

**The Faculty of Medicine of Harvard University
Curriculum Vitae**

Date Prepared: March 16th, 2020

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Place of Birth: Baltimore, Maryland USA

Education:

05/2003	BA (Magna Cum Laude)	Biology and Biomedical Physics	Washington University in St. Louis
06/2011	PhD	Biology and Biomedical Sciences – Neurosciences (PI: Steven Petersen, PhD)	Washington University in St. Louis School of Medicine
06/2011	MD	Medicine	Washington University in St. Louis School of Medicine

Postdoctoral Training:

07/11-06/13	Resident	Pediatric and Adolescent Medicine	Mayo Clinic – Rochester
07/13-06/16	Resident	Child and Adolescent Neurology	Mayo Clinic – Rochester
07/16-06/18	Clinical Fellow	Pediatric Behavioral Neurology	Boston Children's Hospital
07/17-06/19	Postdoctoral Fellow	T32 Translational Postdoctoral Training in Neurodevelopment (PI: Michael Fox, MD, PhD)	Boston Children's Hospital and Beth Israel Deaconess Medical Center

Faculty Academic Appointments:

07/15-06/16	Instructor	Neurology	Mayo Clinic – Rochester
07/18-	Instructor	Neurology	Boston Children's Hospital

Appointments at Hospitals/Affiliated Institutions:

07/18-	Assistant Physician	Neurology	Boston Children's Hospital
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Committee Service:

Local

2012-2013	Pediatrics Inpatient RN/MD Communication Committee	Mayo Clinic – Rochester
	2012-2013	Physician Member
2018-	IRB Scientific Review – Neurology	Boston Children's Hospital – Neurology
	2018-	Scientific Reviewer
2019-	Research Imaging Advisory Committee	Boston Children's Hospital
	2019-	Member, Neurology Representative
2019-	Brookline Place Transformer Teams	Boston Children's Hospital
	2019-	Member, Autism Spectrum Center Team
	2019-	Member, Behavioral Neurology Team
	2019-	Member, Research MRI Team

Professional Societies:

2000-2016	Sigma Xi Scientific Research Society	Member
2003-	American Medical Association	Member
2004-2011	Society for Neuroscience	Member
2011-2013	American Academy of Pediatrics	Member
2013-	American Academy of Neurology	Member, Child Neurology Section Member, Neuroimaging Section
2013-	Child Neurology Society	Member
	2016-2018, 2019-2021	Member, Scientific Selection & Program Planning Committee
2016-2017	American Society of Neuroimaging	Member
2017-	Organization for Human Brain Mapping	Member
2019-	International Child Neurology Association	Member
2019-	American Neurological Association	Member
2020-	Flux: The Society for Developmental Cognitive Neuroscience	Member
2020-	International Society for Autism Research	Member

Editorial Activities:

- **Ad hoc Reviewer**

Cerebral Cortex
Human Brain Mapping
NeuroImage
Journal of Neuroscience Methods
PLoS ONE
PLoS Computational Biology
Journal of Child Neurology
Child Neurology Open
IEEE Journal of Biomedical and Health Informatics
Proceedings of the National Academy of Sciences
Neuropediatrics

Honors and Prizes:

2000, 2001, 2002	Dean's List	Washington University in St. Louis	Academic Achievement
2001	Summer Research Fellowship	Howard Hughes Medical Institute	Research
2003	Magna Cum Laude	Washington University in St. Louis	Academic Achievement
2006-2008	Integrative Graduate Education and Research Training (IGERT) Program Fellowship	Washington University in St. Louis (Sponsored by NSF 0548890)	Research
2007	Travel Award for Conference on Image Processing for Random Shapes, Applications to Brain Mapping, Geophysics, and Astrophysics	NSF – Institute for Pure and Applied Mathematics (IPAM)	Research
2008, 2009	Graduate Student Finalist, James L. O'Leary Prize Competition for Outstanding Research in Neuroscience	Washington University in St. Louis School of Medicine	Research
2009	Winner of the Pittsburgh Brain Connectivity Competition	Organization for Human Brain Mapping	Research
2016	Chief Resident Award	Mayo Clinic – Rochester	Teaching

2017-2019	Translational Post-doctoral Training in Neurodevelopment (T32) Fellowship	Boston Children's Hospital	Research
2019	Workshop on Autism Spectrum Disorders	Cold Spring Harbor Laboratory	Research

Report of Funded and Unfunded Projects

Past

2008-2011 Defining Human Cortical Functional Areas Using Resting Functional Connectivity
NINDS F30 NS062489 (Ruth L. Kirschstein NRSA Individual Fellowship)
PI/Trainee
This goal of the study was to identify the possibility of using resting state functional connectivity MRI to define distinct regions/functional areas across the brain.

