Stephanie M Noble

POSTDOCTORAL ASSOCIATE · COMPUTATIONAL NEUROSCIENCE

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Education

Postdoctoral Associate, Yale University

New Haven CT

RADIOLOGY & BIOMEDICAL IMAGING

Aug. 2019 - Present

- Advisor: Dustin Scheinost

PhD, Yale University

New Haven CT

INTERDEPARTMENTAL NEUROSCIENCE PROGRAM (INP)

Sept. 2014 – May 2019

- Dissertation: Reliability & Validity of fMRI Mapping Methods
- Advisor: R. Todd Constable
- Qualified for Candidacy with Distinction

BSE, Princeton University

Princeton NJ

CHEMICAL & BIOLOGICAL ENGINEERING: BIOTECHNOLOGY & BIOINFORMATICS TRACK

Sept. 2008 – May 2012

- Honors Certificate: Neuroscience: Quantitative & Computational Neuroscience
- Certificate: Engineering Biology

Experience

Source Signal Imaging

San Diego CA

INDEPENDENT CONSULTANT

Oct. 2013 – Aug 2014

- Research and prototyping for various projects

goBlue Labs

New Haven CT

FOUNDING CHIEF SCIENCE OFFICER (CSO)

2012 – 2013

- Real-time EEG source estimation and neurofeedback software

Princeton University

Princeton NJ

SENIOR THESIS

2012 – 2013

- Advisor: Clarence E. Schutt
- Thesis: Muscle Contraction as a Markov Process

JUNIOR INDEPENDENT WORK

2011 – 2012

- Advisor: Clarence E. Schutt
- Topic: "A Search for Novel Interactions: h-Actin and Tropomyosin"

PRINCETON SIEBEL ENERGY GRAND CHALLENGES SUMMER FELLOWSHIP

2010 – 2011

- Advisor: Jay B. Benziger
- Topic: "Hydrogen Purification by Electrochemical Pumping" with Prof. Jay B Benziger

Publications

Journal Articles

1. Greene, A.S., Gao, S., Noble, S., Scheinost, D., Constable, R.T., 2020. How Tasks Change Whole-Brain Functional Organization to Reveal Brain-Phenotype Relationships. Cell Reports 32, 108066.
2. Noble, S., Scheinost, D., & Constable, R. T., 2020. Cluster failure or power failure? Evaluating sensitivity in cluster-level inference. NeuroImage 209, 116468.
3. Noble, S., Scheinost, D., Constable, R.T., 2019. A decade of test-retest reliability of functional connectivity: A systematic review and meta-analysis. Neuroimage 203, 116157.
4. Yoo, K., Rosenberg, M.D., Noble, S., Scheinost, D., Constable, R.T., Chun, M.M., 2019. Multivariate approaches improve the reliability and validity of functional connectivity and prediction of individual behaviors. Neuroimage 197, 212-223.
5. Scheinost, D., Noble, S., Horien, C., Greene, A.S., Lake, E.M., Salehi, M., Gao, S., Shen, X., O'Connor, D., Barron, D.S., Yip SW., Rosenberg, M.D., Constable, R.T., 2019. Ten simple rules for predictive modeling of individual differences in neuroimaging. Neuroimage.
6. Lake, E.M., Finn, E.S., Noble, S.M., Vanderwal, T., Shen, X., Rosenberg, M.D., Spann, M.N., Chun, M.M., Scheinost, D., Constable, R.T., 2019. The Functional Brain Organization of an Individual Allows Prediction of Measures of Social Abilities Transdiagnostically in Autism and Attention-Deficit/Hyperactivity Disorder. Biological psychiatry.
7. Horien, C., Noble, S., Finn, E.S., Shen, X., Scheinost, D., Constable, R.T., 2018. Considering factors affecting the connectome-based identification process: Comment on Waller et al. Neuroimage 169, 172-175.
8. Noble, S., Spann, M.N., Tokoglu, F., Shen, X., Constable, R.T., Scheinost, D., 2017a. Influences on the test–retest reliability of functional connectivity MRI and its relationship with behavioral utility. Cerebral cortex 27, 5415-5429.
9. Noble, S., Scheinost, D., Finn, E.S., Shen, X., Papademetris, X., McEwen, S.C., Bearden, C.E., Addington, J., Goodyear, B., Cadenhead, K.S., 2017b. Multisite reliability of MR-based functional connectivity. Neuroimage 146, 959-970.
10. Benjamin, C.F., Walshaw, P.D., Hale, K., Gaillard, W.D., Baxter, L.C., Berl, M.M., Polczynska, M., Noble, S., Alkawadri, R., Hirsch, L.J., 2017. Presurgical language fMRI: mapping of six critical regions. Human brain mapping 38, 4239-4255.
11. Scheinost, D., Tokoglu, F., Shen, X., Finn, E.S., Noble, S., Papademetris, X., Constable, R.T., 2016. Fluctuations in global brain activity are associated with changes in whole-brain connectivity of functional networks. IEEE Transactions on Biomedical Engineering 63, 2540-2549.

