

# TAYLOR SALO



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## PROFILE

Methodologically oriented cognitive neuroscientist interested in neuroinformatics. Strong technical skills in neuroimaging data processing, analysis, and meta-analysis. Passionate about transparency and reproducibility.

## EDUCATION

**Florida International University**, Doctor of Philosophy, [Psychology](#) **2015 – PRESENT**

- Cognitive neuroscience program
- Advisor: [Dr. Angela Laird](#)

**Cornell University**, Bachelor of Arts, [Psychology](#) **2009 – 2013**

- Concentration in behavioral and evolutionary neuroscience
- Advisor: [Dr. Timothy DeVoogd](#)

## EXPERIENCE

**Graduate Assistant**, [Neuroinformatics and Brain Connectivity Laboratory](#) **2015 – PRESENT**

[Dr. Angela Laird](#), [Florida International University](#)

- Currently assisting in the development of a tool for annotation of the neuroimaging literature using natural language processing and machine learning.
- Currently engaged in a project quantitatively comparing the Neurosynth and BrainMap frameworks.
- Providing assistance in the development and implementation of neuroimaging data analysis pipelines for several projects within the lab.

**Junior Specialist**, [Translational Cognitive and Affective Neuroscience Laboratory](#) **2013 – 2015**

[Dr. Cameron Carter](#), [University of California, Davis](#)

- Acquired neuroimaging and behavioral data from healthy controls and patients with psychosis for projects studying the effects of psychosis on cognitive control, emotion regulation, and brain structure.
- Contributed to and maintained a custom codebase for the analysis of neuroimaging and behavioral data.
- Processed and analyzed neuroimaging and behavioral data for several lab projects.
- Administered behavioral tests and cognitive tasks, including the WASI and WRAT, to both control and clinical populations.
- Trained incoming personnel to administer behavioral and cognitive tasks.

**Lab Co-Manager/Research Assistant**, [Laboratory for Lifespan Affective Neuroscience](#) **2011 – 2013**

[Dr. Barbara Ganzel](#), [Cornell University](#)

- Contributed to projects investigating functional and structural changes associated with subclinical trauma.
- Trained undergraduate students to preprocess and perform data diagnostics on fMRI data.

**Undergraduate Research Assistant**, [Bird Song Behavior Laboratory](#) **2012 – 2013**

[Dr. Timothy DeVoogd](#), [Cornell University](#)

- Prepared solutions for, and assisted in, intracranial perfusion, dissection, and staining of bird brains.
- Examined avian song-related neural regions microscopically.

