

Pracownia Neurokognitywistyki Rozwojowej Seminarium magisterskie

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oraz

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Pac

Nowoczesne technologie/metody badania rozwoju neuropoznawczego

1. Neuroobrazowanie:

1. monitorowanie aktywności elektrycznej mózgu (spoczynkowa + wywołana bodźcami) - elektroencefalografia, EEG

2. monitorowanie zmian przepływu krwi przez mózg - spektroskopia bliskiej podczerwieni - NIRS

2. Eye-tracking (okulografia) - Monitorowanie zachowań wzrokowych, ruchów oczu, pomiar czasów patrzenia na bodźce oraz zmian w zakresie rozwarcia źrenicy.

3. Analiza ruchu i zachowań interakcyjnych (automatyczna analiza video)

Eye-tracking



Ostatnie publikacje (2017-18)

Journal of Vision (2018) 18(13):5, 1–17

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Beyond fixation durations: Recurrence quantification analysis reveals spatiotemporal dynamics of infant visual scanning

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Chaotic home environment is associated with reduced infant processing speed under high task demands



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ABSTRACT

Early adversity has profound long-term consequences for child development across domains. The effects of early adversity on structural and functional brain development were shown for infants under 12 months of life. However, the causal mechanisms of these effects remain relatively unexplored. Using a visual habituation task we investigated whether chaotic home environment may affect processing speed in 5.5 month-old infants ($n = 71$). We found detrimental effects of chaos on processing speed for complex but not for simple visual stimuli. No effects of socio-economic status on infant processing speed were found although the sample was predominantly middle class.

Our results indicate that chaotic early environment may adversely affect processing speed in early infancy, but only when greater cognitive resources need to be deployed. The study highlights an attractive avenue for research on the mechanisms linking home environment with the development of attention control.



METHODS

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CHILD DEVELOPMENT



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Mutual Gaze During Early Mother–Infant Interactions Promotes Attention Control Development

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Efficient attention control is fundamental for infant cognitive development, but its early precursors are not well understood. This study investigated whether dyadic visual attention during parent–infant interactions at 5 months of age predicts the ability to control attention at 11 months of age ($N = 55$). Total duration of mutual gaze (MG) was assessed during free play at 5 months, while infant attention control was measured in a gap-and-overlap task at 5 and 11 months. MG predicted attention disengagement at 11 months. Infants who spent more time in MG at 5 months showed better attention control at 11 months. These results provide important insights into developmental pathways linking visual behavior in dyadic interactions with infants' subsequent attention skills.