Current

01/2020-12/2021 Using clinical cohorts and functional connectivity to identify the neuroanatomical basis of atypical face processing in autism spectrum disorders
Child Neurology Society/Foundation PERF Shields Research Grant
PI (\$100,000 – Total Direct Costs)
The goal of this project is to determine whether the pattern of cortical tubers in children with Tuberous Sclerosis Complex and/or a specific predicted network abnormality predicts their face processing ability.

07/2020-06/2023 Identifying the common neural substrate critical for face processing deficits.
NIH (Parent Grant: K12 NS098482) Child Neurology Career Development Program
PI (\$446,928 – Total Direct Costs)
The goal of this project is to determine whether 1) the pattern of cortical tubers in children with Tuberous Sclerosis Complex, and 2) functional connectivity abnormalities in adolescents with idiopathic Autism Spectrum Disorder converge on common network alterations that predict their face processing ability.

Projects Submitted for Funding

Pending; Submitted 07/2019 The neuroanatomical basis for face processing deficits in autism spectrum disorder.
NIH K23 MH120510
PI (\$722,238 – Requested Direct Costs)
This proposal investigates the cause of face processing difficulties in ASD by leveraging information from patients with acquired prosopagnosia and prospective collection of MRI and behavioral data in adolescent subjects across a range of face-processing abilities.
SRG Action: Impact/Priority Score: 21

Training Grants and Mentored Trainee Grants

Unfunded Current Projects

- 2016- Assessing the utility of clinical MRI in newly diagnosed ASD patients.
Co-PI (with Simon Warfield, PhD)
We are retrospectively studying the cohort of Autism patients seen at BCH over the past 16 years to determine clinical efficacy trends and creating a large-scale imaging database of clinical structural MRIs in ASD.
- 2017- Improvement of motion correction strategies for functional neuroimaging in pediatric clinical populations.
Collaborator
Working with research fellows in the Computational Radiology Laboratory, this project seeks to expand on a novel method, Dynamic Missing Data Completion (DMC), to reduce motion-related artifacts compared to current best practice, and others, for MRI acquisition in developmental populations with high motion.
- 2018- Creating a Developmental Atlas of Brain Connectivity
PI
This proposal aims to generate a Developmental Atlas of Brain Connectivity that combines all publicly available brain connectivity data, currently from more than 15,000 children and adolescents, into a single consistently processed and quality-controlled dataset that can be used by medical researchers as a ‘gold-standard’ reference of typical development.
- 2019- Lesion network mapping of Autism-related Symptoms
PI
This project seeks to understand whether there is a particular network of regions impacted by lesions that are associated with social network impoverishment or loss of social skills, beyond that which can be explained by post-stroke depression and other independent risk factors

Report of Local Teaching and Training

Teaching of Students in Courses:

2018-2019	Practice of Medicine (POM) – Interviewing and Communication Skills (ICS) 1 st year medical students	HMS 3-hr sessions every other week (13 sessions)
2019-2020	Practice of Medicine (POM) – Interviewing and Communication Skills (ICS) 1 st year medical students	HMS 3-hr sessions every other week (13 sessions)

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

2017-2018	Pediatric Neurology NP Lecture Series – Clinical Neuroimaging Curriculum Pediatric Neurology Nurse Practitioners	Boston Children’s Hospital 3x 1-hr lectures
2017-2018	Child Neurology Residency Core Curriculum – Clinical Neuroimaging Child and Adult Neurology Residents	Boston Children’s Hospital 4x 1-hr lectures
2018-2019	Child Neurology Residency Core	Boston Children’s Hospital

	Curriculum – Clinical Neuroimaging Child and Adult Neurology Residents	5x 1-hr lectures
2019-2020	Child Neurology Residency Core Curriculum – Clinical Neuroimaging Child and Adult Neurology Residents	Boston Children’s Hospital 5x 1-hr lectures
09/2019	Child Neurology Residency Core Curriculum – Personal Finance Bootcamp Child and Adult Neurology Residents	Boston Children’s Hospital 1-hr lecture

Clinical Supervisory and Training Responsibilities:

Research Supervisory and Training Responsibilities:

2017-	Supervision of research assistants, post-doctoral fellows, and biostatistician	Beth Israel Deaconess Medical Center – Laboratory for Brain Network Imaging and Modulation 1-hr lab meeting per week and 1:1 supervision 1-2 hrs per week per fellow/RA
2017-	Supervision of rotating medical students and research fellows (1-2 fellows per year)	Boston Children’s Hospital – Laboratory of Computational Radiology 1:1 supervision 1-2 hrs per week per fellow

Formally Mentored Harvard Medical, Dental and Graduate Students:

2018-2019	Ivry Zagury-Orly, HMS MD/MMSc in Medical Education, Class of 2020 Currently finishing his medical degree at University of Montreal. Completed a project titled “Performance on the Benton Face Recognition Task demonstrates a persistent correlation with ADOS Social Affect across age, sex, and IQ in multiple NDAR datasets”. Submitted for presentation at 2020 International Society for Autism Research meeting.
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Other Mentored Trainees and Faculty:

2017-2019	Louis Soussand, MS in Biostatistics, currently exploring Data Scientist positions in France As a Senior Research Assistant/Biostatistician I, Louis supported multiple neuroimaging projects as well as created an infrastructure to allow advanced statistical analysis of large neuroimaging datasets through a web-based interface.
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Formal Teaching of Peers (e.g., CME and other continuing education courses):

- ☐ No presentations below were sponsored by 3rd parties/outside entities
- ☐ Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.

