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Nicholas.Allgaier@uvm.edu www.uvm.edu/~nallgaie @nallgaier

APPOINTMENTS **University of Vermont, Robert Larner College of Medicine**
Assistant Professor, Department of Psychiatry September 2018
Postdoctoral Associate, Department of Psychiatry 2015-2018

EDUCATION **University of Vermont**, Burlington, Vermont
 Ph.D. Mathematical Sciences January 2015
 Certificate of Graduate Study in Complex Systems May 2012
 M.S. Applied Mathematics May 2010
Santa Fe Institute, Santa Fe, New Mexico
 Complex Systems Summer School June 2012
Worcester Polytechnic Institute, Worcester, Massachusetts
 B.S. Mathematics, minor Computer Science October 2002

EMPLOYMENT

University of Vermont, Burlington, Vermont
Summer Lecturer 2011-2014
 Taught Calculus I, (UVM MA 021), limits, continuity, differential and basic integral calculus.

Prospect Hill Academy Charter School, Cambridge, Massachusetts
High School Math Teacher 2005-2008
 Taught Intro to Calculus, Honors Precalculus, Geometry and Algebra

Alden Research Laboratory, Incorporated, Holden, Massachusetts
Software Developer 2001-2005
 ■ Re-engineered flow meter calibration software using object-oriented design.
 ■ Designed and implemented software to analyze water flow patterns in raft aquaculture systems.

PUBLICATIONS

- Chaarani, B., Hahn, S., **Allgaier, N.**, Adise, S., Owens, M.M.¹ Juliano, A.C., Yuan, D.K., Loso, H., Ivanciu, A., Albaugh M.D., Dumas, J., Mackey, S., Laurent, J., Ivanova, M., Hagler D.J., Cornejo M.D., Hatton S., Agrawal, A., Aguinaldo, L., Ahonen, L., Aklin, W., Anokhin, A.P., Arroyo, J., Avenevoli, S., Babcock, D., Bagot, K., Baker, F.C., Banich, M.T., Barch, D.M., Bartsch, H., Baskin-Sommers, A., Bjork, J.M., Blachman-Demmer, D., Bloch, M., Bogdan, R., Bookheimer, S.Y., Breslin, F., Brown, S., Calabro, F.J., Calhoun, V., Casey, B.J., Chang, L., Clark, D.B., Cloak, C., Constable, R.T., Conway, K., Corley, R., Cottler, L.B., Coxe, S., Dagher, R., Dale, A.M., Dapretto, M., Delcarmen-Wiggins, R., Dick, A. S., Do, E.K., Dosenbach, N.U.F., Dowling, G.J., Edwards, S., Ernst, T.M., Fair, D.A., Fan, C.C., Feczko, E., Feldstein-Ewing, S.W., Florsheim, P., Foxe, J.J., Freedman, E.G., Friedman, N.P., Friedman-Hill, S., Fuemmeler, B.F., Galvan, A., Gee, D.G., Giedd, J., Glantz, M., Glaser, P., Godino, J., Wilbur, A., Gonzalez, M., Gonzalez, R., Grant, S., Gray, K. M., Haist, F., Harms, M.P., Hawes, S., Heath, A.C., Heeringa, S., Heitzeg, M.M., Hermsillo, R., Herting, M.M., Hetteema, J.M., Hewitt, J.K., Heyser, C., Hoffman, E., Howlett, K., Huber, R.S., Huestis, M.A., Hyde, L.W., Iacono, W.G., Infante, M.A., Irfanoglu, O., Isaiah, A., Iyengar, S., Jacobus, J., James, R., Jean-Francois, B., Jernigan, T., Karcher, N.R.,

