BADER CHAARANI
CURRICULUM VITAE

Position: Assistant Professor
Department of Psychiatry

Address: UHC – 1 South Prospect St.
VCBH - Department of Psychiatry
University of Vermont
Burlington, VT 05405
Email: melmarsr@uvm.edu

EDUCATION

Years	Institution	Degree	Area of Degree
2014-2017	University of Vermont, USA	Post-Doc	Substance use and psychiatric diseases. Advisor: Pr. Hugh Garavan
2011-2014	University of Picardy, France	Ph.D.	Biomedical engineering
2008-2010	University of Bordeaux, France	Masters	Bioinformatics
2005-2008	Lebanese University, Lebanon	B.S	Biology

LICENSES, CERTIFICATION

FACULTY POSITIONS HELD

Years	Institution	Academic Title	Department
2017-	University of Vermont	Assistant Professor	Psychiatry

OTHER POSITIONS AND MAJOR ADMINISTRATIVE POSITIONS HELD

2014-2017

Postdoctoral fellow (Supervisor: Prof. Hugh Garavan)
University of Vermont – Vermont Center on Behavior and Health - Burlington VT, USA

- Setup of structural and functional imaging protocols, MR acquisition and analysis of neuroimaging data within the TCORS project studying the neural correlates of very low nicotine cigarettes in vulnerable populations
- Quality control, processing and Analysis of structural and functional neuroimaging and genetic data in psychological disorders and substance use from the IMAGEN database

2011 - 2014

Graduate Research Assistant (Supervisor: Pr. Olivier Baledent)
University hospital and faculty of medicine Of Amiens - Amiens, France.

- Alterations of cerebral blood perfusion and cerebrospinal fluid flow in neurodegenerative diseases
- Quality control, processing and analysis of Phase-Contrast MRI data

2010

Undergraduate Internship (Supervisor: Dr. Bassem Hiba)
Magnetic Resonance and Biological Systems laboratory - Bordeaux, France

- Study of brain matter lesions in Alzheimer's disease with Diffusion Tensor MRI
- Acquisition, quality control and analysis of Diffusion Tensor MRI data

2009	Undergraduate Internship (Supervisor: Prof. Marie Beurton Aimar) LABRI - University of Bordeaux - Bordeaux, France • Segmentation and 3D reconstruction of mitochondrial networks using Python

HONORS AND AWARDS

Year	Name of Award
2014	Graduate distinction with the highest honours along with a special commendation from the jury – University of Picardy – Amiens, France
2016	Best Abstract travel award - *Society for Research on Nicotine and Tobacco* - Chicago, IL.
2016	Successful Lebanese diaspora awarded by the Lebanese foreign affairs Minister – Beirut, Lebanon.
2019	ABCD Outstanding investigator award – San Diego, CA

KEYWORDS/AREAS OF INTEREST

Substance use, psychiatric diseases, video gaming, dementia, neuroimaging, big data science.

SUMMARY OF PROFESSIONAL ACTIVITIES- OVERALL

My professional effort is mostly allocated towards research (>90% effort), with lesser commitments to mentoring and service. The majority of my time is spent conducting academic research and significantly contributing to the two largest neuroimaging studies yet conducted (ABCD, IMAGEN). My accomplishments are evident in both my funding portfolio and publications. I have been consistently funded since I moved to the US at the end of 2014 by regional and national sources. My publications have been cited 1536 times so far (since my first paper in 2014) reflecting the impact of my research. During the last three years being assistant professor at UVM, I have published 37 peer reviewed manuscripts (first author on five) in top-tier journals, as well as book chapters.

SUMMARY OF ACCOMPLISHMENTS

- Becoming a co-investigator in the Adolescent Brains Cognitive Development (ABCD) Study and taking the lead on data analysis at UVM.
- Receiving support from the Data Analysis, Informatics, & Resource Center in San Diego to perform quality control and image processing at UVM.
- Receiving support from UVM's department of radiology to Investigate the relationship between prematurity and the brain with a special focus on the cerebellum using ABCD data.
- Receiving support from Yale University to investigate neurodevelopmental trajectories of alcohol phenotypes across development using IMAGEN data.
- Collaborating with Harvard University to study the relationship between family environment and the brain using ABCD data.
- Collaborating with Pfizer – Cambridge, MA and being funded to study the relationship between nicotinic receptors and the brain using IMAGEN data.

PROFESSIONAL SERVICE

DEPARTMENTAL SERVICE

COLLEGE SERVICES

MEDICAL CENTER SERVICE

UNIVERSITY SERVICE

GOVERNMENT

SOCIETY MEMBERSHIPS

SERVICE TO PROFESSIONAL ORGANIZATIONS

SERVICE TO PROFESSIONAL PUBLICATIONS

Years	Journal/Publication/Board
2012-2019	Reviewer, *European Society for Magnetic Resonance in Medicine and Biology*
2015-2018	Reviewer, *Neuroimage*
2016	Reviewer, *European Journal of Radiology*
2017-2019	Reviewer, *Nicotine & Tobacco Research*
2018-current	Reviewer, *Human Brain Mapping*

PUBLIC SERVICE

SUMMARY OF SERVICE ACTIVITIES

I have been serving as a reviewer for 5 well-known journals specialized in medical neuroimaging, dementia and substance use.