Conference Articles

12. Noble, S., Scheinost, D. 2020 (in press). The constrained network-based statistic: a new level of inference for neuroimaging. Medical Image Computing and Computer Assisted Intervention.
13. Dadashkarimi, J., Gao, S., Yeagle, E., Noble, S., Scheinost, D., 2019. A Mass Multivariate Edge-wise Approach for Combining Multiple Connectomes to Improve the Detection of Group Differences. International Workshop on Connectomics in Neuroimaging. Springer, Cham, pp. 64-73.

Preprints

14. Horien, C., Noble, S., Greene, A.S., Lee, K., Barron, D.S., Gao, S., O'Connor, D., Salehi, M., Dadashkarimi, J., Shen, X., Lake, E.M., Constable, R.T., Scheinost, D., 2019. A Hitchhiker's Guide to Working with Large, Open-Source Neuroimaging Datasets
15. Barron, D.S., Gao, S., Dadashkarimi, J., Greene, A.S., Spann, M.N., Noble, S., Lake, E., Krystal, J.H., Constable, R.T., Scheinost, D., 2019. Task-Based Functional Connectomes Predict Cognitive Phenotypes Across Psychiatric Disease. bioRxiv, 638825.

Acknowledgements

16. Kim, J.S., Greene, M.J., Zlateski, A., Lee, K., Richardson, M., Turaga, S.C., ... & Campos M., 2014. Space–time wiring specificity supports direction selectivity in the retina. Nature, 509(7500), 331. (listed as "curiousimbroglio" in "the Eyewirers").
17. Bzymek, Z.M., Vahidi, S., & Spottiswoode, H., 2007. Solutions of the 21st Century–Teaching Computer-Aided Conceptual Design. Computer-Aided Design and Applications, 4(1-4), 459-465.

Other

18. Noble, S. & Broek, J. (2017). Correlation or Causation? http://www.edubrainstorm.com/blog_new/blogs/correlation-or-causation.html