- Kaufmann, A., Kelley, B., Kit, B., Ksinan, A., Kuperman, J., Laird, A.R., Larson, C., LeBlanc, K., Lessem, J., Lessov-Schlagger, C., Lever, N., Lewis, D.A., Lisdahl, K., Little, A.R., Lopez, M., Luciana, M., Luna, B., Madden, P.A., Maes, H.H., Makowski, C., Marshall, A.T., Mason, M.J., Matochik, J., McCandliss, B.D., McClade, E., Montoya, I., Morgan, G., Morris, A., Mulford, C., Murray, P., Nagel, B.J., Neale, M.C., Neigh, G., Nencka, A., Noronha, A., Nixon, S.J., Palmer, C.E., Pariyadath, V., Paulus, M.P., Pelham, W.E., Pfefferbaum, D., Pierpaoli, C., Prescott, A., Prouty, D., Puttler, L.I., Rajapaske, N., Rapuano, K.M., Reeves, G., Renshaw, P.F., Riedel, M.C., Rojas, P., de la Rosa, M., Rosenberg, M.D., Ross, M. J., Sanchez, M., Schirda, C., Schloesser, D., Schulenberg, J., Sher, K.J., Sheth, C., Shilling, P.D., Simmons, K., Sowell, E.R., Speer, N., Spittel, M., Squeglia, L. M., Sripada, C., Steinberg, J., Striley, C., Sutherland, M.T., Tanabe, J., Tapert, S.F., Thompson, W., Tomko, R. L., Uban, K.A., Vrieze, S., Wade, N.E., Watts, R., Weiss, S., Wiens, B.A., Williams, O.D., Wilbur, A., Wing, D., Wolff-Hughes, D., Yang, R., Yurgelun-Todd, D.A., Zucker, R.A., Potter, A., Garavan, H.P. & the ABCD Consortium. [Baseline Brain Function in the Pre-Adolescents of the ABCD Study](#). *Nature Neuroscience* (2021). DOI: <https://doi.org/10.1038/s41593-021-00867-9>
2. Max Michael Owens, **Nicholas Allgaier**, Sage Hahn, Dekang Yuan, Matthew Albaugh, Shana Adise, Bader Charani, Joseph Ortigara, Anthony Juliano, Alexandra Potter, Hugh Garavan. [Multimethod Investigation of the Neurobiological Basis of ADHD Symptomatology in Children Aged 9-10: Baseline Data from the ABCD Study](#). *Translational Psychiatry*, 11(1), 64. 2021. doi:10.1038/s41398-020-01192-8
 3. Hahn S, Mackey S, Cousijn J, Foxe JJ, Heinz A, Hester R, Hutchinson K, Kiefer F, Korucuoglu O, Lett T, Li CR, London E, Lorenzetti V, Maartje L, Momenan R, Orr C, Paulus M, Schmaal L, Sinha R, Sjoerds Z, Stein DJ, Stein E, van Holst RJ, Veltman D, Walter H, Wiers RW, Yucel M, Thompson PM, Conrod P, **Allgaier N**, Garavan H. [Predicting alcohol dependence from multi-site brain structural measures](#). *Hum Brain Mapping*. 2020 Oct. doi:10.1002/hbm.25248. PMID: 33064342.
 4. Alexandra Potter, Sarahjane Dube, **Nicholas Allgaier**, Hannah Loso, Masha Ivanova, Lisa C Barrios, Susan Bookheimer, Bader Charani, Julie Dumas, Sarah Feldstein-Ewing, Edward G Freedman, Hugh Garavan, Elizabeth Hoffman, Erin McGlade, Leah Robin, Michelle M Johns. [Early adolescent gender diversity and mental health in the Adolescent Brain Cognitive Development study](#). *J Child Psychol Psychiatry*. 2020 May. doi:10.1111/jcpp.13248. PMID: 32463952.
 5. Hahn S, Yuan DK, Thompson WK, Owens M, **Allgaier N**, Garavan H. [Brain Predictability toolbox: A Python library for neuroimaging-based machine learning](#). *Bioinformatics*. 2020 Nov. doi:10.1093/bioinformatics/btaa974. PMID: 33216147.
 6. Max Michael Owens, Courtland Hyatt, Joshua C Gray, Josh Miller, Donald Lynam, Sage Hahn, **Nicholas Allgaier**, Alexandra Potter, Hugh Garavan. [Neuroanatomical correlates of impulsive traits in children aged 9 to 10](#). *Journal of Abnormal Psychology*, 129(8), 831-844. 2020.
 7. Max M Owens, DeKang Yuan, Sage Hahn, Matthew Albaugh, **Nicholas Allgaier**, Bader Charani, Alexandra Potter, Hugh Garavan. [Investigation of Psychiatric and Neuropsychological Correlates of Default Mode Network and Dorsal Attention Network Anticorrelation in Children](#). *Cerebral Cortex*, 30(12), 6083-6096. 2020.
 8. Jennifer S. Laurent, Richard Watts, Shana Adise, **Nicholas Allgaier**, Bader Charani, Hugh Garavan, Alexandra Potter, Scott Mackey. [Associations Between Body Mass Index, Cortical Thickness, and Executive Function in Children](#). *JAMA Pediatrics*, 174(2), 170-177. 2020.
 9. Donald J Hagler Jr, SeanN Hatton, M Daniela Cornejo, Carolina Makowski, Damien A Fair, Anthony Steven Dick, Matthew T Sutherland, BJ Casey, Deanna M Barch, Michael P Harms, Richard Watts, James M Bjork, Hugh P Garavan, Laura Hilmer, Christopher J Pung, Chelsea S Sicut, Joshua Kuperman, Hauke Bartsch, Feng Xue, Mary M Heitzeg, Angela R Laird, Thanh T Trinh, Raul Gonzalez, Susan F Tapert, Michael C Riedel, Lindsay M Squeglia, Luke W Hyde, Monica D Rosenberg, Eric A Earl, Katia D Howlett, Fiona C Baker, Mary Soules, Jazmin Diaz, Octavio Ruiz de Leon, Wesley K Thompson, Michael C Neale, Megan Herting, Elizabeth R Sowell, Ruben P Alvarez, Samuel W Hawes, Mariana Sanchez, Jerzy Bodurka, Florence J Breslin, Amanda