TEACHING

FORMAL SCHEDULED CLASSES

Years	Course/Location	Hours	Learners level and number
2012-2013	Image processing and computer science at the University hospital and faculty of medicine of Amiens, France.	20	30 medical students
2011-2012	Neuroimaging - University hospital and faculty of medicine of Amiens, France.	20	20 radiologists

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program School	Role	Current Position
2019-2024	D.K. Yuang	Doctoral	Co-mentor	Predoctoral student, UVM
2019-2025	Hannah Losso	Doctoral	Co-mentor	Predoctoral student, UVM
2014-2017	Kelsey Hudson	Doctoral	Co-mentor	Postdoctoral fellow, CARD
2015-2018	Nicholas D'Alberto	Doctoral	Co-mentor	Teacher, UVM
2017	Iskandar Khan	Undergraduate	Supervisor	Research Assistant, UVM
2014-2019	Philip Spechler	Doctoral	Co-mentor	Postdoc fellow, LIBR

SUMMARY OF TEACHING ACTIVITIES

I contribute to the teaching mission of the university in co-mentoring and providing technical support for students, clinical and research fellows in academic research, who successfully, graduated, defended their thesis projects and published peer-reviewed manuscripts.

RESEARCH AND SCHOLARLY ACTIVITIES

RESEARCH AWARDS AND GRANTS

Ongoing Research Support

1. 5U01 DA041148-05 (MPI: Garavan, Hugh) 09/30/2015 – 05/31/2020 6.00 cal. months
NIH/NIDA $2,430,414
6/13 ABCD - USA Consortium: Research Project
The goals of this project are to prospectively examine the effects of substance use on the adolescent brain and cognition as part of a large, longitudinal, multi-site national study.
Role: Co-Investigator

2. R01 AA027553 (MPI: Scheinost, Yip, et al.) 06/01/2019 - 02/28/2023 2.40 cal. months
NIH/NIAAA $1,852,704
Connectome-based prediction and neurodevelopmental trajectories of alcohol phenotypes across development
Major Goals: 1) Identify neuromarkers of alcohol initiation and transitions to hazardous drinking in youth; and 2) Assess developmental trajectories of neuromarkers over time and in relation to alcohol use.
Role: Co-Investigator

3. P033870 (MPI: Soares, Bruno, et al.) 06/01/2019 – 02/28/2023 3.00 cal. months
UVM - Department of radiology
Premature birth association with cerebellar morphology and function
The goals of this project is to investigate the relationship between prematurity and the brain with a special focus on the cerebellum using ABCD data.
Role: Co-Investigator

Completed Research Support

1- 5 U54 DA036114-07 (MPI: Stephen Higgins) 08/30/2014 – 05/31/2019
NIH/FDA/NIDA $3,922,576
University of Vermont Tobacco Center of Regulatory Science
The UVM TCORS assists the FDA CTP mission by investigating the impacts of tobacco product use on addiction, behavior, and health biomarkers and outcomes in vulnerable populations.

2- Pfizer – Cambridge, MA 2016 $120,000
Association between alpha5 nicotinic receptors and the brain in adolescents.

Pending
U24 DA041123 (Dale) 03/01/2020-02/28/2027 - 6 calendar months
NIH/NIDA $27,340,316
ABCD-USA Consortium: Data Analysis, Informatics and Resource Center
Major Goals: Use multimodal brain imaging, cognitive and clinical assessments, bioassays, mobile monitoring, and careful assessment of substance use, environment, psychopathological symptoms, and social functioning in 11,878 adolescents followed over 10 years to determine the effects of substance use on adolescent brain and cognitive development.

Selected Unfunded Grant Submissions

SCHOLARSHIP
Peer Reviewed Publications

Original Research

1. **Chaarani, B**., S. Hahn, N. Allgaier, S. Adise, M. M. Owens, A. C. Juliano, D. K. Yuan, et al. "Baseline Brain Function in the Preadolescents of the ABCD Study." *Nature Neuroscience* 24, no. 8 (August 2021): 1176–86. https://doi.org/10.1038/s41593-021-00867-9.
2. Albaugh, Matthew D., Jonatan Ottino-Gonzalez, Amanda Sidwell, Claude Lepage, Anthony Juliano, Max M. Owens, **Bader Chaarani**, et al. "Association of Cannabis Use During Adolescence With Neurodevelopment." *JAMA Psychiatry*, June 16, 2021. https://doi.org/10.1001/jamapsychiatry.2021.1258.
3. Adise, Shana, Nicholas Allgaier, Jennifer Laurent, Sage Hahn, **Bader Chaarani**, Max Owens, DeKang Yuan, et al. "Multimodal Brain Predictors of Current Weight and Weight Gain in Children Enrolled in the ABCD Study ®." *Developmental Cognitive Neuroscience* 49 (June 2021): 100948. https://doi.org/10.1016/j.dcn.2021.100948.
4. Albaugh, Matthew D., Jonatan Ottino-Gonzalez, Amanda Sidwell, Claude Lepage, Anthony Juliano, Max M. Owens, **Bader Chaarani**, et al. "Association of Cannabis Use During Adolescence With Neurodevelopment." *JAMA Psychiatry*, June 16, 2021. https://doi.org/10.1001/jamapsychiatry.2021.1258.
5. Cao, Zhipeng, Jonatan Ottino-Gonzalez, Renata B. Cupertino, Anthony Juliano, **Bader Chaarani**, Tobias Banaschewski, Arun L. W. Bokde, et al. "Characterizing Reward System Neural Trajectories from Adolescence to Young Adulthood." *Developmental Cognitive Neuroscience* 52 (December 2021): 101042. https://doi.org/10.1016/j.dcn.2021.101042.
6. Ivanov, Iliyan, Muhammad A. Parvaz, Eva Velthorst, Riaz B. Shaik, Sven Sandin, Gabriela Gan, Philip Spechler, **, Chaarani B** et al. "Substance Use Initiation, Particularly Alcohol, in Drug-Naive Adolescents: Possible Predictors and Consequences From a Large Cohort Naturalistic Study." *Journal of the American Academy of Child and*

Adolescent Psychiatry 60, no. 5 (May 2021): 623–36. https://doi.org/10.1016/j.jaac.2020.08.443.