Presentations

Talks & Symposia

1. Noble, S. (2021, in prep). Symposium: Functional Networks. Talk: Reliability and Inference in functional networks. IEEE International Symposium on Biomedical Imaging.
2. Noble, S., Scheinost, D. (2020). Oral Session. The constrained network based statistic: A new level of inference for neuroimaging. Medical Image Computing and Computer Assisted Intervention.
3. Noble, S., Scheinost, D., Constable, R.T. (2020). Invited talk. A decade of test-retest reliability of functional connectivity. Yale Appetitive Science Seminar Series.
4. Noble, S., Dadashkarimi, J., Papademetris, X., Scheinost, D., (2020). Session & Demo. Web native data analysis with WebAssembly: a BISWeb demo and conversation. Organization for Human Brain Mapping Meeting: Open Science Room.
5. Noble, S., Scheinost, D., Constable, R.T. (2020). Symposium: Measuring the Individual: Understanding sources of variability in task and resting fMRI. Talk 1: Factors influencing the test-retest reliability of functional connectivity. Organization for Human Brain Mapping Meeting.
6. Dadashkarimi, J., Noble, S., Greene, A., Constable, R.T., Papademetris, X., Scheinost, D. (2020). Software Demo. On Visualization and Interpretation of Complex Connectomic Results. Organization for Human Brain Mapping Meeting.
7. **(Merit Abstract Award)** Noble, S., Scheinost, D., Constable, R.T. (2019). Oral Session. Cluster Failure or Power Failure? Evaluating Sensitivity in Cluster-Level Inference. Organization for Human Brain Mapping Meeting.
8. Noble, S., Dadashkarimi, J., Saltzman, Z., Lacadie, C., Garbus, H., Casetti, D., Onofrey, J., Papademetris, X., Scheinost, D. (2019). Open Science Room Talk & Demo. Introducing BioImage Suite Web. Organization for Human Brain Mapping Meeting: Open Science Room.
9. Noble, S., Scheinost, D., Constable, R.T. (2019). Symposium: Towards Understanding Individual Variability with Functional Neuroimaging: Big data and deep data perspectives. Talk 1: Factors influencing the test-retest reliability of functional connectivity. Cognitive Neuroscience Society.
10. Noble, S., Constable, R.T. Scheinost, D (2017). Invited talk. Factors influencing Reliability of Functional Connectivity. Yale Magnetic Resonance Seminar Series.
11. Noble, S., Scheinost, D., Bookheimer, SY, Walshaw, P, Constable, R.T., Benjamin, C (2015). Invited talk. Initial validation of a novel method of presurgical fMRI language localization through functional connectivity. Yale Epilepsy Research Retreat 2015.
12. Noble, S., Scheinost, D., Constable, R.T., Cannon, TD (2015). Invited talk. Reliability of Multisite Functional Connectivity. Yale NeuroDay 2015.