- Sheffield Morris, Martin P Paulus, W Kyle Simmons, Jonathan R Polimeni, Andre van der Kouwe, Andrew S Nencka, Kevin M Gray, Carlo Pierpaoli, John A Matochik, Antonio Noronha, Will M Aklin, Kevin Conway, Meyer Glantz, Elizabeth Hoffman, Roger Little, Marsha Lopez, Vani Pariyadath, Susan RB Weiss, Dana L Wolff-Hughes, Rebecca DelCarmen-Wiggins, Sarah W Feldstein Ewing, Oscar Miranda-Dominguez, Bonnie J Nagel, Anders J Perrone, Darrick T Sturgeon, Aimee Goldstone, Adolf Pfefferbaum, Kilian M Pohl, Devin Prouty, Kristina Uban, Susan Y Bookheimer, Mirella Dapretto, Adriana Galvan, Kara Bagot, Jay Giedd, M Alejandra Infante, Joanna Jacobus, Kevin Patrick, Paul D Shilling, Rahul Desikan, Yi Li, Leo Sugrue, Marie T Banich, Naomi Friedman, John K Hewitt, Christian Hopfer, Joseph Sakai, Jody Tanabe, Linda B Cottler, Sara Jo Nixon, Linda Chang, Christine Cloak, Thomas Ernst, Gloria Reeves, David N Kennedy, Steve Heeringa, Scott Peltier, John Schulenberg, Chandra Sripada, Robert A Zucker, William G Iacono, Monica Luciana, Finnegan J Calabro, Duncan B Clark, David A Lewis, Beatriz Luna, Claudiu Schirda, Tufikameni Brima, John J Foxe, Edward G Freedman, Daniel W Mruzek, Michael J Mason, Rebekah Huber, Erin McGlade, Andrew Prescott, Perry F Renshaw, Deborah A Yurgelun-Todd, **Nicholas A Allgaier**, Julie A Dumas, Masha Ivanova, Alexandra Potter, Paul Florsheim, Christine Larson, Krista Lisdahl, Michael E Charness, Bernard Fuemmeler, John M Hettema, Hermine H Maes, Joel Steinberg, Andrey P Anokhin, Paul Glaser, Andrew C Heath, Pamela A Madden, Arielle Baskin-Sommers, R Todd Constable, Steven J Grant, Gayathri J Dowling, Sandra A Brown, Terry L Jernigan, Anders M Dale. [Image processing and analysis methods for the Adolescent Brain Cognitive Development Study](https://doi.org/10.1016/j.neuroimage.2019.116091). *NeuroImage*, <https://doi.org/10.1016/j.neuroimage.2019.116091>. 2019.
10. Mackey, S., **Allgaier, N.**, Chararani, B., Spechler, P., Orr, C., Bunn, J., Allen, N. B., Alia-Klein, N., Batalla, A., Blaine, S., Brooks, S., Caparelli, E., Chye, Y. Y., Cousijn, J., Dagher, A., Desrivieres, S., Feldstein-Ewing, S., Foxe, J. J., Goldstein, R. Z., Goudriaan, A. E., Heitzeg, M. M., Hester, R., Hutchison, K., Korucuoglu, O., Li, C.-S. R., London, E., Lorenzetti, V., Luijten, M., Martin-Santos, R., May, A., Momenan, R., Morales, A., Paulus, M. P., Pearson, G., Rousseau, M.