7. Li, Yi, Wesley K. Thompson, Chase Reuter, Ryan Nillo, Terry Jernigan, Anders Dale, Leo P. Sugrue, **Chaarani B,** et al. "Rates of Incidental Findings in Brain Magnetic Resonance Imaging in Children." *JAMA Neurology* 78, no. 5 (May 1, 2021): 578–87. https://doi.org/10.1001/jamaneurol.2021.0306.
8. Lisdahl, Krista M., Susan Tapert, Kenneth J. Sher, Raul Gonzalez, Sara Jo Nixon, Sarah W. Feldstein Ewing, Kevin P. Conway, **, Chaarani B** et al. "Substance Use Patterns in 9-10 Year Olds: Baseline Findings from the Adolescent Brain Cognitive Development (ABCD) Study." *Drug and Alcohol Dependence* 227 (October 1, 2021): 108946. https://doi.org/10.1016/j.drugalcdep.2021.108946.
9. Loso, Hannah Marie, Sarahjane Locke Dube, **Bader Chaarani**, Hugh Garavan, Matthew Albaugh, Masha Ivanova, and Alexandra Potter. "Sex Differences in Psychopathology in a Large Cohort of Nine and Ten-Year-Olds." *Psychiatry Research* 302 (August 2021): 114026. https://doi.org/10.1016/j.psychres.2021.114026.
10. Owens, Max M., Nicholas Allgaier, Sage Hahn, DeKang Yuan, Matthew Albaugh, Shana Adise, **Bader Chaarani**, et al. "Correction to: Multimethod Investigation of the Neurobiological Basis of ADHD Symptomatology in Children Aged 9-10: Baseline Data from the ABCD Study." *Translational Psychiatry* 11, no. 1 (April 12, 2021): 216. https://doi.org/10.1038/s41398-021-01320-y.
11. Potter, Alexandra, Sarahjane Dube, Nicholas Allgaier, Hannah Loso, Masha Ivanova, Lisa C. Barrios, Susan Bookheimer, **Bader Chaarani**, et al. "Early Adolescent Gender Diversity and Mental Health in the Adolescent Brain Cognitive Development Study." *Journal of Child Psychology and Psychiatry, and Allied Disciplines* 62, no. 2 (February 2021): 171–79. https://doi.org/10.1111/jcpp.13248.
12. Price, Matthew, Matthew Albaugh, Sage Hahn, Anthony C. Juliano, Negar Fani, Zoe M. F. Brier, Alison C. Legrand, **Bader Chaarani,** et al. "Examination of the Association between Exposure to Childhood Maltreatment and Brain Structure in Young Adults: A Machine Learning Analysis." *Neuropsychopharmacology: Official Publication of the American College of Neuropsychopharmacology* 46, no. 11 (October 2021): 1888–94. https://doi.org/10.1038/s41386-021-00987-7.
13. Wang, Haiyan, Lingzhong Fan, Ming Song, Bing Liu, Dongya Wu, Rongtao Jiang, Jin Li, **Chaarani Bader,** et al. "Functional Connectivity Predicts Individual Development of Inhibitory Control during Adolescence." *Cerebral Cortex (New York, N.Y.: 1991)* 31, no. 5 (March 31, 2021): 2686–2700. https://doi.org/10.1093/cercor/bhaa383.
14. Zhao, Weiqi, Clare E. Palmer, Wesley K. Thompson, **Bader Chaarani**, Hugh P. Garavan, B. J. Casey, Terry L. Jernigan, Anders M. Dale, and Chun Chieh Fan. "Individual Differences in Cognitive Performance Are Better Predicted by Global Rather Than Localized BOLD Activity Patterns Across the Cortex." *Cerebral Cortex (New York, N.Y.: 1991)* 31, no. 3 (February 5, 2021): 1478–88.
15. Herting, Megan M., Kristina A. Uban, Marybel Robledo Gonzalez, Fiona C. Baker, Eric C. Kan, Wesley K. Thompson, Douglas A. Granger**, Chaarani B** et al. "Correspondence Between Perceived Pubertal Development and Hormone Levels in 9-10 Year-Olds From the Adolescent Brain Cognitive Development Study." *Frontiers in Endocrinology* 11 (2020): 549928. https://doi.org/10.3389/fendo.2020.549928.
16. **Chaarani B**, Kan KJ, Mackey S, Spechler PA, Potter A, Banaschewski T, Millenet S, Bokde ALW, Bromberg U, Büchel C, Cattrell A, Conrod PJ, Desrivières S, Flor H, Frouin V, Gallinat J, Gowland P, Heinz A, Ittermann B, Martinot JL, Nees F, Paus T, Poustka L, Smolka MN, Walter H, Whelan R, Stringaris A, Higgins ST, Schumann G,

Garavan H, Althoff RR; IMAGEN Consortium. Neural Correlates of Adolescent Irritability and Its Comorbidity With Psychiatric Disorders. *J Am Acad Child Adolesc Psychiatry*. 2020 Dec;59(12):1371-1379. doi: 10.1016/j.jaac.2019.11.028. Epub 2020 Aug 27.

