DAVID ST-AMAND

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EDUCATION

Ph.D. : Neurobiology, **Expected in 09/2027**
Duke University - Durham, NC

Master of Science : Neuroscience, **02/2021**
McGill University - Montreal, QC

Bachelor of Science : Psychology - Honors, **06/2017**
McGill University - Montreal, QC

RESEARCH EXPERIENCE

NEUROSCIENCE RESEARCHER (MSC) 09/2017 to 09/2020
Baker Lab (McGill University)

- Visual neuroscience
- MSc full-time research
- Performed electrophysiology experiments in primary visual cortex
- Analysed V1 data using machine learning in Tensorflow
- Found stronger transient responses and weaker inhibition to dark than light stimuli
- Developed programming expertise in both Python and Matlab
- Paper is in its final revision before submission

DATA ANALYST 01/2019 to 10/2021
McGill University

- Psychophysics
- Texture regularity
- Second-author publication in PLOS Computational Biology
- Contributed statistical expertise and data analysis skills
- Implemented advanced statistical analysis (Maximum Likelihood Conjoint Measurement or MLCM) to analyze experimental data
- Developed extension to MLCM to analyze three variables simultaneously

UNDERGRADUATE STUDENT RESEARCHER 09/2016 to 01/2018
Otto Lab, McGill University

- Decision-making & memory
- First-author paper published in Journal of Cognitive Neuroscience
- Discovered strong relationship between episodic memory and risky decision-making
- Analyzed data using advanced statistical and machine learning approaches such as Generalized linear mixed models (GLMM) and reinforcement learning models

RESEARCH ASSISTANT 03/2017 to 08/2021
Motor Neuroscience lab (McGill University)

- Motor neuroscience
- Somatosensory working memory
- Performed both data collection and data analysis in over 30 participants
- Improved experimental design by regular discussions with peers

RESEARCH ASSISTANT 05/2016 to 09/2016
Motor neuroscience lab (McGill University)

- Motor neuroscience
- Sensorimotor map acquisition
- Performed data collection on over 50 participants for two hours long experiment
- Programming (Linux & R)

UNDERGRADUATE STUDENT RESEARCHER 09/2015 to 04/2016
McGIll laboratory of Affiliation and Prosociality

- Stress and empathy
- Performed data collection on large number of participants
- Reviewed literature and wrote undergraduate thesis

PUBLICATIONS

- St-Amand, D., Sheldon, S., & Otto, A. R. (2018). Modulating episodic memory alters risk preference during decision-making. *Journal of Cognitive Neuroscience*, *30*(10), 1433-1441.
- Sun H-C, St-Amand D, Baker CL Jr, Kingdom FAA (2021) Visual perception of texture regularity: Conjoint measurements and a wavelet response-distribution model. PLoS Comput Biol 17(10): e1008802. https://doi.org/10.1371/journal.pcbi.1008802
- St-Amand, D., & Baker, C. L. (2023). Model-based approach shows ON pathway afferents elicit a transient decrease of V1 responses. *Journal of Neuroscience*, *43*(11), 1920-1932.

TEACHING EXPERIENCE

STATISTICS TUTOR 09/2016 to 04/2018McGill , Montreal
- Tutored undergraduate McGill students 1-on-1
- Taught statistical methods such as t-tests, linear regression and multivariate ANOVA
- Guided students to become able to solve statistical problems on their own

GRANTS & FELLOWSHIPS

- **IPN Internal Student Award**, McGill University (2018). Integration of ON- and OFF-pathway inputs to visual cortex neurons: A machine learning approach
- **Science Undergraduate Research Award**, Rubin Gruber (2017). Somatosensory working memory in human reinforcement-based motor learning

SKILLS

Advanced Statistics
Machine learning
Programming (Python & R)

Electrophysiology
Experimental designs
Curious and eager to learn

PRESENTATIONS

- On-afferent inhibition underlies stronger V1 responses to dark. Poster presented at the Society for Neuroscience in October 2019. Chicago, Illinois, USA.
- System identification of single primary visual cortex neurons using machine learning. Oral presentation at McGill's Biological & Biomedical Engineering Student Society Symposium in May 2019. Montreal, QC, Canada.