-E., Salmeron, B. J., Schluter, R., Schmaal, L., Schumann, G., Sjoerds, Z., Stein, D. J., Stein, E. A., Sinha, R., Solowij, N., Tapert, S., Uhlmann, A., Veltman, D., van Holst, R., Whittle, S., Wright, M. J., Yücel, M., Zhang, S., Yurgelun-Todd, D., Hibar, D. P., Jahanshad, N., Evans, A., Thompson, P. M., Glahn, D. C., Conrod, P., and Garavan, H. (2019). [Mega-Analysis of Gray Matter Volume in Substance Dependence: General and Substance-Specific Regional Effects](#). *American Journal of Psychiatry*. 176(2), 119-128.
 11. Orr, C., Spechler, P., Cao, Z., Albaugh, M., Chararani, B., Mackey, S., D'Souza, D., **Allgaier, N.**, Banaschewski, T., Bokde, A. L., Bromberg, U., Büchel, C., Burke Quinlan, E., Conrod, P., Desrivieres, S., Flor, H., Frouin, V., Gowland, P., Heinz, A., Ittermann, B., Martinot, J.-L., Paillère Martinot, M.-L., Nees, F., Papadopoulos Orfanos, D., Paus, T., Poustka, L., Millenet, S., Fröhner, J. H., Radhakrishnan, R., Smolka, M. N., Walter, H., Whelan, R., Schumann, G., Potter, A., and Garavan, H. (2019). [Grey Matter Volume Differences Associated with Extremely Low Levels of Cannabis Use in Adolescence](#). *Journal of Neuroscience*. 39(10), 1817-1827.
 12. Spechler, P. A., **Allgaier, N.**, Chararani, B., Whelan, R., Watts, R., Orr, C., Albaugh, M. D., D'Alberto, N., Higgins, S. T., Hudson, K. E., Mackey, S., Potter, A., Banaschewski, T., Bokde, A. L. W., Bromberg, U., Büchel, C., Cattrell, A., Conrod, P. J., Desrivieres, S., Flor, H., Frouin, V., Gallinat, J., Gowland, P., Heinz, A., Ittermann, B., Martinot, J.-L., Paillère Martinot, M.-L., Nees, F., Papadopoulos Orfanos, D., Paus, T., Poustka, L., Smolka, M. N., Walter, H., Schumann, G., Althoff, R. R., and Garavan, H. (2018). [The Initiation of Cannabis Use in Adolescence is Predicted by Sex-Specific Psychosocial and Neurobiological Features](#). *European Journal of Neuroscience*. 00:1-11; DOI: <https://doi.org/10.1111/ejn.13989>.
 13. D'Alberto, N., Chararani, B., Orr, C. A., Spechler, P. A., Albaugh, M. D., **Allgaier, N.**, Wonnell, A., Banaschewski, T., Bokde, A. L. W., Bromberg, U., Büchel, C., Quinlan, E. B., Conrod, P. J., Desrivieres, S., Flor, H., Fröhner, J. H., Frouin, V., Gowland, P., Heinz, A., Ittermann, B., Martinot, J.-L., Paillère Martinot, M.-L., Artiges, E., Nees, F., Papadopoulos Orfanos, D., Poustka, L., Robbins, T. W., Smolka, M. N., Walter, H., Whelan, R., Schumann, G., Potter, A. S., and Garavan, H. (2018). [Individual differences in stop-related](#)