17. Spechler PA, **Chaarani B**, Orr C, Albaugh MD, Fontaine NR, Higgins ST, Banaschewski T, Bokde ALW, Quinlan EB, Desrivières S, Flor H, Grigis A, Gowland P, Heinz A, Ittermann B, Artiges E, Martinot MP, Nees F, Orfanos DP, Paus T, Poustka L, Hohmann S, Fröhner JH, Smolka MN, Walter H, Whelan R, Schumann G, Garavan H. Longitudinal associations between amygdala reactivity and cannabis use in a large sample of adolescents. *Psychopharmacology* (Berl). 2020 Nov;237(11):3447-3458. doi: 10.1007/s00213-020-05624-7. Epub 2020 Aug 8.
18. Judd N, Sauce B, Wiedenhoeft J, Tromp J, **Chaarani B**, Schliep A, van Noort B, Penttilä J, Grimmer Y, Insensee C, Becker A, Banaschewski T, Bokde ALW, Quinlan EB, Desrivières S, Flor H, Grigis A, Gowland P, Heinz A, Ittermann B, Martinot JL, Paillère Martinot ML, Artiges E, Nees F, Papadopoulos Orfanos D, Paus T, Poustka L, Hohmann S, Millenet S, Fröhner JH, Smolka MN, Walter H, Whelan R, Schumann G, Garavan H, Klingberg T. Cognitive and brain development is independently influenced by socioeconomic status and polygenic scores for educational attainment. *Proc Natl Acad Sci* 2020 Jun 2;117(22):12411-12418. doi: 10.1073/pnas.2001228117. Epub 2020 May 19.
19. Potter A, Dube S, Allgaier N, Loso H, Ivanova M, Barrios LC, Bookheimer S, **Chaarani B**, Dumas J, Feldstein-Ewing S, Freedman EG, Garavan H, Hoffman E, McGlade E, Robin L, Johns MM. Early adolescent gender diversity and mental health in the Adolescent Brain Cognitive Development study. *J Child Psychol Psychiatry*. 2020 May 28:10.1111/jcpp.13248. doi: 10.1111/jcpp.13248. Online ahead of print.
20. Owens MM, Yuan D, Hahn S, Albaugh M, Allgaier N, **Chaarani B**, Potter A, Garavan H. Investigation of Psychiatric and Neuropsychological Correlates of Default Mode Network and Dorsal Attention Network Anticorrelation in Children. *Cerebral Cortex*. 2020 Nov 3;30(12):6083-6096. doi: 10.1093/cercor/bhaa143.
21. Zhao W, Palmer CE, Thompson WK, **Chaarani B**, Garavan HP, Casey BJ, Jernigan TL, Dale AM, Fan CC. Individual Differences in Cognitive Performance Are Better Predicted by Global Rather Than Localized BOLD Activity Patterns Across the Cortex. *Cereb Cortex*. 2020 Nov 4:bhaa290. doi: 10.1093/cercor/bhaa290. Online ahead of print.
22. Ivanov I, Parvaz MA, Velthorst E, Shaik RB, Sandin S, Gan G, Spechler P, Albaugh MD, **Chaarani B**, Mackey S, Banaschewski T, Bokde ALW, Bromberg U, Büchel C, Quinlan EB, Desrivières S, Flor H, Grigis A, Gowland P, Heinz A, Ittermann B, Martinot JL, Paillère Martinot ML, Artiges E, Lemaitre H, Nees F, Orfanos DP, Paus T, Poustka L, Hohmann S, Millenet S, Fröhner JH, Smolka MN, Walter H, Whelan R, Schumann G, Garavan H; IMAGEN Consortium. Substance Use Initiation, Particularly Alcohol, in Drug Naïve Adolescents: Possible Predictors and Consequences From a Large Cohort Naturalistic Study. *J Am Acad Child Adolesc Psychiatry*. 2020 Sep 30:S0890-8567(20)31951-1. doi: 10.1016/j.jaac.2020.08.443. Online ahead of print.
23. Laurent JS, Watts R, Adise S, Allgaier N, **Chaarani B**, Garavan H, Potter A, Mackey S. Associations Among Body Mass Index, Cortical Thickness, and Executive Function in Children. *JAMA Pediatr*. 2020 Feb 1;174(2):170-177. doi: 10.1001/jamapediatrics.2019.4708.
24. Quinlan EB, Barker ED, Luo Q, Banaschewski T, Bokde ALW, Bromberg U, Büchel C, Desrivières S, Flor H, Frouin V, Garavan H, **Chaarani B**, Gowland P, Heinz A, Brühl R, Martinot JL, Martinot MP, Nees F, Orfanos DP, Paus T, Poustka L, Hohmann S, Smolka

MN, Fröhner JH, Walter H, Whelan R, Schumann G; IMAGEN Consortium. Peer victimization and its impact on adolescent brain development and psychopathology. *Mol Psychiatry*. 2020 Nov;25(11):3066-3076. doi: 10.1038/s41380-018-0297-9. Epub 2018 Dec 12.

