



CANLAB
NEWSLETTER
2020



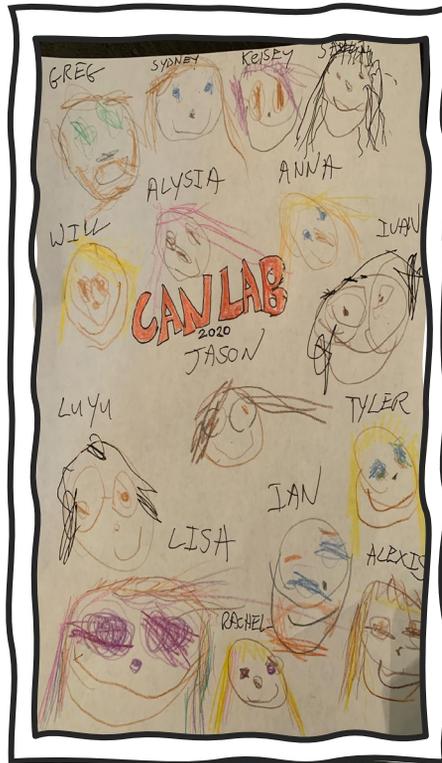
CLINICAL AFFECTIVE NEUROSCIENCE LABORATORY

A YEAR IN REVIEW

2020 was a challenging year for the CAN Lab, just as it was for the world during the COVID pandemic. However, we're very proud of the progress we made in our research and the accomplishments of our team and its members. We are also very grateful to the participants who dedicated their time to completing our studies and to the National Institute of Mental Health and the Brain & Behavior Research Foundation for funding our research.

TOP 15 HIGHLIGHTS FROM 2020

#1 In 2020, we were first and foremost thankful to have persevered what was a very difficult year with the COVID19 pandemic, racial unrest, and personal challenges/tragedies. We were grateful to be able to continue employing 10 faculty/staff members and 4 graduate students during this time, despite economic hardship and budget cuts. Although social isolation and communication barriers were a challenge, the lab maintained a strong community and thrived. Our members grew closer and supported one another.



#2 Two of CAN Lab's key founding lab members moved on to bright futures. Grad student Dr. Katie Frost Visser defended her dissertation, completed her internship at the Connecticut VA, and started a postdoc at Brown University. Ms. Cristina Gonzalez, who was our first undergraduate student and then full-time lab manager, started the PhD program in Industrial Organizational Psychology at Penn State.





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#3 Five new full-time research coordinators joined our ranks:

Anna Knippenberg, Alysia Berglund, Luyu Zhang, Jason Levin, and Kelsey MacDonald. They each began work during the pandemic and learned lab procedures, coordination duties, and methods. They worked very hard to get studies up and running during the pandemic. This was no easy feat, as it involved modifying study procedures to allow for remote/online data collection or implementing new safety precautions to allow for in person data collection during the pandemic.



Luyu Zhang



Anna Knippenberg



Alysia Berglund



Jason Levin



Kelsey MacDonald



Sydney James

#4 We discovered the true identity of our lab manager, Sydney Howie James aka wonder woman. Watch out for that R-coded lasso and her trusty golden retriever sidekick and lab mascot Blue.



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 OFFICIAL ACADEMIC NEUROSCIENCE SOCIETY

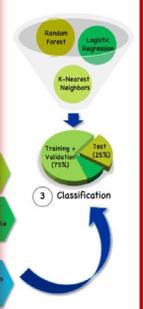
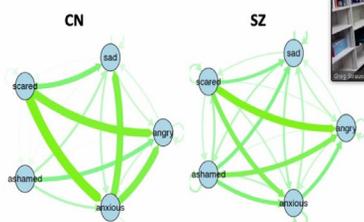
#5 We completed a NAMI walk, organized by lab coordinator Anna Knippenberg, to raise awareness for mental illness.



#6 Our lab members had many exciting accomplishments. Lisa Bartolomeo defended her master's thesis and passed comps. Ivan Ruiz proposed his dissertation, passed comps, and applied for internship. Ian Raugh defended his first-year project and conducted multiple lab stats workshops on R-studio. Sydney James and Sayli Narkhede submitted their first 1st author publications. Former PhD graduate Dr. Kayla Whearty was promoted to Assistant Professor of Neurology at Hofstra University. Dr. Strauss and grad students Lisa Bartolomeo and Ian Raugh contributed to departmental efforts to enhance diversity and inclusion. Dr. Strauss cochaired an NIMH conference on experimental therapeutics and was awarded the Rising Star Award from the Schizophrenia International Research Society for early career research accomplishments. Junior scientists, the Strauss girls, fulfilled their deepest toddler ambitions while their Daddy was on zoom calls, including zoom bombing with song and dance routines, stuffed animal parades, dancing on tables, pooping on camera, telling Daddy's collaborators they looked scary, covering each other heads with toothpaste, coloring on walls, and turning their Daddy's hair white.

