

# Roberto Adamo Gulli, PhD

Email: [r.gulli@columbia.edu](mailto:r.gulli@columbia.edu)  
Web: [robertogulli.com](http://robertogulli.com)  
Google Scholar: [Roberto A. Gulli](https://scholar.google.com/citations?user=Roberto A. Gulli)  
Github: [github.com/rgulli](https://github.com/rgulli)  
Citizenship: Canadian

## Postdoctoral Researcher

Columbia University  
Project title: The neurobiology of abstraction in virtually navigating primates  
Advisors: Dr. C Daniel Salzman, Dr. Stefano Fusi

New York City, USA  
2019-present

## Doctor of Philosophy

McGill University  
Thesis title: Hippocampal function in non-human primates  
Advisor: Dr. Julio C. Martinez-Trujillo

Montréal, Canada  
2011-2018

## Visiting Graduate Student

University of Western Ontario

London, Canada  
2015-2018

## Master of Science

University of Guelph  
Thesis title: Exercise-induced recovery of skeletal muscle insulin response is independent of adiponectin response in high-fat fed rodents.  
Advisor: Dr. David J. Dyck

Guelph, Canada  
2009-2011

## Bachelor of Science, Honours

University of Guelph  
Human Kinetics

Guelph, Canada  
2005-2009

## PUBLICATIONS

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- 1) Tremblay S, ..., **Gulli RA**, ..., Shenoy KV, DiCarlo JJ, Platt ML. **An open resource for non-human primate optogenetics.** *Neuron*. 2020 Dec 23;108(6):1075-90. [DOI: 10.1016/j.neuron.2020.09.027](https://doi.org/10.1016/j.neuron.2020.09.027)
- 2) Hopper LM, **Gulli RA**, Howard LH, Kano F, Krupenye C, Ryan AM, Paukner A. **The application of noninvasive, restraint-free eye-tracking methods for use with nonhuman primates.** *Behavior Research Methods*. 2020 Sep 15:1-28. [DOI: 10.3758/s13428-020-01465-6](https://doi.org/10.3758/s13428-020-01465-6)
- 3) Roussy M, Luna R, Duong L, Corrigan B, **Gulli RA**, Nogueira R, Moreno-Bote R, Sachs AJ, Palaniyappan L, Martinez-Trujillo JC. **Naturalistic coding of working memory in primate prefrontal cortex.** *bioRxiv*. 2020. [DOI: 10.1101/2020.06.19.162446](https://doi.org/10.1101/2020.06.19.162446)  
(Currently under review at *Molecular Psychiatry*)
- 4) **Gulli RA**, Duong LR, Corrigan BW, Doucet G, Williams S, Fusi S, Martinez-Trujillo JC. **Context-dependent representations of objects and space in the primate hippocampus during virtual navigation.** *Nature Neuroscience* 2020. 23(1):103-12. [DOI: 10.1038/s41593-019-0548-3](https://doi.org/10.1038/s41593-019-0548-3)
- 5) Doucet G, **Gulli RA**, Corrigan BW, Duong LR & Martinez-Trujillo JC. **Modulation of local field potentials and neuronal activity in primate hippocampus during saccades.** *Hippocampus* 2020. 30(3):192-209. [DOI: 10.1002/hipo.23140](https://doi.org/10.1002/hipo.23140)