25. Robert GH, Luo Q, Yu T, Chu C, Ing A, Jia T, Papadopoulos Orfanos D, Burke-Quinlan E, Desrivières S, Ruggeri B, Spechler P, **Chaarani B**, Tay N, Banaschewski T, Bokde ALW, Bromberg U, Flor H, Frouin V, Gowland P, Heinz A, Ittermann B, Martinot JL, Paillère Martinot ML, Nees F, Poustka L, Smolka MN, Vetter NC, Walter H, Whelan R, Conrod P, Barker T, Garavan H, Schumann G; IMAGEN Consortium. Association of Gray Matter and Personality Development With Increased Drunkenness Frequency During Adolescence. *JAMA Psychiatry*. 2020 Apr 1;77(4):409-419. doi: 10.1001/jamapsychiatry.2019.4063.
26. Garavan HP, **Chaarani B**. Reply to: Neural Remodeling Begins With the First Cigarette. *Biol Psychiatry Cogn Neurosci Neuroimaging*. 2020 Jun;5(6):631. doi: 10.1016/j.bpsc.2020.01.005. Epub 2020 Mar 17.
27. **Chaarani, Bader**, Kees-Jan Kan, Scott Mackey, Philip A. Spechler, Alexandra Potter, Catherine Orr, Nicholas D'Alberto, et al. "Low Smoking Exposure, the Adolescent Brain, and the Modulating Role of CHRNA5 Polymorphisms." *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* 4, no. 7 (July 1, 2019): 672–79. https://doi.org/10.1016/j.bpsc.2019.02.006.
28. Albaugh, Matthew D., James J. Hudziak, Alex Ing, **Bader Chaarani**, Edward Barker, Tianye Jia, Herve Lemaitre, et al. "White Matter Microstructure Is Associated with Hyperactive/Inattentive Symptomatology and Polygenic Risk for Attention-Deficit/Hyperactivity Disorder in a Population-Based Sample of Adolescents." *Neuropsychopharmacology: Official Publication of the American College of Neuropsychopharmacology* 44, no. 9 (2019): 1597–1603.
29. Albaugh, Matthew D., James J. Hudziak, Catherine Orr, Philip A. Spechler, **Bader Chaarani**, Scott Mackey, Claude Lepage, et al. "Amygdalar Reactivity Is Associated with Prefrontal Cortical Thickness in a Large Population-Based Sample of Adolescents." *PLOS ONE* 14, no. 5 (May 2, 2019): e0216152.
30. **Chaarani, Bader**, Kees-Jan Kan, Scott Mackey, Philip A. Spechler, Alexandra Potter, Catherine Orr, Nicholas D'Alberto, et al. "Low Smoking Exposure, the Adolescent Brain, and the Modulating Role of CHRNA5 Polymorphisms." *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* 4, no. 7 (July 1, 2019): 672–79.
31. Laurent, Jennifer S., Richard Watts, Shana Adise, Nicholas Allgaier, **Bader Chaarani**, Hugh Garavan, Alexandra Potter, and Scott Mackey. "Associations Among Body Mass Index, Cortical Thickness, and Executive Function in Children." *JAMA Pediatrics*, December 9, 2019.
32. Orr, Catherine, Philip Spechler, Zhipeng Cao, Matthew Albaugh, **Bader Chaarani**, Scott Mackey, Deepak D'Souza, et al. "Grey Matter Volume Differences Associated with Extremely Low Levels of Cannabis Use in Adolescence." *Journal of Neuroscience* 39, no. 10 (March 6, 2019): 1817–27.
33. Spechler, Philip A., **Bader Chaarani**, Catherine Orr, Scott Mackey, Stephen T. Higgins, Tobias Banaschewski, Arun L. W. Bokde, et al. "Neuroimaging Evidence for Right Orbitofrontal Cortex Differences in Adolescents With Emotional and Behavioral Dysregulation." *Journal of the American Academy of Child and Adolescent Psychiatry* 58, no. 11 (November 2019): 1092–1103.
34. Laurent, Jennifer S., Richard Watts, Shana Adise, Nicholas Allgaier, **Bader Chaarani**, Hugh Garavan, Alexandra Potter, and Scott Mackey. "Associations Among Body Mass

Index, Cortical Thickness, and Executive Function in Children." *JAMA Pediatrics*, December 9, 2019.

35. Orr, Catherine, Philip Spechler, Zhipeng Cao, Matthew Albaugh, **Bader Chaarani**, Scott Mackey, Deepak D'Souza, et al. "Grey Matter Volume Differences Associated with Extremely Low Levels of Cannabis Use in Adolescence." *Journal of Neuroscience* 39, no. 10 (March 6, 2019): 1817–27.
36. Quinlan, Erin Burke, Edward D. Barker, Qiang Luo, Tobias Banaschewski, Arun L. W. Bokde, Uli Bromberg, Christian Büchel, **Bader Chaarani,** et al. "Peer Victimization and Its Impact on Adolescent Brain Development and Psychopathology." *Molecular Psychiatry*, December 12, 2018, 1–11.
37. **Bader Chaarani**, Philip A Spechler, Alexandra Ivanciu, Mitchell Snowe, Joshua P Nickerson, Stephen T Higgins, Hugh Garavan; Multimodal Neuroimaging Differences in Nicotine Abstinent vs. Satiated Smokers, *Nicotine & Tobacco Research* (2018).
38. Nicholas D'Alberto*, **Bader Chaarani***, …, et al. Individual differences in stop-related activity are inflated by the adaptive algorithm in the stop signal task. *Hum Brain Mapp*. 2018. (*): These authors contributed equally to this work.
39. Mackey, S , Allgaier, N., **Chaarani, B.**, …, et al. Mega-Analysis of Gray Matter Volume in Substance Dependence: General and Substance-Specific Regional Effects. *The American Journal of Psychiatry* 2018.
40. Spechler, P.A. , Allgaier, N., **Chaarani, B.**, Whelan, R., Jollans, L., Watts, R., Orr, C., Albaugh, M.D., D'Alberto, N., Higgins, S., Hudson, K.E., Mackey, S., Potter, A., Banaschewski, T., Bokde, A.L.W., Bromberg, U., Büchel, C., Cattrell, A., Conrod, P., Desrivières, S., Flor, H., Frouin, V., Gallinat, J., Gowland, P., Heinz, A., Ittermann, B., Martinot, J-L., Martinot, M.L.P., Nees, F., Poustka, L., Papadopoulos, D., Paus, T., Smolka, M.N., Walter, H., Schumann, G., Althoff, R.R., Garavan H. and the IMAGEN Consortium. The Initiation of Cannabis Use in Adolescence is Predicted by Sex-Specific Psychosocial and Neurobiological Features. *The European Journal of Neuroscience (2018).*
41. Albaugh, M.D., Ivanova, M., **Chaarani, B**., Orr, C., Allgaier, N., Althof, R.R., D'Alberto, N., Hudson, K., Mackey, S., Spechler, P.A., …Alexandra S. Potter and the IMAGEN Consortium. (2018). Ventromedial prefrontal volume in adolescence predicts hyperactive/inattentive symptoms in adulthood. *Cerebral Cortex*.
42. B.J. Casey, Tariq Cannonier, May I. Conley, Alexandra O. Cohen, Deanna M. Barch, Mary M. Heitzeg, Mary E. Soules, Theresa Teslovich, Danielle V. Dellarco, Hugh Garavan, Catherine A. Orr, Tor D. Wager, Marie T. Banich, Nicole K. Speer, Matthew T. Sutherland, Michael C. Riedel, Anthony S. Dick, James M. Bjork, Kathleen M. Thomas, **Bader Chaarani**, …, Damien A. Fair, Anders M. Dale, The Adolescent Brain Cognitive Development (ABCD) study: Imaging acquisition across 21 sites. *Developmental Cognitive Neuroscience* (March 2018).
43. B.J. Casey, Tariq Cannonier, May I. Conley, Alexandra O. Cohen, Deanna M. Barch, Mary M. Heitzeg, Mary E. Soules, Theresa Teslovich, Danielle V. Dellarco, Hugh Garavan, Catherine A. Orr, Tor D. Wager, Marie T. Banich, Nicole K. Speer, Matthew T. Sutherland, Michael C. Riedel, Anthony S. Dick, James M. Bjork, Kathleen M. Thomas, **Bader Chaarani**, …, Damien A. Fair, Anders M. Dale, The Adolescent Brain Cognitive Development (ABCD) study: Imaging acquisition across 21 sites. *Developmental Cognitive Neuroscience* (March 2018).
44. Miller ML, Ren Y, Szutorisz H, Warren NA, Tessereau C, Egervari G, Mlodnicka A, Kapoor M, **Chaarani B**, Morris CV, Schumann G, Garavan H, Goate AM, Bannon MJ; IMAGEN Consortium, Halperin JM, Hurd YL. "Ventral striatal regulation of CREM