Exploratory: Negative Emotion Networks

- Shame was a more central negative emotion in SZ than CN ($U = 1487, p = .038$)
- Groups did not significantly differ on centrality for any other negative emotion
- Greater degree centrality for shame was associated with higher levels of positive symptoms ($r = .40, p = .006$).
- Higher levels of anhedonia were associated with less centrality for fear ($r = -.31, p = .041$) and anxiety ($r = -.41, p = .005$).



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Continuous sliders function as Visual Analogue Scales. You can use more than one per screen. For example:

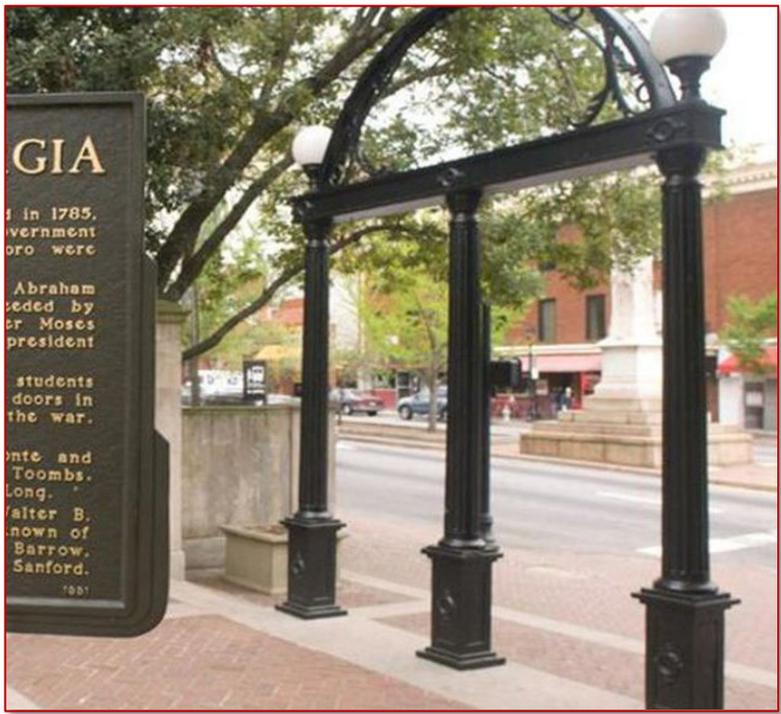
Multiple Selection questions allow you to choose multiple answers. Responses can be text or images.

In which type of research are you primarily interested?