Local Invited Presentations:

- ☒ *No presentations below were sponsored by 3rd parties/outside entities*
☐ *Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.*

2020 Using other clinical cohorts to understand ASD (and maybe generate new treatment targets)
 / Glahn Laboratory Speaker Series
 Department of Psychiatry, BCH

Report of Regional, National and International Invited Teaching and Presentations

- ☒ *No presentations below were sponsored by 3rd parties/outside entities*
☐ *Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.*

Regional

11/2019 Tubers associated with infantile spasms impact a common brain network in TSC
 Young Investigator Presentation at the Meeting of the Greater Boston Epilepsy Society
 Boston, MA

National

2016 Co-chair of Junior Member Seminar 2: Residents: Finding a Fellowship
 45th Annual Meeting of the Child Neurology Society
 Vancouver, BC

2016 Moderator for Platform Session I
 45th Annual Meeting of the Child Neurology Society
 Vancouver, BC

2017 Mortality and comorbidities in narcolepsy - an Olmsted County, Minnesota community-
 based study (selected oral abstract)
 69th Annual Meeting of the American Academy of Neurology
 Boston, MA

2017 Co-chair of Junior Member Seminar 2: Residents: Finding a Fellowship
 46th Annual Meeting of the Child Neurology Society
 Kansas City, KS

2017 Moderator for Platform Session I
 46th Annual Meeting of the Child Neurology Society
 Kansas City, KS

2018 Moderator for Platform Session I

47th Annual Meeting of the Child Neurology Society
Chicago, IL

2019 Moderator for Platform Session II: Epilepsy and Mitochondrial Disease
48th Annual Meeting of the Child Neurology Society
Charlotte, NC

International

2009 Finding putative functional areas using rs-fcMRI and DTI by computing gradients along the cortical surface. (Oral presentation of winning entry)
15th Annual Meeting of the Organization for Human Brain Mapping
San Francisco, CA

Report of Clinical Activities and Innovations

Current Licensure and Certification:

2016 Initial Certification, Neurology with Special Qualification in Child Neurology, American Board of Psychiatry and Neurology
2012-2016 Minnesota Medical License
2016- Massachusetts Medical License

Practice Activities:

2016-	Ambulatory Care	Behavioral Neurology Division and Autism Spectrum Center Boston Children's Hospital	Two half-day sessions per week
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Clinical Innovations:

Report of Teaching and Education Innovations

Report of Technological and Other Scientific Innovations

Use of Functional Connectivity to define human cortical and subcortical functional	As part of a team led by Steven Petersen and Bradley Schlaggar at Washington University in St. Louis, I developed methods using non-invasive functional MRI data to describe functional areas and networks across the brain. Specifically, I created a method to divide the brain into functional areas using transitions in
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areas. (2008-2012)	functional connectivity, i.e., correlations in the spontaneous activity of the brain that appear to reflect functional relationships between regions. Since publication in 2008 (PMID: 18367410), this technique has been cited over 390 times and is one of the defining methods of the Human Connectome Project (NIH U54 MH091657). This method has proven to be applicable to subcortical structures, such as the basal ganglia, and provides robust findings in adults as well as in children.
Application of Graph Theory techniques to understand the development of functional networks (2007-2011)	As part of a team led by Steven Petersen and Bradley Schlaggar at Washington University in St. Louis, my colleagues and I also pioneered the use of Graph Theory to help understand the relationships between regions in the brain revealed using functional connectivity MRI. Our initial analyses of the default and executive control networks of the brain and their development from childhood into adolescence have been cited over 8000 times across the neuroscience literature. We also applied this technique to adolescents with Tourette syndrome as an example of the clinical applicability of these techniques gaining unique insights into this disorder.
Standardization and Portability of Neuroimaging Analyses (2017-)	While a clinical resident at the Mayo Clinic up through the present, I have led efforts towards the standardization and incorporation of research tools into graduate medical education through presentations and publications that demonstrate the utility of rapidly deployable software, e.g., “NeuroDebian” virtual machines, and now continue to engage in collaborative work with other research centers to generate accessible and reproducible research packages such as the Brain Imaging Data Structure Applications (BIDS Apps). I rewrote the software used by Dr. Michael Fox’s Laboratory for Brain Network Imaging and Modulation – Beth Israel Deaconess Medical Center to perform Lesion Network Mapping in a highly portable and open-source fashion and continue to contribute to efforts to close the gap between novel neuroimaging discoveries and clinical tools that will improve patient care.