mediates impulsive action and drug addiction vulnerability." *Molecular Psychiatry* (April 25, 2017).

45. Matthew D. Albaugh, Catherine Orr, **Bader Chaarani**, Robert R. Althoff, Nicholas Allgaier, Nicholas D' Alberto, Kelsey Hudson, et al. "Inattention and Reaction Time Variability Are Linked to Ventromedial Prefrontal Volume in Adolescents." *Biological Psychiatry* 0, no. 0 (January 14, 2017).
46. Jadwiga Attier-Zmudka, Roger Bouzerar, Catherine Gondry, Frederique Couvillers, **Bader Chaarani**, Olivier Balédent. "Arterial hypertension impact on cerebral blood flow in patients with alzheimer's disease." *Geriatr Gerontol Aging*. 2017;11(3):107-15.
47. **Bader Chaarani,** Joël Daouk, Roger Bouzerar, Jadwiga Zmudka, Marc-Etienne Meyer, and Olivier Balédent. "Use of Dynamic (18)F-Fluorodeoxyglucose Positron Emission Tomography to Investigate Choroid Plexus Function in Alzheimer's Disease." *Experimental Gerontology* 77 (May 2016): 62–68.
48. Scott Mackey, **Bader Chaarani**, Kees-Jan Kan, Philip A. Spechler, Catherine Orr, Tobias Banaschewski, Gareth Barker, et al. "Brain Regions Related to Impulsivity Mediate the Effects of Early Adversity on Antisocial Behavior." *Biological Psychiatry*, January 18, 2016.
49. Philip A. Spechler, Catherine A. Orr, **Bader Chaarani**, Kees-Jan Kan, Scott Mackey, Aaron Morton, Mitchell P. Snowe, et al. "Cannabis Use in Early Adolescence: Evidence of Amygdala Hypersensitivity to Signals of Threat." *Developmental Cognitive Neuroscience* 16 (December 2015): 63–70.
50. Marie-Christine Beauvieux, Claire Chambre, Alan Stephant, Henri Gin, Anne-Karine Bouzier-Sore, **Bader Chaarani**, Gérard Raffard, et al. "High-Fructose Diet Enhances Cerebral Neurodegenerative Process; Preventive Effect of Resveratrol. A Nuclear Magnetic Resonance Imaging and Spectroscopy Study on Rat Nutritional Models." *Nutrition and Aging* 2, no. 1 (January 1, 2014): 15–34.
51. Roger Bouzerar, **Bader Chaarani**, Catherine Gondry-Jouet, Jadwiga Zmudka, and Olivier Balédent. "Measurement of Choroid Plexus Perfusion Using Dynamic Susceptibility MR Imaging: Capillary Permeability and Age-Related Changes." *Neuroradiology* 55, no. 12 (December 2013): 1447–54.
52. Joël Daouk, **Bader Chaarani**, Jadwiga Zmudka, Cyrille Capel, Anthony Fichten, Roger Bouzerar, Catherine Gondry-Jouet, Pierre Jouanny, and Olivier Balédent. "Relationship between Cerebrospinal Fluid Flow, Ventricles Morphology, and DTI Properties in Internal Capsules: Differences between Alzheimer's Disease and Normal-Pressure Hydrocephalus." *Acta Radiologica*, October 17, 2013.
53. **Chaarani, Bader**, Capel, Cyrille, Zmudka, Jadwiga, Daouk, Joel, Fichten, Anthony, Gondry-Jouet, Catherine, Bouzerar, Roger, Balédent, Olivier. "Estimation of the Lateral Ventricles Volumes from a 2D Image and Its Relationship with Cerebrospinal Fluid Flow." *BioMed Research International* (September 16, 2013). https://doi.org/10.1093/cercor/bhaa290.

