Luis M. Colon-Perez

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Education

University of Puerto Rico (UPR-RP), Rio Piedras PR
August 2003- July 2007, Physics, BS

- Magna Cum Laude Honors

University of Florida (UF), Gainesville FL
August 2008 - July 2013, Physics, PhD

Experience

University of Florida | Department of Psychiatry | Gainesville, FL

June 2013 – Present Post Doctoral Fellow

- Perform and optimize fMRI and diffusion MRI experiments on rodents in 11.1 T and 4.7 T magnets.
- Perform and optimize MRI sequences for ex vivo studies in 17.6 T magnet
- In charge of analysis of fMRI data and diffusion MRI data.
- Currently mentoring UF undergraduate students: Kristin Torroella (sophomore Psychology), Mallory Suarez (sophomore Biology), Kelly Acuna (sophomore Biology), and Isabel Mor (junior Health Sciences).
- Past summer students: Khalil Thomson (Xavier University), Bruno Souza (Brazil), Verda Agan (University of North Carolina at Chapel Hill), John Chan (University of Texas at Dallas), and Harvery Liu (University of North Carolina at Chapel Hill)

University of Florida | Department of Biochemistry and Molecular Biology

June 2009 – July 2015 Research Assistant

- Optimize and acquire diffusion MRI experiments on a 3T human clinical magnet for human studies.
- In charge of post-processing analysis of diffusion MRI images using tractography.
- Complex networks analysis of brain networks (i.e. connectome studies).
- Mentored undergraduate students (Current position): Caitlin Spindler (DVM, UF Veterinary School class 2016), Shelby Goicochea (MD2 at UF Medical School), Rosemary Klassen (MD3 at UF Medical School), Angelique Boutzoukas (MD4 at UF Medical School), Michelle Couret (MD2 at Columbia Medical School), Margarita Khariton (Bioengineering graduate student at Stanford University).

University of Florida | Department of Physics

May 2011 – July 2011 Research Experience for Undergraduates (REU) grad student assistant

- Participated in the organization of the NSF-sponsored REU program, as the graduate student contact with director Prof. S. Hershfield and assistant Mrs. K. Nichola.

Albert Einstein Institute | Max Planck Institute for Gravitational Physics | Hannover, Germany

May 2007 – July 2007 Research Assistant

- National Science Foundation Research Experience for Undergraduates (NSF-REU) participant.
- Developed hardware/software injection pipeline for GEO600.

University of Florida | Department of Physics

May 2006 – July 2006 Research Assistant

- National Science Foundation Research Experience for Undergraduates (NSF-REU) participant.

- Developed simulations, for the Laser Interferometer Space Antenna project, in order to study stabilization techniques of the laser interferometer

Teaching

University of Florida | Department of Physics
August 2010– May 2011 Teaching Assistant

- Prepared and lectured discussion sections for PHY 2053 and PHY 2054 (general Physics courses)