Report of Education of Patients and Service to the Community

- ☐ *No presentations below were sponsored by 3rd parties/outside entities*
- ☒ *Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.*

Activities

- 2017 Device Squad Podcast on Digital Tools for Autism Spectrum Disorder & Asperger’s Syndrome/Panelist (Propelics)
 Participated in a recorded panel discussion on digital tools for Autism Spectrum Disorder & Asperger’s Syndrome with Steven Brykman, Digital Strategist and UX Architect for Propelics, (myself), Michael McWatters, UX Architect at TED Conferences, and Cathy Farmer, Board of Directors Member for the Organization for Autism Research.
<https://soundcloud.com/propelics/digital-tools-for-autism>

Educational Material for Patients and the Lay Community:

Books, monographs, articles and presentations in other media

Educational material or curricula developed for non-professional students

Patient educational material

Recognition:

Report of Scholarship (ORCID 0000-0001-6557-5866)

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. Grady RM, Akaaboune M, **Cohen AL**, Maimone MM, Lichtman JW, Sanes JR. Tyrosine-phosphorylated and nonphosphorylated isoforms of alpha-dystrobrevin: roles in skeletal muscle and its neuromuscular and myotendinous junctions. J Cell Biol. 2003 Mar 3;160(5):741-52. Epub 2003 Feb 25. PubMed PMID: 12604589; PubMed Central PMCID: PMC2173352.
2. Fair DA, Schlaggar BL, **Cohen AL**, Miezin FM, Dosenbach NU, Wenger KK, Fox MD, Snyder AZ, Raichle ME, Petersen SE. A method for using blocked and event-related fMRI data to study "resting state" functional connectivity. Neuroimage. 2007 Mar;35(1):396-405. Epub 2007 Jan 18. PubMed PMID: 17239622; PubMed Central PMCID: PMC2563954.
3. Dosenbach NU, Fair DA, Miezin FM, **Cohen AL**, Wenger KK, Dosenbach RA, Fox MD, Snyder AZ, Vincent JL, Raichle ME, Schlaggar BL, Petersen SE. Distinct brain networks for adaptive and stable task control in humans. Proc Natl Acad Sci U S A. 2007 Jun 26;104(26):11073-8. Epub 2007 Jun 18. PubMed PMID: 17576922; PubMed Central PMCID: PMC1904171.
4. Fair DA, Dosenbach NU, Church JA, **Cohen AL**, Brahmbhatt S, Miezin FM, Barch DM, Raichle ME, Petersen SE, Schlaggar BL. Development of distinct control networks through segregation and integration. Proc Natl Acad Sci U S A. 2007 Aug 14;104(33):13507-12. Epub 2007 Aug 6. PubMed PMID: 17679691; PubMed Central PMCID: PMC1940033.
5. Dosenbach NU, Fair DA, **Cohen AL**, Schlaggar BL, Petersen SE. A dual-networks architecture of top-down control. Trends Cogn Sci. 2008 Mar;12(3):99-105. doi: 10.1016/j.tics.2008.01.001. Epub 2008 Feb 11. Review. PubMed PMID: 18262825; PubMed Central PMCID: PMC3632449.
6. Fair DA, **Cohen AL**, Dosenbach NU, Church JA, Miezin FM, Barch DM, Raichle ME, Petersen SE, Schlaggar BL. The maturing architecture of the brain's default network. Proc Natl Acad Sci U S A. 2008 Mar 11;105(10):4028-32. doi: 10.1073/pnas.0800376105. Epub 2008 Mar 5. PubMed PMID: 18322013; PubMed Central PMCID: PMC2268790.
 - Preview: In This Issue. Proc Natl Acad Sci U S A. 2008 2008 Mar 11;105(10):3659-3660.

