

## EDUCATION

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- **University of California - San Francisco** San Francisco, California  
*Ph.D. in Pharmaceutical Sciences and Pharmacogenomics* Sept. 2015 – July 2020 (*exp*)
- **University of North Carolina - Chapel Hill** Chapel Hill, NC  
*B.A. Mathematics, B.A. Chemistry, GPA 3.53* Sept. 2009 – May 2013

## RESEARCH EXPERIENCE

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- **University of California - San Francisco** San Francisco, CA  
*Ph.D. Candidate - Lupo Lab* April 2017 - Present
  - **Data processing and cleaning:** Designed and implemented automated batch processing and summary statistics retrieval for magnetic resonance imaging (MRI) data, increasing efficiency and reproducibility for UCSF Radiology [some code available on github]
  - **Statistical analyses:** Discovered novel associations among MR imaging parameters derived from image-guided biopsies and tumor pathology using statistics for clustered data using multgee, lmer, ez in R
  - **Machine learning:** Designed and implemented random forest experiments to predict tumor pathology from MR imaging parameters using randomForest and randomForestSRC in R
  - **Current work:** Implementing convolutional neural networks (CNN) to distinguish recurrent high-grade tumors from treatment-induced damage
  - **Selected coursework:** Neuro-Oncology, Advanced Neuroimaging, Intro to Magnetic Resonance Imaging, Computational Pharmacology, Machine Learning (Ng - Stanford), Statistical Learning (Hastie, Tibshirani - Stanford), Deep Learning Part I (Howard - USF)
- **University of North Carolina** Chapel Hill, NC  
*Research Assistant - Bautch lab* Sept. 2011 - Aug. 2013
  - **Data collection:** Cultured, imaged, and manually quantified embryonic mouse stem cell angiogenesis
  - **Data analysis:** Discovered novel associations among endothelial cell morphological parameters and Flt-1 (VEGFR-1) gene (see publications)
- **University of North Carolina** Chapel Hill, NC  
*Research Assistant - McLaughlin Lab* Sept. 2010 - June 2011
  - **Data collection and analysis:** Designed and filmed fluid dynamics experiments for support of the project "Settling dynamics of solid spheres in viscous stratified fluids: the entrainment dominated regime"
- **Columbia University** Lamont-Doherty Earth Observatory, Palisades, NY  
*NSF REU Fellowship - McManus Lab* Summer 2011
  - **Data collection and analysis:** Calculated the CaCO<sub>3</sub> content of ocean floor cores to discover a major oceanic circulation change during a historic global warming period

## SKILLS

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- **Programming languages:** Proficient: R, python, git, Linux environment; Some experience: Matlab, HTML, CSS; Learning: SQL
- **Selected package familiarity:** pandas, numpy, fast.ai, pytorch, scikit-learn, randomForestSRC, randomForest, multgee, lmer
- **Analysis:** Data wrangling, imputation, machine learning, applied statistics, clustered data
- **Image Processing concepts:** Fourier transform, wavelet transform, normalization, SIVIC

## PUBLICATIONS

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- **Nesmith JE, Chappell JC, Cluceru JG, Bautch VL.**: “Blood vessel anastomosis is spatially regulated by flt-1 during angiogenesis”, *Development*. 2017 Mar 1;144(5):889-896.
- **Chappell JC, Cluceru JG, Nesmith JE, Mouillesseaux KP, Bradley VB, Hartland CM, Hashambhoy-Ramsay YL, Walpole J, Peirce SM, Mac Gabhann F, Bautch VL.**: “Flt-1 (VEGFR-1) coordinates discrete stages of blood vessel formation”, *Cardiovasc Res*. 2016 Jul 1;111(1):84-93
- **Walpole J, Chappell JC, Cluceru JG, Mac Gabhann F, Bautch VL, Peirce SM.**: “Agent-based model of angiogenesis simulates capillary sprout initiation in multicellular networks”, *Integr Biol (Camb)*. 2015 Sep;7(9):987-97

## DISTINCTIONS & HONORS

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- **University of San Francisco Deep Learning Diversity Fellowship**: Two thousand five hundred dollar scholarship awarded to exceptional applicants that contribute to the diversity of the field.
- **National Institute of General Medical Sciences Ruth L. Kirschstein National Research Service Award (NRSA) Predoctoral Institutional Research Training Grant (T32)**: Fellows receive 23,844.00 for research-related expenses.
- **Pi Mu Epsilon Math Honors society**: Inducted in 2013
- **Dean's List**: Appeared on 7 out of 8 semesters at UNC-CH
- **Test scores**: MCAT: 36 - 97th percentile; PCAT: 442 - 99th percentile; GRE: 166 - 94th percentile; SAT: 2260 - 99th percentile

## TEACHING EXPERIENCE

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- **Julia Cluceru Tutoring** San Francisco, CA; Stamford, CT; Madrid, Spain; Chapel Hill, NC  
*Test Preparation and Academic Tutor* 2006 - Present
  - **Test Preparation**: MCAT, GRE, SAT, SAT II, ACT, SSAT, ISEE verbal reasoning and mathematics
  - **Mathematics**: Elementary math, algebra, geometry, pre-calculus, calculus, AP statistics, AP Calculus
  - **Science**: Elementary, middle and high-school chemistry, biology, physics. AP and college level organic and inorganic chemistry, general biology.
  - **English as a Second Language**: Middle-school level ESL tutoring
- **Tutor Corps** San Francisco, CA  
*Test Preparation and Academic Tutor* Dec. 2015 - pres.
- **UCSF School of Pharmacy** San Francisco, CA  
*TA - Drugs of the Central Nervous System* Spring 2016
- **Greenwich Education Group** Greenwich, CT  
*Test Preparation and Academic Tutor* Aug. 2014 - Sept. 2015

## PRESENTATIONS & POSTERS

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- **The association of MR imaging parameters with pathology of recurrent high grade glioma and treatment-induced effects**: Society for Neuro-Oncology, New Orleans, LA, USA, Nov. 2018 Link to: SNO Poster 2018
- **Combining anatomic, metabolic and physiologic MR imaging parameters to distinguish between recurrent high-grade glioma and treatment-induced effects**: International Society for Magnetic Resonance Imaging (ISMRM), Paris, June 2018
- **Hidden secrets of bulk tissue: Understanding glioma through meta-analysis of transcriptional data**: Quantitative Biosciences Consortium Retreat Poster Session, Nov. 2016
- **Piecing Together Ocean Circulation Changes: How the North Atlantic Circulation Changed from MIS 6 to MIS 5e. NSF REU Poster Session**: Columbia University Lamont Doherty Earth Observatory, Aug. 2011