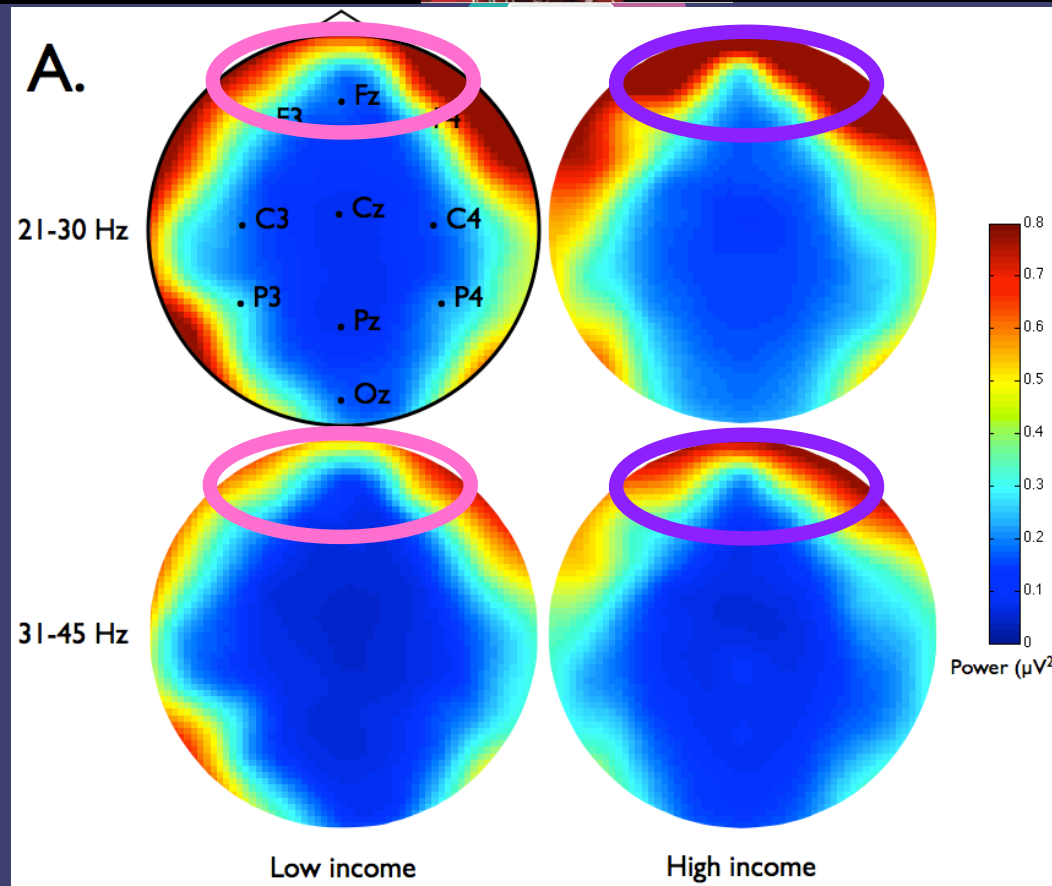
OPEN ACCESS

Combining Recurrence Analysis and Automatic Movement Extraction from Video Recordings to Study Behavioral Coupling in Face-to-Face Parent-Child Interactions

David López Pérez^{1*}, Giuseppe Leonardi^{2,3}, Alicja Niedźwiecka¹, Alicja Radkowska¹,
Joanna Rączaszek-Leonardi⁴ and Przemysław Tomalski^{1*}



Interakcje matka-dziecko (predyktor
◀ rozwoju neuropoznawczego ▶



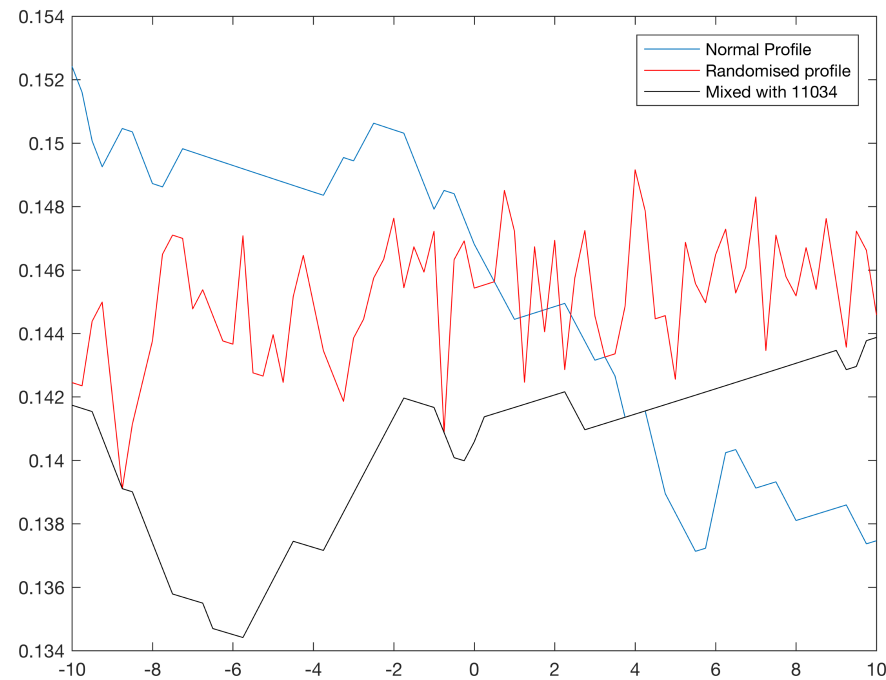
analizy resting EEG



fNIRS

nowy projekt NCN: specjalizacja
korowa na mowę V i AV u
niemowląt w 5 i 9 mies.





David Lopez

Dynamiczne analizy ruchu, interakcji





ostatnie projekty

01

Audiovisual speech processing

Nowy projekt NCN z użyciem ET, EEG i fNIRS (niemowlęta 5 i 10 mies.)

02

Dynamiczne miary interakcji społecznych i skanowania wzrokowego - David Lopez

05

Rozwój niemowląt z rodzinnym ryzykiem autyzmu

03

Jak niemowlęta używają swojego ciała do kontrolowania uwagi?

04

Czułość i uwaga wzrokowa

Żreniczne miary sieci uwagowych w ET (analiza PCA źrenicy, zadania uwagowe w ET), zachowania uwagowe w interakcjach