7. **Cohen AL**, Fair DA, Dosenbach NU, Miezin FM, Dierker D, Van Essen DC, Schlaggar BL, Petersen SE. Defining functional areas in individual human brains using resting functional connectivity MRI. *Neuroimage*. 2008 May 15;41(1):45-57. doi: 10.1016/j.neuroimage.2008.01.066. Epub 2008 Mar 25. PubMed PMID: 18367410; PubMed Central PMCID: PMC2705206.
8. Church JA, Fair DA, Dosenbach NU, **Cohen AL**, Miezin FM, Petersen SE, Schlaggar BL. Control networks in paediatric Tourette syndrome show immature and anomalous patterns of functional connectivity. *Brain*. 2009 Jan;132(Pt 1):225-38. doi: 10.1093/brain/awn223. Epub 2008 Oct 24. PubMed PMID: 18952678; PubMed Central PMCID: PMC2638693.
9. Fair DA and **Cohen AL***, Power JD, Dosenbach NU, Church JA, Miezin FM, Schlaggar BL, Petersen SE. Functional brain networks develop from a "local to distributed" organization. *PLoS Comput Biol*. 2009 May;5(5):e1000381. doi: 10.1371/journal.pcbi.1000381. Epub 2009 May 1. PubMed PMID: 19412534; PubMed Central PMCID: PMC2671306.
10. White BR, Snyder AZ, **Cohen AL**, Petersen SE, Raichle ME, Schlaggar BL, Culver JP. Resting-state functional connectivity in the human brain revealed with diffuse optical tomography. *Neuroimage*. 2009 Aug 1;47(1):148-56. doi: 10.1016/j.neuroimage.2009.03.058. Epub 2009 Apr 1. PubMed PMID: 19344773; PubMed Central PMCID: PMC2699418.
11. Barnes KA, **Cohen AL**, Power JD, Nelson SM, Dosenbach YB, Miezin FM, Petersen SE, Schlaggar BL. Identifying Basal Ganglia divisions in individuals using resting-state functional connectivity MRI. *Front Syst Neurosci*. 2010 Jun 10;4:18. doi: 10.3389/fnsys.2010.00018. eCollection 2010. PubMed PMID: 20589235; PubMed Central PMCID: PMC2892946.
12. Nelson SM, Dosenbach NU, **Cohen AL**, Wheeler ME, Schlaggar BL, Petersen SE. Role of the anterior insula in task-level control and focal attention. *Brain Struct Funct*. 2010 Jun;214(5-6):669-80. doi: 10.1007/s00429-010-0260-2. Epub 2010 May 29. Review. PubMed PMID: 20512372; PubMed Central PMCID: PMC2886908.
 - Editorial Preview: Craig, AD Once an island, now the focus of attention. *Brain Struct Funct*. 2010 Jun;214(5-6):214: 395. doi:10.1007/s00429-010-0270-0
13. Nelson SM, **Cohen AL**, Power JD, Wig GS, Miezin FM, Wheeler ME, Velanova K, Donaldson DI, Phillips JS, Schlaggar BL, Petersen SE. A parcellation scheme for human left lateral parietal cortex. *Neuron*. 2010 Jul 15;67(1):156-70. doi: 10.1016/j.neuron.2010.05.025. PubMed PMID: 20624599; PubMed Central PMCID: PMC2913443.
 - Preview: Uncapher MR, Hutchinson JB, Wagner AD. A roadmap to brain mapping: toward a functional map of human parietal cortex. *Neuron*. 2010 Jul 15;67(1):5-8. doi: 10.1016/j.neuron.2010.06.025. PubMed PMID: 20624586.
14. Dosenbach NU, Nardos B, **Cohen AL**, Fair DA, Power JD, Church JA, Nelson SM, Wig GS, Vogel AC, Lessov-Schlaggar CN, Barnes KA, Dubis JW, Feczko E, Coalson RS, Pruett JR Jr, Barch DM, Petersen SE, Schlaggar BL. Prediction of individual brain maturity using fMRI. *Science*. 2010 Sep 10;329(5997):1358-61. doi: 10.1126/science.1194144. Erratum in: *Science*. 2010 Nov 5;330(6005):756. PubMed PMID: 20829489; PubMed Central PMCID: PMC3135376.
 - Letter to the Editor: Brandeis D, Koenig T, Wackermann J. Individual brain maturity: from electrophysiology to fMRI. *Brain Topogr*. 2011 Oct;24(3-4):187-8. doi: 10.1007/s10548-011-0184-z. Epub 2011 Apr 24. PubMed PMID: 21516489.
 - Author Response: Dosenbach, NUF, Petersen, SE, Schlaggar, BL. *Brain Topogr*. 2011 Oct;24(3-4):189-91. doi:10.1007/s10548-011-0185-y
15. Power JD, **Cohen AL**, Nelson SM, Wig GS, Barnes KA, Church JA, Vogel AC, Laumann TO, Miezin FM, Schlaggar BL, Petersen SE. Functional network organization of the human brain. *Neuron*. 2011

Nov 17;72(4):665-78. doi: 10.1016/j.neuron.2011.09.006. PubMed PMID: 22099467; PubMed Central PMCID: PMC3222858.