activity are inflated by the adaptive algorithm in the stop signal task. *Human Brain Mapping*. 39(8), 3263-3276.

14. Albaugh, M., Orr, C., Spechler, P., Chararani, B., **Allgaier, N.**, Althoff, R., D'Alberto, N., Hudson, K., Mackey, S., Lepage, C., Fonov, V. S., Collins, L., Rioux, P., Garavan, H., Potter, A., and Hudziak, J. (2018). [F67. Increased Amygdalar Activation to Angry Faces is Linked to Reduced Prefrontal Cortical Thickness and Hyperactive/Inattentive Symptomatology in Adolescents](#). *Biological Psychiatry*. 83(9), Supplement, S263-S264.
15. Albaugh, M. D., Ivanova, M., Chararani, B., Orr, C., **Allgaier, N.**, Althoff, R. R., D'Alberto, N., Hudson, K., Mackey, S., Spechler, P. A., Banaschewski, T., Brühl, R., Bokde, A. L. W., Bromberg, U., Büchel, C., Cattrell, A., Conrod, P. J., Desrivieres, S., Flor, H., Frouin, V., Gallinat, J., Goodman, R., Gowland, P., Grimmer, Y., Heinz, A., Kappel, V., Martinot, J.-L., Paillère Martinot, M.-L., Nees, F., Papadopoulos Orfanos, D., Penttilä, J., Poustka, L., Paus, T., Smolka, M. N., Struve, M., Walter, H., Whelan, R., Schumann, G., Garavan, H., and Potter, A. S. (2018). [Ventromedial Prefrontal Volume in Adolescence Predicts Hyperactive/Inattentive Symptoms in Adulthood](#). *Cerebral Cortex*. bhy066; DOI: <https://doi.org/10.1093/cercor/bhy066>.
16. Albaugh, M. D., Orr, C., Chararani, B., Althoff, R. R., **Allgaier, N.**, D'Alberto, N., Hudson, K., Mackey, S., Spechler, P. A., Banaschewski, T., Brühl, R., Bokde, A. L., Bromberg, U., Büchel, C., Cattrell, A., Conrod, P. J., Desrivieres, S., Flor, H., Frouin, V., Gallinat, J., Goodman, R., Gowland, P., Grimmer, Y., Heinz, A., Kappel, V., Martinot, J.-L., Paillère Martinot, M.-L., Nees, F., Orfanos, D. P., Penttilä, J., Poustka, L., Paus, T., Smolka, M. N., Struve, M., Walter, H., Whelan, R., Schumann, G., Garavan, H., and Potter, A. S. (2017). [Inattention and Reaction Time Variability Are Linked to Ventromedial Prefrontal Volume in Adolescents](#). *Biological Psychiatry*. 82(9), 660-668.
17. Icke, I., **Allgaier, N.**, Danforth, C., Whelan, R., Garavan, H., Bongard, J., and the IMAGEN Consortium. (2014). [A Deterministic and Symbolic Regression Hybrid Applied to Resting-State fMRI Data](#). In: Riolo, R., Moore, J., Kotanchek, M. (Eds.), *Genetic Programming Theory and Practice XI*. Springer, Ch. 9, 155–173.
18. **Allgaier, N.**, Harris, K., and Danforth, C. (2012). [Empirical Correction of a Toy Climate Model](#). *Physical Review E*. 85, 026201.