Posters

13. Dadashkarimi, J., Noble, S., Qu,, A., Saltzman, Z., Shen, X., Lake, E., Constable, R.T., Papademetris, X., Scheinost, D. (accepted, conference postponed to 2021 due to COVID19). Poster. A web-based toolkit for visualizing and interpreting complex connectomic results in BISWeb. International Neuroinformatics Coordinating Facility Meeting.
14. Dadashkarimi, J., Noble, S., Greene, A., Constable, R.T., Papademetris, X., Scheinost, D. (accepted for 2020). Poster. On Visualization and Interpretation of Complex Connectomic Results. Brain Initiative Investigators Meeting.
15. Dadashkarimi, J., Noble, S., Greene, A., Constable, R.T., Papademetris, X., Scheinost, D. (accepted for 2020). Poster. On Visualization and Interpretation of Complex Connectomic Results. Organization for Human Brain Mapping Meeting.
16. Noble, S., Dadashkarimi, J., Saltzman, Z., Lacadie, C., Garbus, H., Casetti, D., Onofrey, J., Papademetris, X., Scheinost, D. (2019). Introducing BioImage Suite Web: A Simple, Modern, and Powerful Software Suite. Society for Neuroscience Meeting.
17. Noble, S., Dadashkarimi, J., Saltzman, Z., Lacadie, C., Garbus, H., Casetti, D., Onofrey, J., Papademetris, X., Scheinost, D. (2019). Introducing BioImage Suite Web: A Simple, Modern, and Powerful Software Suite. Organization for Human Brain Mapping Meeting.
18. Noble, S., Scheinost, D., Constable, R.T. (2019). Cluster Failure or Power Failure? Evaluating the Sensitivity of Cluster-Level Inference. Organization for Human Brain Mapping Meeting.
19. Greene, A., Gao, S., Noble, S., Scheinost, D., Constable, R.T. (2019). Task activation and functional connectivity offer distinct insight into brain-behavior relationships. Organization for Human Brain Mapping Meeting.
20. Noble, S., Dadashkarimi, J., Saltzman, Z., Lacadie, C., Garbus, H., Casetti, D., Onofrey, J., Papademetris, X., Scheinost, D. (2019). Introducing BioImage Suite Web: A Simple, Modern, and Powerful Software Suite. BRAIN Initiative Investigator's Meeting.
21. Noble, S., Scheinost, D., Constable, R.T. (2018). Cluster Failure or Power Failure? Balancing the Scale with Sensitivity. 2018 Society for Neuroscience Meeting.
22. Noble, S., Scheinost, D., Constable, R.T. (2018). Cluster Failure or Power Failure? Balancing the Scale with Sensitivity. 2018 Yale Biomedical Imaging Research Retreat.
23. Noble, S., Scheinost, D., Constable, R.T. (2018). Cluster Failure or Power Failure? Balancing the Scale with Sensitivity. 2018 Brain Functional Connectivity and Organization Meeting.
24. Noble, S., Scheinost, D., Constable, R.T. (2016). Influences on Reliability of Functional Connectivity. 2016 Society for Neuroscience Meeting.
25. Noble, S., Scheinost, D., Bookheimer, SY, Walshaw, P, Hirsch, LJ, Spencer, DD, Constable, R.T., Benjamin, C (2016, Feb). Preliminary Support for Presurgical fMRI Language Localization through Functional Connectivity Permutation Testing. 2016 International Neuropsychology Society Meeting.
26. **(Best Poster Award)** Noble, S., Scheinost, D., Cannon, T.D., Constable, R.T. (2015). Reliability of Multisite Functional Connectivity. 2015 Yale Biomedical Imaging Research Retreat.
27. Noble, S., Scheinost, D., Cannon, T.D., Constable, R.T. (2015). Reliability of Multisite Functional Connectivity. Society for Neuroscience Annual Meeting.
28. Noble, S., Scheinost, D., Cannon, T.D., Constable, R.T. (2015). Reliability of Multisite Functional Connectivity. Society for Neuroscience Annual Meeting: Neuroscience Scholars Program Poster Session.
29. Noble, S., Scheinost, D., Bookheimer, S.Y., Walshaw, P., Constable, R.T., Benjamin, C. (2015). Initial validation of a novel method of presurgical fMRI language localization through functional connectivity. 2015 Yale Day of Data 2015.
30. Noble, S. (2012). Muscle Contraction as a Markov Process. Thesis defended at Princeton University.
31. Noble, S., Schutt, C.E. (2012). Muscle Contraction as a Markov Process. Poster presented at Annual Princeton CBE Thesis Poster Presentations.
32. Noble, S., Bonetti, C.E., Benziger, J.B. (2010). Hydrogen Purification by Electrochemical Pumping. Symposium talk at Princeton Environmental Institute Seibel Energy Grand Challenge Summer of Learning Symposium.

33. Noble, S., Bonetti, C.E., Benziger, J.B. (2010). Building a Multi-Stage Hydrogen Pump. Symposium talk at PRISM/PCCM Research Experience for Undergraduates Presentation Session. "http://www.princeton.edu/grandchallenges/energy/internships/meet-our-interns/interns-2010/Noble_Stephanie_sol.pptx"

Industry Demonstrations

34. Noble, S., Poeuv, S., Brewer, J.A. (2013, February). Private demo for popular news reporter (undisclosed). goBlue Labs.
35. Noble, S., Poeuv, S., Brewer, J.A. (2012, December). Public demo. TechStart Demo Day. Yale University.
36. Noble, S., Poeuv, S., Brewer, J.A. (2012, July). Private demo. Professional Golfer's Association (PGA): Metropolitan Section. Metropolitan PGA Golf Central Offices, Elmsford, NY.
37. Noble, S., Poeuv, S., Brewer, J.A. (2012, Sept). Private demo for New Haven Independent Reporter. goBlue Labs.

Industry Pitches

38. Poeuv, S., Pal, P., Noble, S., Brewer, J.A. (2013, October). goBlue Labs YEI Innovation Fund Pitch. Presentation given at Yale University.
39. Poeuv, S., Noble, S., Brewer, J.A. (2013, August). goBlue Labs CI Pre-Seed Program Pitch. Presentation given at Connecticut Innovations in Rocky Hill.
40. Poeuv, S., Noble, S., Brewer, J.A. (2012, December). goBlue Labs New Haven Start-up Competition Pitch. Presentation given at Yale University for an anonymous investor.
41. Poeuv, S., Noble, S., Brewer, J.A. (2012, December). goBlue Labs TechStart Demo Day Pitch. Presentation given at Yale.
42. Poeuv, S., Noble, S., Brewer, J.A. (2012, July). goBlue Labs TechStart Accelerator Competition Pitch. Presentation given at Connecticut Innovations.