- 6) **Gulli RA**. Beyond metaphors and semantics: A framework for causal inference in neuroscience. *Behavioral and Brain Sciences* 2019. 42. [DOI: 10.1017/S0140525X19001389](https://doi.org/10.1017/S0140525X19001389)
- 7) Martinez-Trujillo JC & **Gulli, RA**. Dissecting Modulatory Effects of Visual Attention in Primate Lateral Prefrontal Cortex Using Signal Detection Theory. *Neuron* 2018. 97, 1208–1210. [DOI: 10.1016/j.neuron.2018.03.012](https://doi.org/10.1016/j.neuron.2018.03.012)
- 8) Blonde J, Roussy M, Luna R, Mahmoudian B, **Gulli RA**, Barker KC, Lau JC & Martinez-Trujillo JC. Customizable cap implants for neurophysiological experimentation. *J. Neurosci. Methods* 2018. 304, 103–117. [DOI: 10.1016/j.jneumeth.2018.04.016](https://doi.org/10.1016/j.jneumeth.2018.04.016)
- 9) Corrigan BW, **Gulli RA**, Doucet G, Martinez-Trujillo JC. Characterizing eye movement behaviors and kinematics of non-human primates during virtual navigation tasks. *Journal of Vision* 2017. 17(12), 15. [DOI: 10.1167/17.12.15](https://doi.org/10.1167/17.12.15)
- 10) Martinez-Trujillo JC, **Gulli RA**, Doucet G, Corrigan BW. Dissociable effects of saccades on hippocampal local field potential power and phase. *Journal of Vision* 2017. 17(10), 1151.
- 11) Corrigan BW, **Gulli RA**, Doucet G, Martinez-Trujillo JC. Target presence affects the eye movement behaviour and kinematics of non-human primates in virtual navigation tasks. *Journal of Vision* 2017. 17(10), 541.
- 12) Doucet G, **Gulli RA**, Martinez-Trujillo JC. Cross-species 3D virtual reality toolbox for visual and cognitive experiments. *Journal of Neuroscience Methods* 2016. (266), 84-93. [DOI: 10.1016/j.jneumeth.2016.03.009](https://doi.org/10.1016/j.jneumeth.2016.03.009)
- 13) Doucet G, Tremblay S, **Gulli RA**, Pieper F, Sachs A, Martinez-Trujillo JC. Single trial decoding of visual attention from local field potentials in the primate lateral prefrontal cortex. *Journal of Vision* 2015. 15(12), 228.
- 14) **Gulli RA**, Tremblay S, Adamantidis AR, Martinez-Trujillo JC. Optogenetic stimulation of the frontal eye field in an awake, behaving monkey. *Journal of Vision* 2013. 13(9), 228.
- 15) **Gulli RA**, Tishinsky JM, MacDonald T, Robinson LE, Wright DC, & Dyck DJ. Exercise restores insulin, but not adiponectin, response in skeletal muscle of high-fat fed rodents. *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 2012. 303(10), R1062-R1070. [DOI: 10.1152/ajpregu.00176.2012](https://doi.org/10.1152/ajpregu.00176.2012)
- 16) Tishinsky JM, **Gulli RA**, Mullen KL, Dyck DJ, & Robinson LE. Fish oil prevents high saturated fat diet-induced impairments in adiponectin and insulin response in rodent soleus muscle. *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 2012. 302, R598-R605. [DOI: 10.1152/ajpregu.00328.2011](https://doi.org/10.1152/ajpregu.00328.2011)
- 17) Stefanyk LE, **Gulli RA**, Ritchie IRW, Chabowski A, Snook LA, Bonen A, & Dyck DJ. Recovered insulin response by 2 weeks of leptin administration in high-fat fed rats is associated with restored AS160 activation and decreased reactive lipids. *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 2011. 301, R159–R171. [DOI: 10.1152/ajpregu.00636.2010](https://doi.org/10.1152/ajpregu.00636.2010)
- 18) Ritchie IRW, **Gulli RA**, Stefanyk LE, Harasim E, Chabowski A, & Dyck DJ. Restoration of skeletal muscle leptin response does not precede the exercise-induced recovery of insulin-stimulated glucose uptake in high-fat-fed rats. *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 2011. 300, R492–R500. [DOI: 10.1152/ajpregu.00602.2010](https://doi.org/10.1152/ajpregu.00602.2010)

- 19) Thrush AB, Harasim E, Chabowski A, **Gulli RA**, Stefanyk LE, & Dyck DJ. **A Single Prior Bout of Exercise Protects Against Palmitate-Induced Insulin Resistance Despite an Increase in Total Ceramide Content.** *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 2011. 300, R1200–R1208. [DOI: 10.1152/ajpregu.00091.2010](https://doi.org/10.1152/ajpregu.00091.2010)
- 20) Cresser J, Bonen A, Chabowski A, Stefanyk LE, **Gulli R**, Ritchie I, & Dyck DJ. **Oral administration of a PPAR-delta agonist to rodents worsens, not improves, maximal insulin-stimulated glucose transport in skeletal muscle of different fibers.** *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 2010. 299, R470–R479. [DOI: 10.1152/ajpregu.00431.2009](https://doi.org/10.1152/ajpregu.00431.2009)

## INVITED TALKS

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- Magnetic Resonance Imaging Core Meeting** New York City, USA  
 Columbia University February 2020  
 High fidelity reconstruction of skull morphology using an Ultrafast TE sequence
- Columbia University Hippocampus Club** New York City, USA  
 Columbia University June 2019  
 Objects, context, memory & space: Neuronal representations in the hippocampus of virtually navigating primates
- Society for Neuroscience Annual Meeting** San Diego, USA  
 Single-neuron and population encoding of objects and space in the hippocampus and PFC during virtual navigation Nov 2018
- Special Seminar** La Jolla, USA  
 Salk Institute Jan 2018  
 Understanding hippocampal function in non-human primates
- Special Seminar** New York City, USA  
 Columbia University Dec 2017  
 Understanding hippocampal function in non-human primates
- Robarts Research Institute Data Club** London, Canada  
 University of Western Ontario Jan 2017  
 Signatures of the cognitive map in the hippocampus in virtually navigating monkeys
- Center for Visual Science Symposium: The Future of Attention** Rochester, USA  
 University of Rochester May 2016  
 Exploring the cognitive map: Hippocampal activity in virtually-navigating non-human primates
- Canadian Association for Neuroscience Satellite Symposium** Toronto, Canada  
 Place coding in the primate hippocampus is task-dependent during virtual navigation May 2016
- Brain and Mind Institute Annual Symposium** London, Canada  
 University of Western Ontario June 2015  
 Contextual learning in the monkey hippocampus during virtual navigation: From behaviour to single units
- Western University Systems Neuroscience Symposium** London, Canada  
 University of Western Ontario November 2014  
 Hippocampal codes for associative memory and navigation through virtual environments in rhesus monkeys

