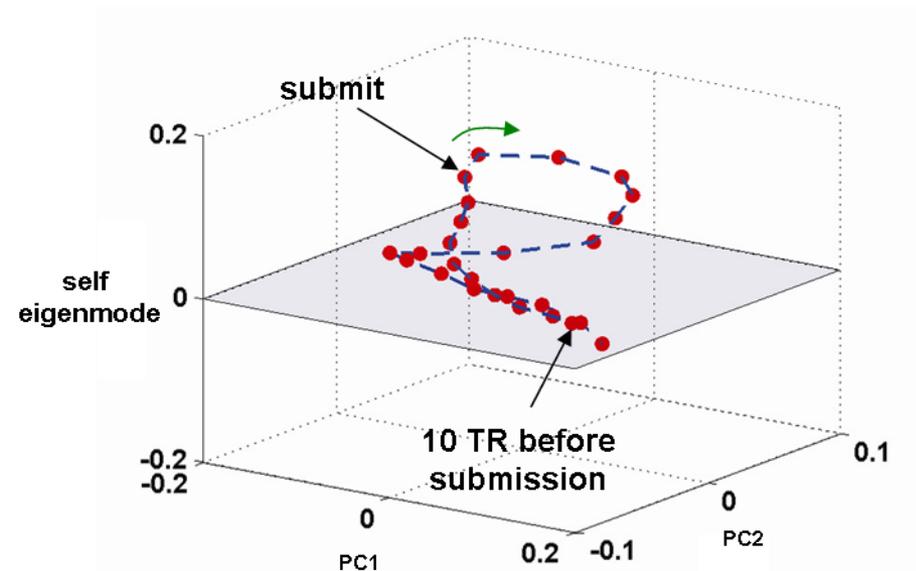
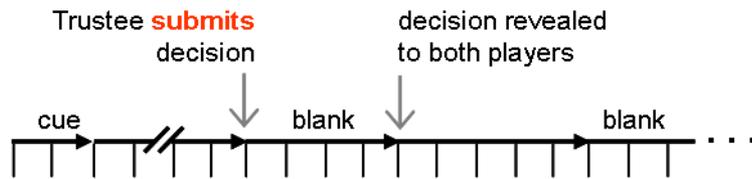


normative “self” response
(N = 100)



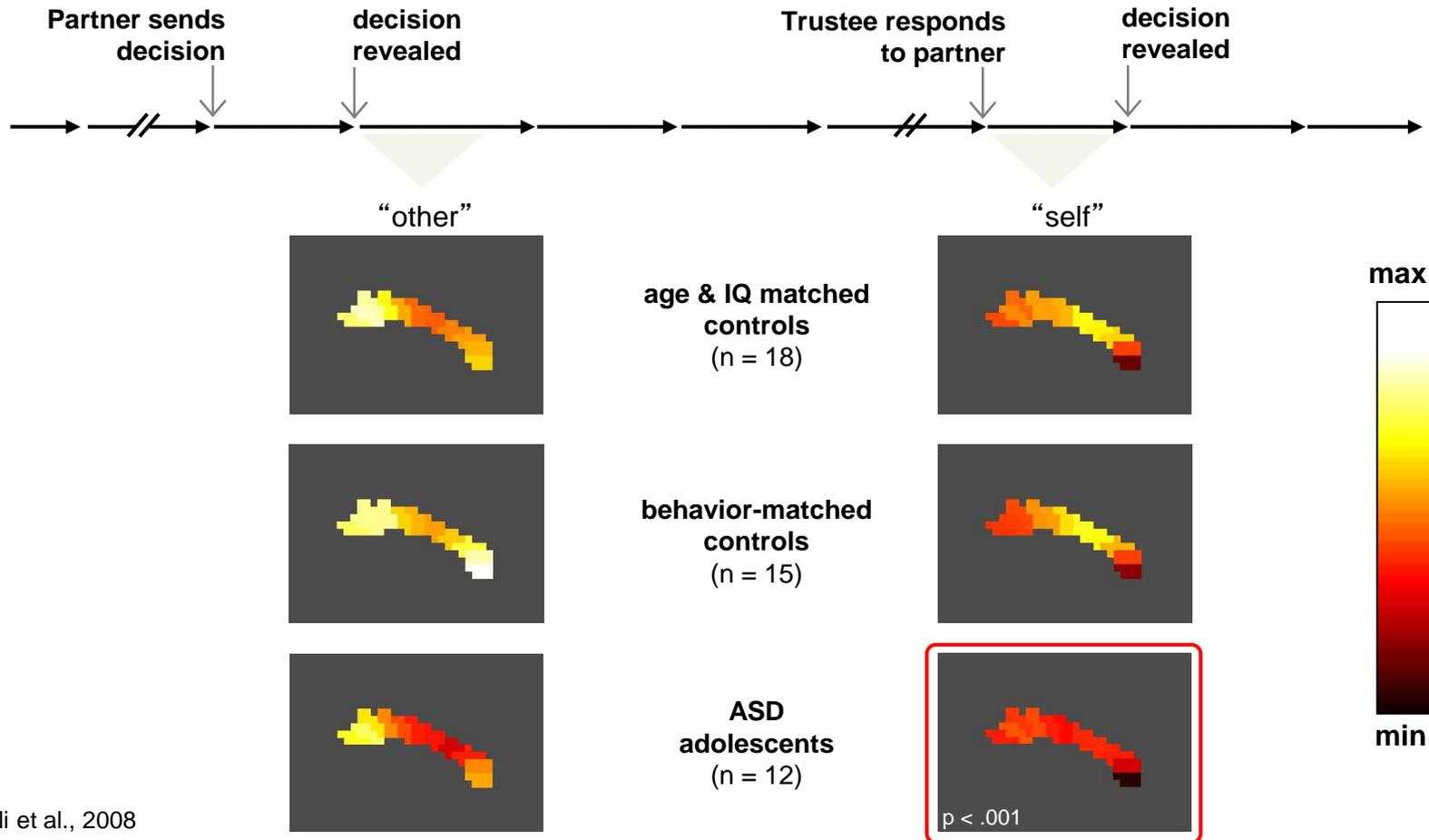
spatial
principal components analysis
(sPCA)