Honors & Awards

FELLOWSHIPS & GRANTS

2019 - 2023 **NIH 8K00MH122372-02:** Constrained Network-Based Multiple Comparison Correction
Principle Investigator: Stephanie Noble
Funding Source: National Institute of Neurological Disorders and Stroke
NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (DSPAN) Award (F99/K00)
Funding Amount: $73,168 / year

2018 - 2019 **NIH 1F99NS108557-01:** Improving Reliability and Validity of fMRI Statistical Methods
Principle Investigator: Stephanie Noble
Funding Source: National Institute of Neurological Disorders and Stroke
NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (DSPAN) Award (F99/K00)
Funding Amount: $45,524 / year

2016 - 2018 **NSF DGE1122492**
Fellow: Stephanie Noble
Funding Source: National Science Foundation
Program: Graduate Research Fellowship Program
Funding Amount: $46,000 / year

ACADEMIC HONORS & AWARDS

2019 **Abstract Merit Award,** Organization for Human Brain Mapping, $2,000 (15 awardees)

2019 **Associate Membership Nomination**, Sigma Xi

2018 - 2019 **Program for Excellence in Science Fellowship**, AAAS / Science

2018 **Annie Le Fellowship**, Yale University (stipend & professional enrichment supplement)

2017 **Qualified for Candidacy with Distinction**

2016 **Best Poster Award**, Yale Biomedical Engineering Retreat

2015 - 2017 **Neuroscience Scholars Program Fellowship**, Society for Neuroscience (15 awardees, support for society meeting attendance, society membership, professional enrichment funds)

2012 **Honors Certification in Quantitative & Computational Neuroscience**

2010 **Siebel Energy Grand Challenges Fellowship**, Princeton University, $4,500

2009 - 2012 **Howard Hunt Garmany Memorial Scholarship**, Hartford Foundation for Public Giving (awarded annually)

SCIENCE OUTREACH

2016 **Outreach Award**, Society of Women Engineers (to Yale GradSWE; outreach co-chair)

2016 **Yale University Seton Elm-Ivy Award** (to INP Outreach Committee; co-chair)

INDUSTRY

2013 **Innovation Fund**, Yale Entrepreneurial Institute, $100,000 (offered)
(exclusive award to Yale start-up)

2012 **TechStart Accelerator Program Fund,** Connecticut Innovations, $25,000
(exclusive award to 5 CT start-ups)

2012 **Private Investment**, Bridge Builders Collaborative, undisclosed

Teaching & Mentoring

Mentoring

Lab: Assistant supervisor for one PhD student; supervised one high school student.
Extracurricular: Mentored five college students (two via Women in Science at Yale, three via goBlue), one nursing student, and two high school students (one via ManyMentors, one via goBlue).

Private Tutor: Basic Statistics & Data Science (1 student), Introduction to R (1 student) — *Yale University* *2017 - 2020*

Workshop: "Introduction to BioImage Suite Web" — *Yale University* *2019*
BRAINHACK YALE 2019

Workshop: "Intro to Machine Learning for fMRI with Nilearn" — *Yale University* *2018*
BRAINHACK YALE 2018

Teaching Fellow — *Yale University* *2018*
INTRODUCTION TO RELATIVITY (ASTR 180)

Teaching Fellow — *Yale University* *2015*
NEUROBIOLOGY (MCDB/NSCI 320A/720A)

Ad Hoc Review

NeuroImage (2017–2020), NeuroImage: Clinical (2020), Cerebral Cortex (2019-2020), Human Brain Mapping, Nature Scientific Reports, Proceedings of the National Academy of Sciences, eLife, Social Cognitive and Affective Neuroscience, Psychiatry Research: Neuroimaging, Schizophrenia Bulletin, Behavior Change, Assessment