Academic
 Market

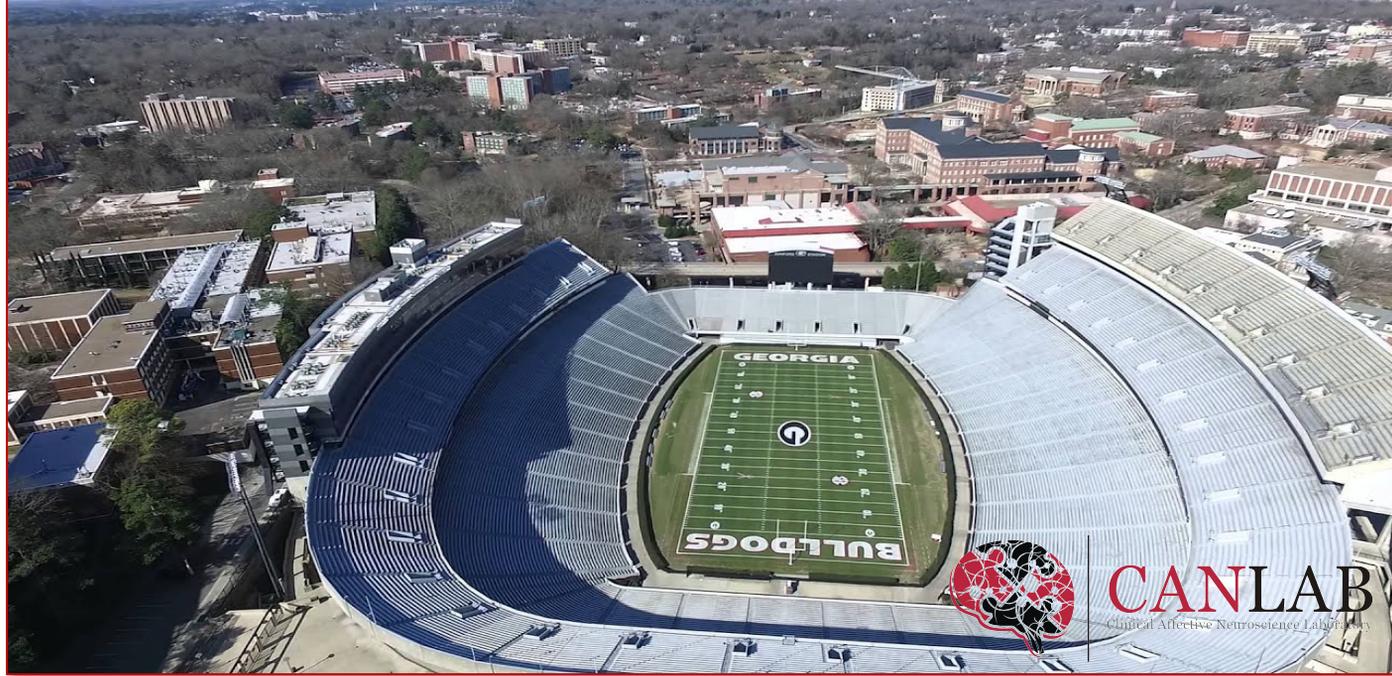


#7 The GAINS (Georgia and Illinois Negative Symptom Study) R01 continued its progress toward developing and validating a new clinical rating scale and digital phenotyping methods for measuring negative symptoms in youth at clinical high risk for psychosis. Lab manager Sydney James and coordinator Alysia Berglund undertook significant efforts to transform the data collection and data management procedures to allow the study to become fully remote. The collaborative teams at UGA, Northwestern University, and Emory University recommenced data collection fully remotely during the pandemic. The team met its goal of evaluating the psychometric properties of a beta version of the clinical rating scale we developed, the Negative Symptom Inventory for Psychosis Risk (NSI-PR) and created a revised final version of the scale based on an iterative data driven process. A key component of this advance came from statistical expertise of our collaborator Dr. Nathan Carter at UGA, who conducted IRT analyses. The team also developed training videos for the new, final scale that were made in conjunction with a professional actress (thank you Audra Mittal!). The final version of the scale is set to be used in the upcoming ~50 site U01 study in the ProNet and Australian multinational clinical high-risk study that the CAN Lab and several of its collaborators are participating in.

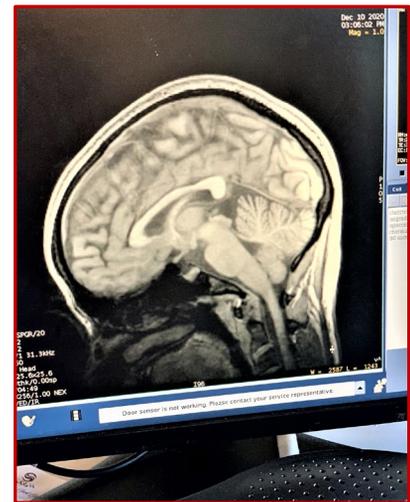


#8 The CAPR (Computerized Assessment of Psychosis Risk) consortium study was launched. This is a multisite collaborative R01 involving UGA, Emory, Northwestern, Maryland, Temple, and Yale. The goal is to develop a computerized battery of tasks sensitive to mechanisms underlying positive, negative, and disorganized symptoms that can predict risk for developing psychosis. CAN Lab staff Cristina Gonzalez and Sydney James played a critical role in reading tasks and developing standard operating procedures. When the pandemic began, the consortium decided to speed up one of its long-term goals of moving the study to be completely online. Lead by staff at Yale and coordinators at each site, the team undertook heroic efforts to create a centralized online system for data collection and management. CAN Lab's Jason Levin played a key role in this process, assisting with programming, piloting tasks and study procedures, and launching data collection.





#9 Our R61/33 clinical trial commenced. This study examines whether a mobile app intervention can improve emotion regulation ability in people with schizophrenia by enhancing activation of the prefrontal cortex. The study is being conducted in collaboration with UGA co-investigators Drs Larry Sweet and Dean Sabatinelli, as well as University of New South Wales professor Dr Susanne Schweizer. Research coordinator Anna Knippenberg spearheaded efforts to select and design stimuli, program and pilot computer tasks, piloting fMRI tasks and the mobile intervention, and initiate data collection for the trial.



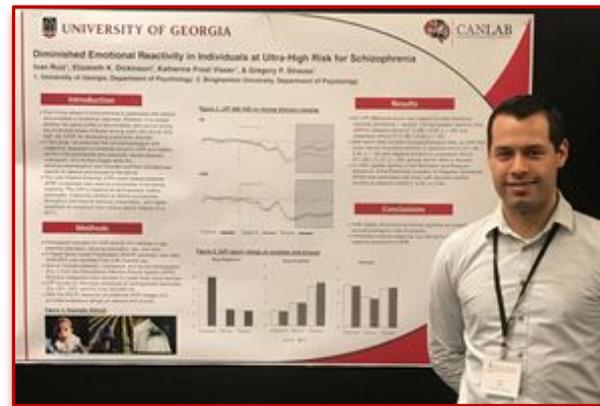
#10 Data collection continued for our R21 study examining whether avolition is associated with the failure of effort to become a secondary reinforcer in schizophrenia. Grad student Ivan Ruiz initiated data collection efforts that research coordinator Luyu Zhang continued during the pandemic after implementing new COVID19 safety procedures.