<u>In Review</u>

1. **Bader Chaarani**, Scott Mackey , Catherine Orr , Philip Spechler , Kelsey Hudson , Stephen Higgins , Robert Whelan, Lee Jollans, Alexandra Potter , Robert R. Althoff , Hugh Garavan & the IMAGEN Consortium. "Should left-handers be excluded from functional neuroimaging studies?" *Under review in e-life.*

2. **Bader Chaarani,** Nicholas Allgaier, …, Alexandra Potter , Hugh Garavan & the ABCD Consortium. "Relationship between video gaming and brain function in a large sample of

children". *Under review in JAMA pediatrics*

s

Books and Chapters

1. **Bader Chaarani**, Philip A. Spechler, Kelsey E. Hudson, John Foxe, Alexandra Potter, and Hugh Garavan. "The Neural Basis of Response Inhibition and Substance Abuse." *Wiley Handbook of Cognitive Control* (2016).

2. Scott Mackey, Kees-Jan Kan, **Bader Chaarani**, Nelly Alia-Klein, Albert Batalla, Samantha Brooks, Janna Cousijn, et al. "Genetic Imaging Consortium for Addiction Medicine: From Neuroimaging to Genes." *Progress in Brain Research* 224 (2016): 203–23.

3. Philip A. Spechler, **Bader Chaarani**, Kelsey E. Hudson, Alexandra Potter, John J. Foxe, and Hugh Garavan. "Response Inhibition and Addiction Medicine: From Use to Abstinence." *Progress in Brain Research* 223 (2016): 143–64.

Other Scholarly Publications

Abstracts

1. **Bader Chaarani,** Nicholas Allgaier, …, Alexandra Potter , Hugh Garavan & the ABCD Consortium. "Relationship between video gaming and brain function in a large sample of children". *Human Brain Mapping 2019* – Rome, Italy.

2. **Bader Chaarani**, Phil Spechler, Alexandra Ivanciu, Stephen T. Higgins and Hugh Garavan. "Cerebral blood flow changes within abstinent vs. satiated smokers." *The college on Problems of Drug Dependence Annual Meeting 2017*- Montreal, Canada.

3. **Bader Chaarani**, Phil Spechler, Scott Mackey, Stephen T. Higgins, Robert R. Althoff, Elliot Stein, Hugh Garavan and the IMAGEN Consortium. "Neural correlates of genetic variant RS16969968 of the nicotinic receptor subunit alpha5." *Society for Research on Nicotine and Tobacco conference 2017*- Florence, Italy.

4. **Bader Chaarani**, Scott Mackey, Catherine Orr, Philip Spechler, Kelsey Hudson, Stephen T. Higgins, Robert Whelan, Lee Jollans, Alexandra Potter, Robert R. Althoff, Hugh Garavan and the IMAGEN Consortium "Should left-handers be excluded from functional neuroimaging studies? *Human Brain Mapping 2016* - Geneva, Switzerland.

5. Nicholas D'Alberto*, **Bader Chaarani***, Scott Mackey, Catherine Orr, Phil Spechler, Alexandra Potter, Robert R. Althoff, Hugh Garavan and the IMAGEN Consortium. "Does the adaptive algorithm in the stop signal task introduce a confound in neuroimaging studies?" *Human Brain Mapping 2016*-Geneva, Switzerland. *(*): contributed equally to the work.*

6. **Bader Chaarani**, Scott Mackey, Kees-Jan Kan, Catherine Orr, Phil Spechler, Alexandra Potter, Stephen Higgins, Elliot Stein, Robert R. Althof, Hugh Garavan and the IMAGEN Consortium "Smoking and the rs16969968 SNP effects on adolescent grey matter." *Human Brain Mapping 2015* - Honolulu, HI.

7. **Bader Chaarani**, Scott Mackey, Kees-Jan Kan, Catherine Orr, Phil Spechler, Alexandra Potter, Stephen Higgins, Elliot Stein, Robert R. Althof, Hugh Garavan and the IMAGEN

Consortium "Smoking and the rs16969968 SNP effects on adolescent grey matter." *TCORS conference 2015* - Bethesda, MD.

8. **Bader Chaarani**, Kees-Jan Kan, Scott Mackey, Phil Spechler, Alexandra Potter, Catherine Orr, Stephen T. Higgins, Argyris Stringaris, Hugh Garavan, Robert R. Althoff and the IMAGEN Consortium. "Neural and genetic correlates of adolescent irritability and its comorbidity with psychiatric disorders." *Human Brain Mapping 2015* - Honolulu, HI.

9. **Bader Chaarani**, Joel Daouk, Roger Bouzerar, Marc-Etienne Meyer and Olivier Baledent. "Intra-ventricular structures segmentation with ^{18}F-FDG dynamic PET images." *Brain PET 2013* - Shanghai, China.

10. **Bader Chaarani**, Joel Daouk, Roger Bouzerar, Marc-Etienne Meyer and Olivier Baledent. "Is ^{18}F-FDG dynamic PET able to point out potential choroid plexus alteration in Alzheimer's disease?" *Brain PET 2013* - Shanghai, China.

11. **Bader Chaarani**, Joel Daouk, Roger Bouzerar, Marc-Etienne Meyer and Olivier Baledent. "Kinetic analysis of ^{18}F-FDG exchanges across the blood-CSF barrier." *Brain PET 2013* - Shanghai, China.

12. **Bader Chaarani**, Joel Daouk, Roger Bouzerar, Marc-Etienne Meyer and Olivier Baledent. "Minimum cerebral blood transit time measurement with dynamic 18F-FDG PET: a novel approach for Alzheimer Disease." *Brain PET 2013* - Shanghai, China.