Publications

- Powell, M. H., Nguyen, H. V., Gilbert, M., Parekh, M., **Colon-Perez, L**. M., Mareci, T. H., & Montie, E. (2012). Magnetic resonance imaging and volumetric analysis: Novel tools to study the effects of thyroid hormone disruption on white matter development. *Neurotoxicology*. 33(5):1322-1329
- Ford, A., **Colon-Perez, L**, Triplett, W., Gullett, J., Mareci, TH. & FitzGerald. D (2013) Imaging white matter in human brainstem. *Frontiers in Human Neuroscience*. 7:400
- Magin, RL, Ingo, C., **Colon-Perez, L**, Triplett, W., & Mareci, TH. (2013) Characterization of anomalous diffusion in porous biological tissues using fractional order derivatives and entropy. *Microp Mesos Mat.* Sep. 15:178:38-43
- Ingo, C., Magin, RL, **Colon-Perez, L**, Triplett, W., & Mareci, TH. (2014) On random walks and entropy in diffusion weighted magnetic resonance imaging studies of neural tissue. *Magn Reson Med.* 71(2):617-627
- Magin, RL, Ingo, C., Triplett, W., **Colon-Perez, L**, & Mareci, TH. (2014) Classification of fractional order biomarkers for anomalous diffusion using q space entropy. *Critical Review in Biomedical Engineering.* 42(1):63-83
- **Colon-Perez, L**., Spindler, C., Goicochea, S., Triplett, W., Parekh, M., Montie, E., Carney, P., Price, C., and Mareci, T.H. (2015) Dimensionless, Scale Invariant, Edge Weight Metric for the Study of Complex Structural Networks. *PlosONE.* 10(7): e0131493
- **Colon-Perez, L**., King, M., Parekh, M., Boutzoukas, A., Carmona, E., Couret, M., Klassen, R., Mareci, T.H and Carney, P. (2015) High-field magnetic resonance imaging of the human temporal lobe. *Neuroimage: Clinical*. 9:58-68
- Kuhn, T., Gullet, J.M., Nguyen, P., Boutzoukas, A., Ford, A., **Colon-Perez, L.,** Triplett, W., Carney, P.R., Mareci, T.H., Price, C.C., Bauer, R. (2016) Test-Retest Reliability of High Angular Resolution Diffusion Imaging Acquisition Assessed via Tract Based Spatial Statistics, Probabilistic Tractography and a Novel Graph Theory Metric. *Brain Imaging and Behavior.* Epub ahead of print. doi:10.1007/s11682-015-9425-1
- **Colon-Perez, L**., Triplett, W., Ford, A., Corti, M., Nguyen, P., Patten, C., Mareci, T.H., Price, C.C. (2016) A majority rule approach for segmenting the corticospinal tract from High Angular Resolution Diffusion Imaging (HARDI). *Brain Imaging and Behavior.* doi:10.1007/s11682-015-9474-5
- Thinschmidt, J., **Colon-Perez, L.**, Febo, M., Caballero, S., King, M., White, F.A., Grant, M.A. (2016) Depressed basal hypothalamic neuronal activity in type-1 diabetic mice is correlated with proinflammatory secretion of HMBG1. *Neuroscience Letters*. doi:10.1016/j.neulet.2016.01.014
- **Colon-Perez, L.**, Couret, M., Triplett, W., and Mareci, T.H. (2016) Small Worldness in Dense and Weighted Connectomes. *Frontiers in Physics* doi:10.3389/fphy.2016.00014
- Liang, Y., Ye, A., Chen, W., Gatto, R., **Colon-Perez, L.**, Mareci, T.H, and Magin, R. (2016) A Fractal Derivative Model for the Characterization of Anomalous Diffusion in Magnetic Resonance Imaging. *Communications in Nonlinear Science and Numerical Simulation*. doi: 10.1016/j.cnsns.2016.04.006
- **Colon-Perez, L.**, Tran, K., Thompson, K., Pace, M., Korah, M., Setlow, B., Brujinzeel, A., Blum, K., Goldberger, B., Gold, M., Febo, M. (2016) The Psychoactive Designer Drug of Bath Salts Constituent MDPV Causes Widespread Disruption of Brain Functional Connectivity. *Neuropsychopharmacology*. doi: 10.1038/npp.2016.40
- DeSimone, J.C., Febo, M., Shukla, P., Ofori, E., **Colon-Perez, L.**, Li, Y., Vaillancourt, D.E. (2016) In vivo imaging reveals impaired connectivity across cortical and subcortical networks in a mouse model of DYT1 dystonia. *Neurobiology of Disease.* 9;95:35-45. doi: 10.1016/j.nbd.2016.07.005.