INVITED LECTURES

The Science of Willpower and the Neuroscience of Addiction

Vermont Complex Systems Center Symposium on Human Health and Wellness Behavior. Burlington, VT, 9/5/2018.

1Q2D3A (1 Question, 2 Datasets, 3 Algorithms) - video

Chaos, Fractals, and Dynamical Systems. University of Vermont, Burlington, VT, 2/2/2017

Neurodiagnostics for Addiction: A Complex Systems Approach to the Hunt for the Addictive Mechanism

Mathematics Colloquium, University of Vermont, Burlington, VT, 4/29/2016.

Learning from the Past: Empirical Correction of Models of Natural Chaotic Phenomena.

Applied Mathematics Colloquium, University of New Hampshire, Durham, NH, 10/1/2010.

LECTURES

Empirical Correction of a Toy Climate Model.

Joint Math Meeting, AMS Special Session on the Mathematics of Planet Earth, San Diego, CA, 1/11/2013.

Reverse Engineering the Human Brain.

Student Research Conference, UVM, VT, 4/19/2012.

Weather and Climate Prediction: An Empirical Technique for Improving Model Forecasts.
Student Research Conference, 2010, Applied Mathematics Seminar 2009, UVM, Burlington, VT.

Why Good Forecasts Go Bad: Improving the State-of-the-Art Weather Model.
Student Research Conference, Complex Systems Graduate Student Seminar, UVM, Burlington, VT, 2009.

POSTER PRESENTATIONS

[*Prospective Neurotyping of Inhibitory Response in the ABCD Study.*](#)

Organization for Human Brain Mapping, Rome, Italy, June 2019.

[*Nonlinear Brain Region Interactions Associated with Nicotine Addiction.*](#)

Organization for Human Brain Mapping, Vancouver, BC, Canada, June 2017.

[*Nonlinear Neural Mediation of the Effects of Adversity on Adolescent Competence.*](#)

Organization for Human Brain Mapping, Geneva, Switzerland, June 2016.

[*Nonlinear Neural Correlates of Inhibitory Skill.*](#)

Organization for Human Brain Mapping, Honolulu, HI, USA, June 2015.

[*Data-Driven Dynamic Mapping of the Brain.*](#)

Organization for Human Brain Mapping, Hamburg, Germany, June 2014.

HONORS AND AWARDS

University of Vermont, Burlington, Vermont

Vermont Space Grant Consortium Graduate Research Fellowship, 2008-2014.

Graduate Student Senate Award for Most Innovative Research, 2012.

John F. Kenney Award in Graduate Mathematics, 2012.

Sang Kil Nam Scholarship, Graduate Award in Mathematics, 2010.

Worcester Polytechnic Institute, Worcester, Massachusetts

National Merit Scholarship, 1997-2001.

SERVICE

Huntington Energy Committee, Huntington, VT, 2018-present, Vice Chair, 2019-present

Founding Director, Student Complexity Research and Pizza Seminar, UVM, Burlington, VT, 2012-2013.

Graduate Committee, Department of Mathematics and Statistics, UVM, Burlington, VT, 2011.

LEGO Robotics summer camp instructor, Essex Junction, VT, 2009, 2010;

Hurricane and flood recovery: Yorktown, VA (03), Houston, TX (02), Homestead, FL (94).