13. **Bader Chaarani**, Jadwiga Zmudka, Joel Daouk, Catherine Gondry-Jouet, Roger Bouzerar, Olivier Balédent. "CSF and brain atrophy investigation in neurodegenerative diseases." *ISMRM 2012* - Melbourne, Australia

14. **Bader Chaarani**, Cyrille Capel, Jadwiga Zmudka, Catherine Gondry-Jouet, Anthony Fichten, Roger Bouzerar, Olivier Balédent. "CSF and brain tissue repartition in aging brain disorders." *Hydrocephalus conference 2012* - Kyoto, Japan.

15. **Bader Chaarani**, Jadwiga Zmudka, Catherine Gondry-Jouet, Anthony Fichten, Marek Czosnyka, Olivier Balédent. "Are CSF amplitude flow oscillations related to CSF ventricular volume?" *Hydrocephalus 2011*- Copenhagen, Denmark.

16. **Bader Chaarani**, Jadwiga Zmudka, Roger Bouzerar, Catherine Gondry-Jouet, Anthony Fichten, Pierre Jouanny and Olivier Balédent. "CSF ventricular volume and flow investigation in neurodegenerative diseases." *European Society for Magnetic Resonance in Medicine and Biology 2011* - Leipzig, Germany.

Patents Issued or Pending
Other Creative Activities
Quality Improvement and Patient Safety Activities

SUMMARY OF SCHOLARLY ACTIVITIES

My research mainly focuses on investigating the relationship between psychiatric disorders and the adolescent brain using structural and functional neuroimaging. I am currently coinvestigator on the ongoing longitudinal Adolescent Brain Cognitive Development (ABCD) project, the largest neuroimaging study ever conducted, where I am involved in the quality control and processing of the imaging data. In one project, I'm looking at functional brain activation patterns associated with the neuroimaging tests of cognitive control, reward and working memory. Further, I'm assessing the reliability of these activation patterns and their sensitivity to individual differences in performance. In another project, I'm looking at the impact of video gaming and other screen time measures on the brain in a large sample of children. Alongside my current research, I am also interested in applying novel machine learning techniques on big data sets to identify the neurobiological, genetic and behavioral risk factors underlying substance use and psychiatric diseases. Regarding publications, I have published over 70 original manuscripts, book chapters and scientific in the last 6 years describing results from my research studies in peer-reviewed journals and I was cited 954 times so far.

INVITED PRESENTATIONS

Regional

National

1. **Bader Chaarani,** Nicholas Allgaier, …, Alexandra Potter , Hugh Garavan & the ABCD Consortium. "Relationship between video gaming and brain function in a large sample of children". 2020 American Psychiatric Association Annual Meeting – Philadelphia, PA.
2. **Bader Chaarani**, Scott Mackey, Kees-Jan Kan, Phil Spechler, Alexandra Potter, Stephen T. Higgins, Robert R. Althoff, Elliot Stein, Hugh Garavan and the IMAGEN Consortium. "Smoking effects on the adolescent brain." *Society for Research on Nicotine and Tobacco conference 2016* - Chicago, IL.

3. **Bader Chaarani**, Scott Mackey, Kees-Jan Kan, Phil Spechler, Alexandra Potter, Stephen T. Higgins, Robert R. Althoff, Elliot Stein, Hugh Garavan and the IMAGEN Consortium. "Smoking effects on the adolescent brain." *Webinar with the CDC, Washington,DC 2016".*

4. **Bader Chaarani**, Scott Mackey, Kees-Jan Kan, Phil Spechler, Alexandra Potter, Stephen T. Higgins, Robert R. Althoff, Elliot Stein, Hugh Garavan and the IMAGEN Consortium. "Smoking effects on the adolescent brain." *Neuropharmacology lab, PFIZER"*- Boston, MA.

International

1. **Bader Chaarani,** Nicholas Allgaier, …, Alexandra Potter , Hugh Garavan & the ABCD Consortium."Relationship between video gaming and brain function in a large sample of children". June 13, 2019 Auditorium Parco Della Musica - Rome, Italy.
2. **Bader Chaarani**, Jadwiga Zmudka, Veronique Quaglino, Roger Bouzerar and Olivier Balédent. "The relationship between CSF oscillation, cerebral vascular pulsation and brain morphology." *Hydrocephalus conference 2014* - Bristol, UK.
3. **Bader Chaarani**, Jadwiga Zmudka, Cyrille Capel, Catherine Gondry-Jouet, Pierre Jouanny, Anthony Fichten, Roger Bouzerar and Olivier Balédent. "The relationship between ventricular volume and crerebrospinal fluid dynamics." *Journées Francophones de Radiologie 2013* - Paris, France.
4. **Bader Chaarani**, Cyrille Capel, Jadwiga Zmudka, Catherine Gondry-Jouet, Anthony Fichten, Roger Bouzerar, Olivier Balédent. "CSF and brain tissue repartition in aging brain disorders."

Hydrocephalus conference 2012 - Kyoto, Japan.

5. **Bader Chaarani**, Jadwiga Zmudka, Cyrille Capel, Catherine Gondry-Jouet, Cedric Brochart, Anthony Fichten, Roger Bouzerar, Olivier Balédent. "Repartition index of white matter and cerebrospinal fluid in neurodegenerative diseases." *Journées Francophones de Radiologie 2012* - Paris, France.
6. Roger Bouzerar, **Bader Chaarani**, Olivier Pottie, Catherine Gondry-Jouet, Jadwiga Zmudka, Jean-Michel Serot, Olivier Balédent. "Choroid plexus functioning with perfusion MRI: is it possible?" *Journées Francophones de Radiologie 2011* - Paris, France.