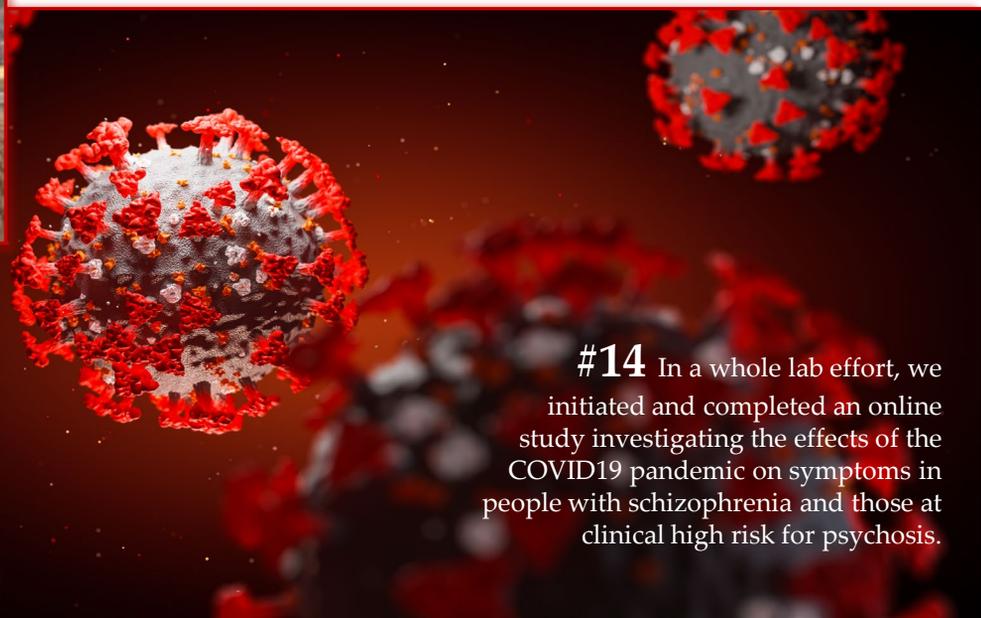
#11 Data collection transitioned to become fully remote for our R21 examining mechanisms of emotion regulation difficulties in youth at clinical high risk for psychosis. Grad student Lisa Bartolomeo and research coordinator Kelsey Macdonald learned to collect EEG data on our 64 channel actichamp system and implemented new COVID19 safety protocols for in person EEG during the pandemic.



#12 Grad student Ivan Ruiz was awarded a diversity fellowship from NIMH to conduct a study examining whether avolition is associated with the failure of effort to become a secondary reinforcer in those at clinical high risk for psychosis. Ivan, coordinator Luyu Zhang, and undergraduate Will Macfie transformed the task to allow for online data collection during the pandemic.



#13 We finished our two-year NARSAD grant examining reward processing mechanisms underlying negative symptoms in those at clinical high risk for psychosis. Will Macfie facilitated efforts to allow interviews and tasks to be completed online.



#14 In a whole lab effort, we initiated and completed an online study investigating the effects of the COVID19 pandemic on symptoms in people with schizophrenia and those at clinical high risk for psychosis.



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#15 In conjunction with many valued collaborators throughout the world, we published over 30 papers in 2020.

A few favorites are from our talented trainees and collaborators, including Katie Visser's comps meta-analysis on anhedonia in the schizophrenia spectrum, Ian Raugh's tour de force on geolocation as a measure of negative symptoms and functional outcome, Ivan Ruiz's comps meta-analysis on neuropsychological effort test performance in schizophrenia, Lisa Bartolomeo's 1st year project using EEG and eye tracking to identify mechanisms of emotion regulation difficulties in schizophrenia, Kendall Clay's undergraduate honors thesis on defeatist performance beliefs, collaborative papers with Alex Cohen's lab on automated measurement of facial and vocal affect using ambulatory videos, papers on negative symptom phenomenology in those at clinical high risk for psychosis in collaboration with Vijay Mittal and Elaine Walker's labs, and our network analysis paper in collaboration with Minerva Neuroscience pharmaceutical company on the central role of targeting motivation in the successful treatment of negative symptoms in schizophrenia.

A big thank you to our collaborators, friends, and families who continue to support our research. Most of all - thank you to all the participants who make our work possible.
~ Cheers to 2021! ~