Leadership

Columbia Patient Oriented Research Colloquium Grant Funding Panelist *Fall 2020*

OHBM 2020 Club Night Social Lead Organizer *Summer 2020*

NIH Blueprint D-SPAN F99/K00 Webinar Panelist *Winter 2019*

Brainhack Yale 2019 Lead Organizer and Workshop Instructor *Spring 2019*

Neuroscience Scholars Program Leadership Meeting Panelist *Summer 2019*

Yale Annie Le Fellowship Selection Committee Member *Spring 2019*

INP Diversity Recruitment Panel Panelist and SWE Representative *Spring 2019*

Brainhack Networks 2019 Team of Experts *Winter 2019*

Yale Minority Scientists Research Network Board Member *Fall 2018*

Brainhack Yale 2018: Lead Organizer and Workshop Instructor *Spring 2018*

Neuroscience Scholars Program Neuroscience Leadership Conference Invited Member *Summer 2017*

INP Speaker Seminar Committee Member *Spring 2017*

She Started It "Women in Entrepreneurship" Panelist *Spring 2017*

McDougal Center Communications Assistant (paid position managing student communications) *Spring 2016*

Yale Graduate Society of Women Engineers Outreach Chair ('15-'17), Mentor, Volunteer, Panelist *2014-2017*
Led four outreach events, two networking/career building events (panelist)

Mind Matters "Race and Mental Health" Panelist *Spring 2016*

Women in Science at Yale Mentor and "Career Strategy" Panelist ('14-'16) *2014-2018*

INP Outreach Committee Chair ('15-'16), Volunteer ('14-'17), Speaker ('16, '18 NIH BP-Endure) *2014-2016*
Led six outreach events per year (30-60 students per event)

Yale Graduate Visual Artists Society Founder ('14) and Leader *2014-2016*

Yale Office for Graduate Student Development and Diversity Mentor *2014-2017*

La Casa Cultural Mentor *2014-2015*

ManyMentors / New Haven Science Fair Mentor *2014-2015*

Connectionism Art Movement Founder and Event Organizer *2012-2014*

Princeton Biomedical Engineering Society President ('11-'12), VP ('10-'11), Cofounder *2010-2012*

Open Science Contributions

Network-Based Statistic Extensions and Benchmarking Toolbox *code*

https://github.com/SNeuroble/NBS_benchmarking *2020*

Cluster-Based Inference Benchmarking Toolbox *code*

https://github.com/SNeuroble/cluster_power_failure *2019*

data

2018

Yale Test-Retest Dataset

http://fcon_1000.projects.nitrc.org/indi/retro/yale_trt.html

code

2018

Multifactor ICC Toolbox

https://github.com/SNeuroble/Multifactor_ICC

Skills

General Data Analysis
INTERMEDIATE/ADVANCED

Matlab (advanced), bash (advanced), R (intermediate), Python (intermediate)

fMRI Data Acquisition & Analysis
INTERMEDIATE/ADVANCED

Acquisition: Technician-assisted setup and acquisition (Siemens TimTrio and Prisma scanners)

Analysis: BioImage Suite legacy/Web (advanced), AFNI (intermediate), FSL (intermediate), SPM (intermediate)

Software Development
BASIC

General Software Development: C++

Front End / Web Development: JavaScript, CSS, HTML5, Qt

EEG Data Acquisition & Analysis
INTERMEDIATE

Acquisition: Setup, acquisition, and maintenance (high-density Biosemi ActiveTwo system)

Presentation & Analysis: E-Prime, Psychtoolbox (basic), EMSE Data Editor, EMSE MR Viewer

Protein Modeling
BASIC

RCSB Protein Data Bank, Swiss PDB Viewer

Design, Presentation, & Word Processing
INTERMEDIATE/ADVANCED

Word, Keynote, Powerpoint, GIMP, Pixlr, Photoshop, Google SketchUp, Excel, Latex (beginner)

Other

Languages	Latin (intermediate), Spanish (basic)
Visual Art	oil, watercolor, pencil, graphic design (advanced)