16. Barnes KA, Nelson SM, **Cohen AL**, Power JD, Coalson RS, Miezin FM, Vogel AC, Dubis JW, Church JA, Petersen SE, Schlaggar BL. Parcellation in left lateral parietal cortex is similar in adults and children. *Cereb Cortex*. 2012 May;22(5):1148-58. doi: 10.1093/cercor/bhr189. Epub 2011 Aug 1. PubMed PMID: 21810781; PubMed Central PMCID: PMC3328346.
17. Wig GS, Laumann TO, **Cohen AL**, Power JD, Nelson SM, Glasser MF, Miezin FM, Snyder AZ, Schlaggar BL, Petersen SE. Parcellating an individual subject's cortical and subcortical brain structures using snowball sampling of resting-state correlations. *Cereb Cortex*. 2014 Aug;24(8):2036-54. doi: 10.1093/cercor/bht056. Epub 2013 Mar 8. PubMed PMID: 23476025; PubMed Central PMCID: PMC4089380.
18. **Cohen AL**, Kenney-Jung D, Botha H, Tillema JM. NeuroDebian Virtual Machine Deployment Facilitates Trainee-Driven Bedside Neuroimaging Research. *J Child Neurol*. 2017 Jan;32(1):29-34. doi: 10.1177/0883073816668113. Epub 2016 Sep 29. PubMed PMID: 27655470.
19. Gorgolewski KJ, Alfaro-Almagro F, Auer T, Bellec P, Capotă M, Chakravarty MM, Churchill NW, **Cohen AL**, Craddock RC, Devenyi GA, Eklund A, Esteban O, Flandin G, Ghosh SS, Guntupalli JS, Jenkinson M, Keshavan A, Kiar G, Liem F, Raamana PR, Raffelt D, Steele CJ, Quirion PO, Smith RE, Strother SC, Varoquaux G, Wang Y, Yarkoni T, Poldrack RA. BIDS apps: Improving ease of use, accessibility, and reproducibility of neuroimaging data analysis methods. *PLoS Comput Biol*. 2017 Mar 9;13(3):e1005209. doi: 10.1371/journal.pcbi.1005209. eCollection 2017 Mar. PubMed PMID: 28278228; PubMed Central PMCID: PMC5363996.
20. **Cohen AL**, Mandrekar J, St. Louis EK, Silber MH, Kotagal S. Comorbidities in a community sample of narcolepsy. *Sleep Medicine*. 2018 March;43:14-18. doi: 10.1016/j.sleep.2017.11.1125. PubMed PMID: 29482805; PubMed Central PMCID: PMC5931205.
 - Letter to the Editor: Cremaschi, R, Hirotsu C, Tufik S, Coelho FM. High fatigue frequency in narcolepsy type 1 and type 2 in a Brazilian Sleep Center. *Sleep Med*. 2018
 - Author Response: **Cohen AL**, Mandrekar J, St. Louis EK, Silber MH, Kotagal S. *Sleep Med*. 2018. doi: 10.1016/j.sleep.2018.08.010. PubMed PMID: 30293846.
 - Letter to the Editor: Dhillon N, Riha R, Dhillon B. Smoking, co-morbidities and narcolepsy. *Sleep Med*. 2018
 - Author Response: **Cohen AL**, Mandrekar J, St. Louis EK, Silber MH, Kotagal S. *Sleep Med*. 2018. doi: 10.1016/j.sleep.2018.08.009. PubMed PMID: 30316702.
21. Ryan CS, Fine AL, **Cohen AL**, Schiltz BM, Renaud DL, Wirrell EC, Patterson MC, Boczek NK, Liu R, Babovic-Vuksanovic D, Chan DC, Payne ET. De Novo *DNM1L* Variant in a Teenager with Progressive Paroxysmal Dystonia and Lethal Super-refractory Myoclonic Status Epilepticus. *J Child Neurol*. 2018. doi: 10.1177/0883073818778203. Epub 2018 June 7. PubMed PMID: 29877124.
22. Albazron FM, Bruss J, Jones RM, Yock TI, Pulsifer MB, **Cohen AL**, Nopoulos PC, Abrams AN, Sato M, Boes AD. Pediatric postoperative cerebellar cognitive affective syndrome follows outflow pathway lesions. *Neurology*. Oct 2019; 93(16) e1561-e1571. doi: 10.1212/WNL.0000000000008326. Pubmed PMID: 31527284, Pubmed Central PMCID: PMC6815203
 - Preview: Gross, RA. Spotlight on the October 15 issue. *Neurology*. Oct 2019; 93(16) 689-690; doi: 10.1212/WNL.0000000000008309
 - Editorial: Schmähmann JD, Neuroanatomy of pediatric postoperative cerebellar cognitive affective syndrome and mutism. *Neurology*. Oct 2019; 93(16) 693-694; doi: 10.1212/WNL.0000000000008311. PMID: 31527286
23. **Cohen AL**, Soussand L, Corrow SL, Martinaud O, Barton JJS, Fox MD. Looking beyond the face area:

Lesion network mapping of prosopagnosia. *Brain*. 2019. doi: 10.1093/brain/awz332. Epub 2019 Nov 19. PubMed PMID: 31740940, PubMed Central PMCID: PMC6906597.

- Letter to the Editor: Sperber, C, Dadashi, A. The influence of sample size and arbitrary statistical thresholds in lesion-network mapping. *Brain*. Forthcoming.
- Author Response: The influence of sample size and arbitrary statistical thresholds in lesion-network mapping. *Brain*. Forthcoming.