**Montreal Optogenetics Club**

McGill University  
Excitatory optogenetics in non-human primates

*Montréal, Canada**November 2013***GSAN Student Experimental Research Forum**

McGill University  
Optogenetics

*Montréal, Canada**October 2013***Montreal Optogenetics Club**

McGill University  
Optogenetics in the non-human primate: Methods and advancements in targeting cortical and non-cortical structures

*Montréal, Canada**July 2012**Guelph, Canada***Graduate Student Symposium**

University of Guelph  
Restoration of adiponectin response is not necessary for the exercise-induced recovery of insulin response

*May 2010***HONORS & AWARDS**

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Graduate Excellence Award	<i>August 2017</i>
Graduate Mobility Award	<i>July 2017</i>
CCN Summer School tuition, board, & lodging	<i>April 2017</i>
GREAT Travel Award	<i>October 2014</i>
David G. Guthrie Fellowship	<i>September 2014</i>
NSERC Doctoral Post-Graduate Scholarship	<i>May 2011</i>
Ontario Graduate Scholarship	<i>Declined; May 2011</i>
Sun Life Financial HH&NS Research Scholarship	<i>August 2010</i>
Ontario Graduate Scholarships in Science & Technology	<i>January 2010</i>
NSERC Undergraduate Student Research Assistantship	<i>May 2009</i>
Undergraduate Research Award	<i>May 2008</i>

**ACADEMIC APPOINTMENTS**

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**Visiting Graduate Student**

University of Western Ontario

*London, Canada**May 2015-Oct 2018***Research Assistant**

University of Guelph  
Supervisor: Dr. David Wright

*Guelph, Canada**Sept 2010-Apr 2011***Research Assistant**

University of Guelph  
Supervisor: Dr. Allison Duncan

*Guelph, Canada**May 2010-Sept 2011***Research Assistant**

University of Guelph  
Supervisor: Dr. David J. Dyck

*Guelph, Canada**May 2009-Sept 2009***Research Assistant**

University of Guelph  
Supervisor: Dr. David J. Dyck

*Guelph, Canada**Sept 2008-May 2009*

**Research Assistant**  
University of Guelph  
Supervisor: Dr. Lawrence Spriet

Guelph, Canada  
May 2008-Sept 2009

## TEACHING

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<b>Justice Through Code</b> Columbia University 42 students	New York City, USA Spring 2021
<b>Justice Through Code</b> Columbia University 25 students	New York City, USA Fall 2020
<b>PHIL3993, The Ethics of Science</b> University of Western Ontario 40 students	London, Canada October 2016
<b>PHYS*4680, Cellular/Molecular Neurobiology</b> University of Western Ontario 50 students	London, Canada October 2016
<b>PGHY*213, Introductory Physiology</b> McGill University 255 students	Montréal, Canada Winter 2014
<b>HK*4600, Applied Human Biology II</b> University of Guelph 118 students	Guelph, Canada Winter 2010
<b>NUTR*4210, Nutrition, Exercise and Energy Metabolism</b> University of Guelph 278 students	Guelph, Canada Fall 2010
<b>KIN*2070, Biochemistry II</b> University of Guelph-Humber 38 students Evaluation Score: 4.97/5.00	Toronto, Canada Fall 2010
<b>KIN*2070, Biochemistry II</b> University of Guelph-Humber 35 students Evaluation Score: 4.88/5.00	Toronto, Canada Fall 2009

## SERVICE

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<b>Zuckerman Institute Postdoctoral Seminar Series</b> Columbia University	New York City, USA May 2020-present
<b>Western University Systems Neuroscience Symposium</b> University of Western Ontario	London, Canada Nov 2014
<b>McGill Brain Oscillations Club</b> McGill University	Montréal, Canada May 2013-Apr 2014

**McGill University Research Advisory Council**  
McGill University

*Montréal, Canada*  
*Sept 2011-Sept 2013*

**Board of Directors**  
University of Guelph, Graduate Student Association

*Guelph, Canada*  
*Sept 2009-May 2011*

**Constitution and By-laws Committee**  
University of Guelph, Graduate Student Association

*Guelph, Canada*  
*Sept 2009-May 2011*

**Canadian Federation of Students' Advisory Committee**  
University of Guelph, Graduate Student Association

*Guelph, Canada*  
*Sept 2009-May 2011*