# PUBLICATIONS

- DuPre, E.<sup>1</sup>, **Salo, T.**<sup>1</sup>, Ahmed, Z., Bandettini, P. A., Bottenhorn, K. L., Caballero-Gaudes, C., Dowdle, L. T., Gonzalez-Castillo, J., Heunis, S., Kundu, P., Laird, A. R., Markello, R., Markiewicz, C. J., Moia, S., Staden, I., Teves, J. B., Uruñuela, E., Vaziri-Pashkam, M., Whitaker, K., & Handwerker, D. A. (2021). TE-dependent analysis of multi-echo fMRI with *tedana*. *Journal of Open Source Software*, 6(66), 3669. doi:[10.21105/joss.03669](https://doi.org/10.21105/joss.03669).
- Flannery, J. S., Riedel, M. C., **Salo, T.**, Hill-Bowen, L. D., Poudel, R., Adams, A. R., Laird, A. R., Gonzalez, R., & Sutherland, M. T. (2021). Interactive Effects of HIV Infection and Cannabis Use on Insula Subregion Functional Connectivity. *Journal of Neuroimmune Pharmacology*, 1-16. doi:[10.1007/s11481-021-10005-8](https://doi.org/10.1007/s11481-021-10005-8).
- Hill-Bowen, L. D., Riedel, M. C., Poudel, R., **Salo, T.**, Flannery, J. S., Camilleri, J. A., Eickhoff, S. B., Laird, A. R., & Sutherland, M. T. (2021). The cue-reactivity paradigm: An ensemble of networks driving attention and cognition when viewing drug and natural reward-related stimuli. *Neuroscience and Biobehavioral Reviews*. doi:[10.1016/j.neubiorev.2021.08.010](https://doi.org/10.1016/j.neubiorev.2021.08.010).
- Flannery, J. S., Riedel, M. C., **Salo, T.**, Poudel, R., Laird, A. R., Gonzalez, R., & Sutherland, M. T. (2021). HIV infection is linked with reduced error-related default mode network suppression and poorer medication management abilities. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. doi:[10.1016/j.pnpbp.2021.110398](https://doi.org/10.1016/j.pnpbp.2021.110398).
- Witt, S. T., van Ettinger-Veenstra, H., **Salo, T.**, Riedel, M. C., & Laird, A. R. (2021). What executive function network is that? An image-based meta-analysis of network labels. *Brain Topography*. doi:[10.1007/s10548-021-00847-z](https://doi.org/10.1007/s10548-021-00847-z).
- Morawetz, C., Riedel, M. C., **Salo, T.**, Berboth, S., Eickhoff, S., Laird, A. R., & Kohn, N. (2020). Multiple large-scale neural networks underlying emotion regulation. *Neuroscience & Biobehavioral Reviews*. doi:[10.1016/j.neubiorev.2020.07.001](https://doi.org/10.1016/j.neubiorev.2020.07.001).
- Botvinik-Nezer, R., Holzmeister, F., ..., **Salo, T.**, ..., Poldrack, R. A., & Schonberg, T. (2020). Variability in the analysis of a single neuroimaging dataset by many teams. *Nature* 582, 84–88. doi:[10.1038/s41586-020-2314-9](https://doi.org/10.1038/s41586-020-2314-9).
- Esteban, O., Ciric, R., Finc, K., Blair, R., Markiewicz, C. J., Moodie, C. A., Kent, J. D., Goncalves, M., DuPre, E., Gomez, D. E. P., Ye, Z., **Salo, T.**, Valabregue, R., Amlen, I. K., Liem, F., Jacoby, N., Stojić, H., Cieslak, M., Urchs, S., Halchenko, Y. O., Ghosh, S. S., De La Vega, A., Yarkoni, T., Wright, J., Thompson, W. H., Poldrack, R. A., & Gorgolewski, K. J. (2020). Analysis of task-based functional MRI data preprocessed with fMRIPrep. *Nature Protocols* 15, 2186–2202. doi:[10.1038/s41596-020-0327-3](https://doi.org/10.1038/s41596-020-0327-3).
- Poudel, R., Riedel, M. C., **Salo, T.**, Flannery, J. S., Hill-Bowen, L. D., Eickhoff, S. B., Laird, A. R., & Sutherland, M. T. (2020). Common and distinct brain activity associated with risky and ambiguous decision-making. *Drug and Alcohol Dependence* 209. doi:[10.1016/j.drugalcdep.2020.107884](https://doi.org/10.1016/j.drugalcdep.2020.107884).
- Flannery, J. S., Riedel, M. C., Bottenhorn, K. L., Poudel, R., **Salo, T.**, Hill-Bowen, L. D., Laird, A. R., & Sutherland, M. T. (2020). Meta-analytic clustering dissociates brain activity and behavior profiles across reward processing paradigms. *Cognitive Affective Behavioral Neuroscience* 20, 215–235. doi:[10.3758/s13415-019-00763-7](https://doi.org/10.3758/s13415-019-00763-7).
- Bolt, T., Nomi, J. S., Arens, R., Vij, S. G., Riedel, M. C., **Salo, T.**, Laird, A. R., Eickhoff, S. B., & Uddin, L. Q. (2020). Ontological dimensions of cognitive-neural mappings. *Neuroinformatics*. doi:[10.1007/s12021-020-09454-y](https://doi.org/10.1007/s12021-020-09454-y).
- Bielczyk, N. Z., Ando, A., ..., **Salo, T.**, ..., Zhou X., & OHBM Student and Postdoc Special Interest Group. (2020). Effective Self-Management for Early Career Researchers in the Natural and Life Sciences. *Neuron*, 106(2), 212–217. doi:[10.1016/j.neuron.2020.03.015](https://doi.org/10.1016/j.neuron.2020.03.015).
- Bartley, J.E., Riedel, M.C., **Salo, T.**, Boevig, E. R., Bottenhorn, K. L., Bravo, E. I., Odean, R., Nazareth, A., Laird, R. W., Sutherland, M. T., Pruden, S. M., Brewie, E., & Laird, A. R. (2019). Brain activity links performance in science reasoning with conceptual approach. *NPJ Science of Learning* 4(20). doi:[10.1038/s41539-019-0059-8](https://doi.org/10.1038/s41539-019-0059-8).

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<sup>1</sup>Co-first authors

- Gonzalez, A. A., Bottenhorn, K. L., