

Jonah Kember

Curriculum Vitae

A. Formal Education

Brock University, 2020 – Present

Degree: M.A, Child and Youth Studies (1st Year Average: **90%**)

Brock University, 2016 – 2020

Degree: B.A (Hons), Child and Youth Studies (4th Year Average: **89%**)

B. Awards and Honours

2021 Faculty of Social Sciences Research Award- \$1,500 value, Brock University

2021 Faculty of Social Sciences Student Initiative Research Assistantship, Brock University

2021 Dean's Honour List – Year One (Masters), Faculty of Social Sciences, Brock University

2020 Dean's Honour List – Year Four (Undergraduate), Faculty of Social Sciences, Brock University

C. Relevant Coursework

Developmental Psychology (M.A), Brock University, 92%

Quantitative Research Methods (M.A), Brock University, 89%

Individual Honour's Thesis, Brock University (B.A), 92%

D. Research/Scholarly Activities

Pre-Prints

Kember, J., Hare, C., Tekok-Kilic, A., Marshall, W., Emrich, S. M., Segalowitz, S. J., & Panda, E. (2021). Dynamic configuration of large-scale cortical networks during an inhibitory task accounts for heterogeneity in attention-deficit/hyperactivity disorder traits. *bioRxiv*. (Under review at *PLoS One*). <https://doi.org/10.1101/2021.08.04.455077>

Conference Presentations

Kember, J., Hare, C., Tekok-Kilic, A., Emrich, S., Segalowitz, S., Marshall, W., Panda, E. (August 2021). The segregation of task-based EEG networks into functionally specialized

systems is reduced in those with hyperactive traits. Poster. *Canadian Association for Neuroscience Meeting* (Virtual).

Kember, J., Hare, C., Tekok-Kilic, A., Emrich, S., Segalowitz, S., Panda, E. (March 2021). Dynamic Configuration of the EEG Functional Network During Response Inhibition Differs Between ADHD Subtypes in a Non-clinical Population. Poster. *Cognitive Neuroscience Society Annual Conference* (Virtual).

Pre-recorded presentation: <https://www.youtube.com/watch?v=6livj0CH12Q&t=4s>

Kember, J., Tekok-Kilic, A., Pang, E., Panda, E. (June 2020) Semantic priming reveals a gradient effect of semantic context on children's developing word reading and vocabulary skills. Poster. *Canadian Association for Neuroscience Meeting* (conference cancelled due to COVID-19).

Kember, J., Tekok-Kilic, E., Panda, E. (May 2020). Alpha Oscillations are Related to Children's Developing Word- Reading Ability. Poster. *Cognitive Neuroscience Society Annual Conference* (Virtual).

Kember, J., Tekok-Kilic, E., Panda, E. (May 2020). Semantic Integration Is Related More to Children's Vocabulary Than to Their Word Reading Skills. Poster. *Association for Psychological Science* (conference cancelled due to COVID-19).

Cochrane, R., **Kember, J.**, Tekok-Kilic, A., Pang, E., Panda, E. (August 2021). Developmental Differences in Phonological Processing: ERP and Oscillatory Power Analysis. Poster. *Canadian Association for Neuroscience Meeting* (Virtual).

Academic Service

Peer Review: Ad-hoc review for the journal 'Developmental Cognitive Neuroscience'.

Mentorship: Helped 3rd and 4th year undergraduate students in the Neuroscience, Psychology, and Child and Youth Studies programs at Brock University analyze EEG data.

Works in Progress

Panda, E., **Kember, J.**, Emami, Z., Nayman, C., Valiante, T. A., Pang, E. (2021). Dynamic functional brain network connectivity during pseudoword processing relates to children's reading skill. (Currently under review at *Neuropsychologia*).

Kember, J., Hare, C., Tekok-Kilic, A., Marshall, W., Emrich, S. M., Segalowitz, S. J., & Panda, E. (2021). Mechanisms underlying the development of resting-state EEG functional networks in ADHD: Insights from generative network modelling (Conceptualization and data analysis stage).

Panda, E., **Kember, J.**, Vaccarella, P., Hu, K., Coch, D. (2021). EEG phase synchronization differentially indexes integration within the brain's semantic, phonological and orthographic reading network in children. (In collaboration with a lab at Dartmouth College; data analysis stage).

E. Research Experience

2021 – Present: Research Assistant, Brock University and Pathstone Mental Health Institute.

Supervisors

Dr. Erin Panda, Dr. Ayda Tekok-Kilic & Dr. Sidney Segalowitz.

Description of Responsibilities

- Developed an **EEG data analysis toolbox in Matlab** that includes:
 - 'Connectivity' functions that assess the synchronization of signals between EEG sensors, both across-trial (task-related analyses) and across-time (resting-state analyses). These include: the phase-lag index (PLI), the weighted PLI and the directed PLI).
 - Non-parametric, permutation-based approach to identifying significant differences between two distributions of time series (i.e., testing whether experimental conditions differ on graph-theoretical metrics calculated over time).
 - Dynamic network measures that assess the reconfiguration of functional networks over time.
- To ensure efficient use of EEG testing time during data collection, I created an **annotated bibliography** focused on different attention-related **EEG paradigms** and their sensitivity to **individual differences in internalizing/externalizing disorders**.
- Used **Adobe Premiere** to produce a **participant recruitment video** and an **informed consent video**.

2020 – 2021: Research Assistant, Brock University.

Supervisors

Dr. Erin Panda

Description of Responsibilities

- Took the lead in manuscript writing and contributed to the editing process for “**Dynamic functional brain network connectivity during pseudoword processing relates to children’s reading skill.**”
- Developed and implemented a data analysis pipeline capable of analyzing the organization of task-related EEG functional networks.
- Performed a literature review focused on the role of **the left ventral occipital temporal cortex (IVOT)** in the **development of children’s orthographic processing abilities.**

2019 – Present: Lab Member, Developmental Neuroscience Lab, Brock University.

Co-Directors

Dr. Erin Panda & Dr. Ayda Tekok-Kilic

Description of Responsibilities

- **Led a ‘2021 EEG Data Analysis Summer Workshop’**, offered to ~15 undergraduate and graduate students in the Child and Youth Studies, Neuroscience, and Psychology programs.
 - Wrote an **automated pipeline** in Matlab capable of preprocessing the open EEG data set offered by the Child Mind Institute (includes: importing, segmenting, time-locking, **channel rejection**, **interpolation**, **artifact rejection**, and baseline correcting).
 - During this workshop, I led weekly tutorials reviewing important data analysis techniques in Brain Vision Analyzer and Matlab (i.e., ‘How to calculate the **time-series of frequency-band specific oscillatory power** using **complex Morlet wavelet convolution** in Matlab’).
- Created a series of tutorial-style videos explaining important concepts in EEG preprocessing and how to implement them in the program Brain Vision Analyzer.
 - <https://www.youtube.com/playlist?list=PLHGN-ARtu9xEbdYhxazPlwgLFD7vp4747>

F. Teaching Experience

2020 – Present: Teaching Assistant for CHYS 2P52: Quantitative Research Methods for the Behavioural Sciences, Brock University.

Description of Responsibilities

- Planned and facilitated seminars.
- Graded course content.
- Presented a lecture to the class on quantitative research strategies:
<https://www.youtube.com/watch?v=GSdCUDIGPR0>
- Anonymous student feedback:
 - “Jonah was very open to everyone’s comments and opinions and made online seminars an easy process”.
 - “Jonah took his time to explain things and to make sure everyone was comfortable with the content before moving on. I really appreciated it”.

G. Community Service

2019 – Present Event Planner, Kristen French Child Advocacy Center.

- Secured sponsors for a district-wide High-School dodgeball tournament.
- Created Trivia for the ‘Annual Pop Culture Trivia Night’.
- Highlighted in the ‘**Volunteer Spotlight Series**’ (June 2020).

2016 – 2019 Program Facilitator, Learning Disabilities Association of the Niagara Region.

- **Volunteer of the Month** (November 2017).

H. References

Dr. Erin Panda

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Director, Visual Cognitive Neuroscience Lab, Brock
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Dr Sidney Segalowitz

Professor Emeritus, Psychology, Brock University

Director, Laboratory of Cognitive and Affective Neuroscience, Brock University

Founding Director, Institute for Lifespan Development Research, Brock University

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