- Febo, M., Blum, K., Badgaiyan, R.D., Baron, D., Thanos, P.K., **Colon-Perez, L.**, Demortrovics, Z., Gold, M.S. (2017) Dopamine homeostasis: brain functional connectivity in reward deficiency syndrome. *Front Biosci* (Landmark Ed). 2017 Jan 1;22:669-691. doi: 10.2741/4509
- Middlebrooks, E.H., Quisling, R., King, M.A., Carney, P.R., Roper, S., **Colon-Perez, L.**, Mareci, TH. (2017). The hippocampus: detailed assessment of normative two-dimensional measurements, signal intensity, and subfield conspicuity on routine 3T T2-weighted sequences. *Surgical and Radiological Anatomy*. doi: 10.1007/s00276-017-1843-x.
- Salazar TE, Richardson MR, Beli E, Ripsch MS, George J, Kim Y, Duan Y, Moldovan L, Yan Y, Bhatwadekar A, Jadhav V, Smith JA, McGorray S, Bertone AL, Traktuev DO, March KL, **Colon-Perez L.**, Avin K, Sims E, Mund JA, Case J, Deng S, Kim MS, McDavitt B, Boulton ME, Thinschmidt J, Li Calzi S, Fitz SD, Fuchs RK, Warden SJ, McKinley T, Shekhar A, Febo M, Johnson PL, Chang LJ, Gao Z, Kolonin MG, Lai S, Ma J, Dong X, White FA, Xie H, Yoder MC, Grant MB. (2017) Electroacupuncture Promotes CNS-Dependent Release of Mesenchymal Stem Cells. *Stem Cells*. doi: 10.1002/stem.2613. PubMed PMID: 28299842
- Febo, M., Blum, K., Badgaiyan, Perez, P.D., **Colon-Perez, L.**, R.D., Thanos, P.K., Ferris, C., Kulkarni, P, Giordano, J, Baron, D., Gold, M.S. (2017) Enhanced functional connectivity and volume between cognitive and rewards centers of naïve rodent brain produced by pro-dopaminergic agent KB220Z. *PlosOne* 12(4):e0174774. doi: 10.1371/journal.pone.0174774
- Aydemir, T., Kim, M.H., Kim, J., **Colon-Perez, L.**, Banan, G., Mareci, T.H., Febo, M., Cousins, R.J. (2017) Metal transporter ZIP14 (SLC39A14) deletion in mice increases manganese deposition and produces neurotoxic signatures and diminish motor activity. *Journal of Neuroscience.* 10.1523/JNEUROSCI.0285-17.2017.
- DeSimmone, J., Pappas, S., Febo, M., Burciu, R., Shukla, P., **Colon-Perez, L.**, Dauer, W., Vaillancourt, D. (2017) Forebrain knock-out torsinA reduces striatal free-water and impairs whole-brain functional connectivity in a symptomatic mouse model of DYT1 dystonia. *Neurobiology of Disease.* 106:124-132. doi: 10.1016/j.nbd.2017.06.015.
- Thompson, M., Poirier, G., Davila-Garcia, M., Huang, W., Tam, K., Robidoux, M., Dubuke, M., Shaffer, S., **Colon-Perez, L.**, Febo, M., DiFranza, J., King, J. (2017) Menthol enhances nitcotine-indiced locomotor sensitization and in-vivo functional connectivity in adolescence. *Journ. of Psychopharmacology.* 269881117719265. doi: 10.1177/0269881117719265
- Zubcevic, J., Santisteban, M., Perez, P., Arocha, R., Hiller, H., Malphurs, W., **Colon-Perez, L.**, Sharma, R., deKloet, A., Krause, E., Febo, M., and Raizada, M. (2017) A single angiotensin II hyperintense stimulus is associated with prolonged neuronal and Immune system activation in Wystar-Kyoto Rats. *Frontiers in Physiology*. 2017;8:592 doi:10.3389/fphys.2017.00592.
- **Colon-Perez, L.**, Tanner, J., Couret, M., Goicochea, S., Mareci, T.H., and Price, C.C. (2017) Cognition and connectome in non-dementia idiopathic Parkinson's disease. *Network Neuroscience.* https://doi.org/10.1162/netn_a_00027

Presentations (10 most recent)