Self phase



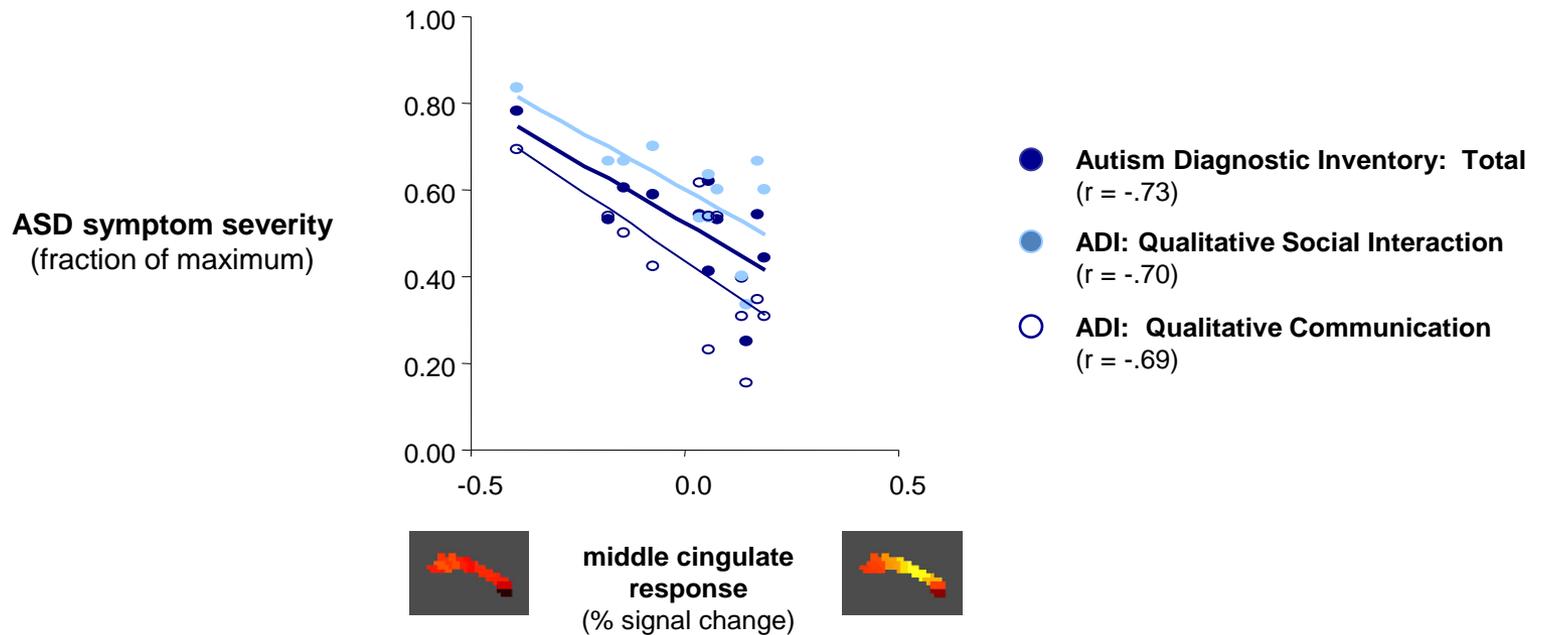
Chiu, Kayali et al., 2008

Participants with autism lack cingulate “self” response



Chiu, Kayali et al., 2008

Absent cingulate “self” response is related to social symptoms in autism



Chiu, Kayali et al., 2008

Resources

- A potential neurobehavioral endophenotype that:
 - ✓ is evoked by interpersonal exchange
 - ✓ correlates with social symptom severity in autism
 - ✓ can be reduced to a single coefficient per individual, relative to normative standards
- Neuroimaging expertise, access to three 3T fMRI scanners through VTCRI
- Decision neuroscience expertise (social and non-social)
- Translational studies under development (with Brooks King-Casas & Stephen LaConte)
- NIH funding for identifying novel neurobehavioral phenotypes (subtypes) and developing quantitative metrics of psychiatric state

Collaborations and resources needed

Centralized human subjects recruitment and assessment core

Genetics and bioinformatics core

Therapeutic settings for translational studies

Data sharing