24. Snider SB, Hsu J, Darby RR, Cooke D, Fischer D, **Cohen AL**, Grafman JH, Fox MD. Cortical lesions causing loss of consciousness are anticorrelated with the dorsal brainstem. *Human Brain Mapping*. 2020; 1-12. doi: 10.1002/hbm.24892, Epub 2020 Jan 6. PubMed PMID: 31904898, PubMed Central PMCID: TBD.
25. Burke MJ, Joutsa J, **Cohen AL**, Soussand L, Cooke D, Burstein R, Fox MD. Mapping Migraine to a Common Brain Network. *Brain*. 2020. doi: 10.1093/brain/awz405, Epub 2020 Jan 9. PubMed PMID: 31919494, PubMed Central PMCID: TBD.

Co-first author of Reference 9: Functional brain networks develop from a "local to distributed" organization

Other peer-reviewed scholarship

1. **Cohen AL**, Wong-Kissel LC. Case of a two-year-old boy with recurrent seizures, abnormal movements, and central hypoventilation. *Semin Pediatr Neurol*. 2014 Jun;21(2):114-18. doi: 10.1016/j.spn.2014.04.014. Epub 2014 Apr 18. PubMed PMID: 25149942. (Peer-reviewed didactic article on NMDAR encephalitis as part of a special issue)
 - Editorial comment. Tillema JM. *Semin Pediatr Neurol*. 2014 Jun;21(2):119-20. doi: 10.1016/j.spn.2014.06.005. Epub 2014 Jun 17. PubMed PMID: 25149943.
2. **Cohen AL**, Jones LK, Parisi JE, Klaas JP. Intractable Epilepsy and Progressive Cognitive Decline in a Young Man. *JAMA Neurol*. 2017 Jun 1;74(6):737-740. doi: 10.1001/jamaneurol.2016.3195. PubMed PMID: 28384730. (Peer-reviewed clinical pathologic conference report)

Scholarship without named authorship

Non-peer reviewed scholarship in print or other media:

Proceedings of meetings or other non-peer reviewed scholarship

1. White BR, Snyder AZ, **Cohen AL**, Petersen SE, Raichle ME, Schlaggar BL, Culver JP. Mapping the human brain at rest with diffuse optical tomography. *Conf Proc IEEE Eng Med Biol Soc*. 2009;2009:4070-2. doi: 10.1109/IEMBS.2009.5333199. PubMed PMID: 19964102; PubMed Central PMCID: PMC4120748.
2. Patel GH, **Cohen AL**, Baker JT, Snyder LH, Corbetta M. Comparison of stimulus-evoked BOLD responses in human and monkey visual cortex. *bioRxiv*. 2018. doi: 10.1101/345330.
3. Guler S, Erem B, Afacan O, Cohen AL, Warfield SK. Dynamic Missing-data Completion removes additional leakage of motion artifact caused by temporal filtering that remains after scrubbing. *Conf Proc 2020 IEEE International Symposium on Biomedical Imaging (ISBI)*, #679. Forthcoming.

Reviews, chapters, monographs and editorials

Books/textbooks for the medical or scientific community

Case reports

Letters to the Editor

Professional educational materials or reports, in print or other media:

1. **Cohen AL**, dir. "NeuroDebian Setup for Bedside Clinical Research." Online video clip. *YouTube*. April 12, 2016. Web. https://youtu.be/a1_YuVt_Jgs
2. **Cohen AL**, dir. "NeuroDebian Usage for Bedside Clinical Research." Online video clip. *YouTube*. April 12, 2016. Web. <https://youtu.be/bvqgg7ZFcl8>

Both videos are intended for use by clinical trainees and junior faculty interested in neuroimaging research in the clinical setting.

Local/Unpublished Clinical Guidelines and Reports:

Cohen AL, Boyce TG. Bacterial Meningitis (Pediatric). Ask Mayo Expert Topic and FAQs. Creation of the initial version under the guidance of Dr. Thomas Boyce of Pediatric Infectious Diseases. Nov 2012.

Ask Mayo Expert is an interactive online service, offered to the Mayo Clinic Care Network of providers, that provides instant access to tailored protocols and advice as well as direct referral or consultation with the Mayo Clinic.

Thesis:

Cohen AL. "Cortical Cartography: Mapping Functional Areas Across the Human Brain with Resting State Functional Connectivity MRI" (2011). All Theses and Dissertations (ETDs). 71. doi: 10.7936/K79P2ZP7

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings:

1. Scharf EL, **Cohen AL**, Jones A, Martinez-Thompson J, Pichler M, Nozile-Firth K, Clark SL, Jones LK. Educational Intervention Reduces Utilization of Low-Value Testing in Cerebrovascular Inpatients: An Example of Rapidly Implementable Quality Improvement. *Neurology* 2016;86 (Meeting Abstracts for the 68th Annual Meeting of the American Academy of Neurology): P2.309.
2. Anand M, **Cohen AL**, Boule DJ, Codyer PJ, Loranestes CM, Vogell AB. A Low-Cost, High-Fidelity Simulation Model for Vaginal Hysterectomy. Video Presentation at the American Urogynecologic Society 29th Annual Scientific Meeting/Pelvic Floor Disorders Week, 2018 Chicago, IL. (Presented by