- May 2011, **Poster Presentation**, International Society for Magnetic Resonance in Medicine Conference, Montreal, Quebec, Canada
- May 2012, **Oral Presentation**, International Society for Magnetic Resonance in Medicine Conference, Melbourne, Australia
- February 2013, **Poster Presentation**, Biophysical Society 57th Annual Meeting, Philadelphia, PA, USA
- March 2014, **Poster Presentation**, Experimental Nuclear Magnetic Resonance Conference 55th Annual Meeting, Boston, MA, USA
- May 2014, **Two Oral Presentations**, International Society for Magnetic Resonance in Medicine Conference, Milan, Italy
- November 2014, **Poster Presentation**, Society for Neuroscience Annual Meeting, Washington DC, USA
- October 2015, **Poster Presentation**, Society for Neuroscience Annual Meeting, Chicago Il, USA
- May 2016, **Poster & Oral Presentation**, International Society for Magnetic Resonance in Medicine Conference, Singapore

- November 2016, **Poster Presentation**, Society for Neuroscience Annual Meeting, San Diego CA, USA
- March 2017, **Poster Presentation**, Keystone Symposia in Connectomics, San Fe, NM, USA

Invited talks

- June 2014. Neuromedicine Summer Seminar Series. McKnight Brain Institute at the University of Florida, Gainesville, FL.
- November 2014. Human Neuroimaging Lecture Series. Clinical and Translational Research Building at the University of Florida, Gainesville, FL.
- August 2015. Center for Addiction Research and Education Seminar. McKnight Brain Institute at the University of Florida, Gainesville, FL.
- June 2015. Research Experience for Undergraduates Seminar. New Physics Building at the University of Florida, Gainesville, FL.
- July 2016. Research Experience for Undergraduates Seminar. New Physics Building at the University of Florida, Gainesville, FL.
- February 2017. Research Seminar. Department of Bioengineering, University of Illinois at Chicago, Chicago, IL.
- February 2017. Research Seminar. Advanced Imaging Research Center, UT Southwestern Medical Center, Dallas, TX.
- March 2017. Department of Psychiatry Research Grand Rounds. McKnight Brain Institute at the University of Florida, Gainesville, FL.
- April 2017. Research Seminar. Center for Biomedical Imaging at the Medical University of South Carolina, Charleston, SC.
- May 2017. Center for Addiction Research and Education Seminar. McKnight Brain Institute at the University of Florida, Gainesville, FL.
- June 2017. Research Experience for Undergraduates Seminar. New Physics Building at the University of Florida, Gainesville, FL.

Professional Development

- July 2014. NINDS Grant Writing Workshop for Diversity Investigators. Bethesda, MD, USA.
- October 2015. Short course "Optimizing Experimental Design for High Quality Science". Society for Neuroscience. Chicago, IL, USA.
- September 2016. Mentoring Institute for Neuroscience Diversity Scholars Grant writing workshop. Bethesda, MD, USA.
- July 2017. SfN's Preparing the next Generation of Neuroscience Leaders Conference. Washington DC, USA

Awards

- **2003** Member of "El Grupo de los Cien" College of Natural Sciences - UPR-RP
- **2007** Member of "who's who" from the UPR-RP
- **2006-2008** Puerto Rico NASA Space Grant Undergraduate Research Fellow
- **2008-2010** National Science Foundation Bridge to the Doctorate Fellow
- **2011** MRI Achievement Award, Southeastern Magnetic Resonance Conference
- **2011** University of Florida Graduate Student Council Travel Award
- **2011, 2012, 2014** International Society for Magnetic Resonance in Medicine Travel Award
- **2012** International Society for Magnetic Resonance in Medicine Magna Cum Laude Merit Award
- **2013** Biophysical Society Minority Affairs Committee Travel award.
- **2014** Society for Neuroscience, Neuroscience Scholar Associate
- **2015** UF's Center for Addiction Research and Education travel Award
- **2015-2017** McKnight Brain Institute Research Fellow

- **2015-2017** Society for Neuroscience, Neuroscience Scholar Fellow

Memberships

- **2006-2008** Society of Physics Students, UPR-RP Campus
- **2010-Present** International Society of Magnetic Resonance in Medicine
- **2011-Present** American Physical Society
- **2012-Present** Biophysical Society
- **2014-Present** Society for Neuroscience

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