**Psychology Cognitive, Developmental, and Brain Sciences Graduate Program: Advisory Committee Meeting Report**

**Student: Please print this form, prefill all information on first page as far as possible, and bring it to the meeting, along with a copy of the report from last meeting (except 1st).**

Name: Avital Sternin Supervisor:Dr. Jessica Grahn & Dr. Adrian Owen

Student number: 250798997

Program and Year: Psychology (BCN/CDBS) PhD1

Advisory Committee Members: Dr. Stefan Kohler & Dr. John Paul Minda

**Accomplishments since May 1, 2016 (or September 1 for MA1, PhD1)**

1. Courses taken and marks obtained

PSYCHOL 9223 – Neuroimaging of cognition – 86%

PSYCHOL 9343 – Mathematical Modeling of Group and Individual Differences – 88%

1. Teaching assistantships

PSYCHOL 3230 – Neuroscience of Music (10hr, fall term)

1. Comprehensives (PhD students only)

Completed – June 2017

1. External scholarships

OGS – Sept 2016-Aug 2017 ($15 000)

PGSD – Sept 2017-Aug 2020 ($63 000)

1. Publications (include submission and acceptance dates for articles that are not yet published)

Segalowitz, S.J., **Sternin, A.**, Lewis, T.L., Dywan, J. & Maurer, D. Electrophysiological evidence of altered visual processing in adults who experienced visual deprivation during infancy. Dev Psychobiol. 2017; 59:375–389. <https://doi.org/10.1002/dev.21502>

McGarry, L.**, Sternin, A.**, Grahn, J.A. (Submitted June 10, 2017). Music and Movement. In Rentfrow, P.J. & Levitin, D.J. (Eds.), Foundations in music psychology: Theory and research.

Stober, S. & **Sternin, A**. (Submission July 14, 2017). Decoding music perception and imagination using deep learning techniques. In Tanaka, T. & Arvaneh, M. (Eds.), Signal processing and machine learning for Brain-Machine Interfaces.

1. Conference presentations

Poster: Identifying characteristics of perception and imagination of rhythms and speech in an EEG signal. Sternin, A., Stober, S., Owen, A.M. & Grahn, J.A. Neuroscience and Music VI: Music, Sound and Health. Boston, MA. June 2017

1. Workshops attended

Visceral Mind – Neuroanatomy Workshop – September 2016 – Bangor, Wales

1. Other relevant activities

May 2016: MSc Defense

Sept 2016 – April 2017: Supervised undergraduate honours thesis

Steering Committee Graduate representative

Move Team Graduate representative

Inspiring Young Women in STEM (March 2018) – conference organizer

**Research Progress**

Describe the progress that you have made on your thesis research since May 1, 2016 (or September 1 for MA1, PhD1) in 250-500 words.

* During the fall term I supervised an honours thesis student who ran a behavioural study that investigated how background music affects performance on a number of cognitive tasks (using CBS). The initial plan was to use EEG to determine whether the degree to which a participant’s neural oscillations entrain to background music is related to how well or how poorly they perform on a cognitive task. The behavioural study was the first step. By the end of the study we had 40 participants perform 6 different CBS tasks under 4 conditions (silence, music with lyrics, music without lyrics, scrambled music). There were no significant effects of background music on cognitive task performance. As of right now, there is no plan to move forward with this project.
* Postdoc Dr. Lucy McGarry started the lab’s music and memory project more than a year ago. I have been keeping the project active in her absence and plan to make this the focus of my thesis work. I finalized the questionnaires and behavioural measures that will be used during this experiment. I created and piloted hundreds of modified lyrics to determine which sets could be used during a lyric memory behavioural task as a measure of lyric memory. I also created an old vs new melody recognition task to be used as a measure of melodic memory. Working with two work-study students in the lab we finished an online music player that will be used during the experiment to track the number of times a participant listens to the songs. I have set things up at Robarts to begin scanning on this project this week.

Briefly describe other (non-thesis) research projects that you have been involved in during the past year.

* As a follow-up experiment to my MSc project I collected data on a task where participants were asked to listen to and imagine rhythms presented as a series of tones or rhythmic speech phrases. Data collection was put on hold due to equipment issues, but since those have resolved I have collected 4 full datasets and have plans to collect at least another 4 more. Analysis of the EEG data is ongoing. I presented some of this data at Neuromusic in Boston (June 2017), and plan to continue trying new analyses. This data is also being analyzed using machine learning techniques by Dr. Sebastian Stober.

**Thesis Research Goals for the Upcoming Year**

What are your goals for your thesis research this summer?

* I will begin data collection on the music and memory project. I plan to have a full pilot subject collected by mid July and hope to have a few more subjects before the end of the summer.
* I will also start learning how to analyze the fMRI data

What are your goals for your thesis research for the remainder of the year (omit if MA2)?

* Finish data collection on the music and memory project and analyze the data.
* I am planning to collaborate with Dominique Vuvan (Skidmore College) on the music and memory project. Her lab has developed a questionnaire that distinguishes people who pay attention to lyrics from those who pay attention to the melody when they listen to a piece of music. I am interested in how this relates to how participants remember songs, and she is interested in how neural correlates of music perception may differ based on what a person prefers to pay attention to. Throughout the next year I hope to continue this collaboration.

Potential Courses:

9560A – Open Science and Reproducible Science – fall

9569B – Clinical Neuroanatomy – winter

**Progress:** satisfactory unsatisfactory n/a (1st meeting)

**Signatures:**

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Student Supervisor Supervisor

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