Anand M)

3. Cotovio G, Talmasov D, Barahona-Corrêa JB, Hsu J, Senova S, Ribeiro R, Soussand L, Velosa A, Rost N, Wu O, **Cohen AL**, Oliveira-Maia AJ, Fox MD. Network localization of mania based on causal brain lesions. Champalimaud Research Symposium 2018. Lisbon, Portugal. Abst. 2.26.
4. Mulder BPF, **Cohen AL**, Prohl AK, Soussand L, Davis P, Gholipour A, Scherrer B, Sahin M, Krueger DA, Bebin EM, Wu JY, Northrup H, Fox MD, Warfield SK, Peters, JM. Tubers associated with infantile spasms impact a common brain network in tuberous sclerosis complex. 2019 International TSC Research Conference. Toronto, ON. Abst. 20. (Selected for oral presentation. Presented by Mulder BPF)
5. **Cohen AL**, Mulder BPF, Prohl AK, Soussand L, Davis P, Gholipour A, Scherrer B, Sahin M, Krueger DA, Bebin EM, Wu JY, Northrup H, Fox MD, Warfield SK, Peters, JM. Tubers associated with infantile spasms impact a common brain network in tuberous sclerosis complex. Child Neurology Society 2019, Charlotte, NC. Abst. 154

Narrative Report

I am a physician-scientist specializing in using translational neuroimaging to understand and develop treatments for autism spectrum disorders and other neurodevelopmental conditions. I earned my baccalaureate, medical, and graduate doctoral degrees at Washington University in St. Louis, where I gained a particular expertise in functional connectivity neuroimaging. During my Pediatrics and Child Neurology residency at Mayo Clinic, I became interested in childhood conditions affecting cognition including neurodevelopmental disorders and went on to complete a Behavioral Neurology fellowship at Boston Children's Hospital and a post-doctoral (T32) research fellowship focusing on localizing the neuroanatomic basis of specific symptoms seen across neurodevelopmental disorders. My long-term goal is to generate treatment targets that could eventually be used for clinical trials, while I also continue to care for patients in the Autism Spectrum Center and the Behavioral Neurology Clinic at BCH.

Area of Excellence: Investigation

My research interests and expertise include constructing and applying novel neuroimaging methods to understand brain development, with a focus on neuropsychiatric and neurodevelopmental disorders, i.e., disorders that affect wide-ranging networks in the brain, and I am known nationally and internationally for several of my contributions. During my graduate years, I created a method to non-invasively divide the brain into functional areas using the brain's spontaneous fMRI activity; a technique which has been cited over 460 times and is one of the defining methods of the Human Connectome Project. This method has been widely adopted and provides robust findings in children as well as in adults. My colleagues and I also pioneered the use of Graph Theory to understand the development of the network architecture of the brain from childhood into adulthood; work that has been cited over 8500 times across the neuroscience literature.

During my residency training, I became deeply interested in translating technology to directly impact clinical care. I encouraged standardization and incorporation of research tools into graduate medical education through presentations and publications that demonstrate the utility of rapidly deployable software within the clinical setting, and continue to be a part of international efforts to generate accessible and reproducible research software "containers" such as the Brain Imaging Data Structure Applications. My growing research program is focused on identifying the neuroanatomical substrate for symptoms common in autism and other neurodevelopmental conditions with the goal of generating targets for noninvasive treatment modalities, e.g., TMS and/or fMRI-based neurofeedback, by: 1) Generation of circuit-based hypotheses for specific symptoms from cohorts with lesions, tubers, tumor resections, epilepsy foci, etc... 2) Validation of these localizations through prospective neuroimaging study of patients with neurodevelopmental disorders affected by those symptoms, and 3) Testing whether modulating this circuit

through non-invasive therapy affects each symptom, e.g., through behavioral and fMRI-based neurofeedback, or TMS/TCDS-based interventions. I am also working towards generating a large-scale database of connectivity neuroimaging data across typical development for rapid hypothesis testing.

Teaching and Education

As a clinical fellow and post-doctoral researcher, my teaching activities focused on mentoring and teaching post-doctoral research fellows and research assistants. As an Instructor in Neurology, I have also developed a growing Clinical Neuroimaging curriculum for the Boston Children's Neurology Residency Program and Neurology Nurse Practitioners and also teach the HMS 1st year medical students within their Interviewing and Communication Skills (ICS) / Practice of Medicine (POM) course.

Summary

My passion and diligence have established my reputation as a self-motivated investigator, clinician, and educator known for my collegiality, professionalism, and empathy with patients and their families. Because of my experiences in basic neuroscience research and my clinical training in Child Neurology, I am acutely aware of the need for "closing the gap" with bench-to-bedside translational research in neurodevelopmental disorders and have made this a focus of my career.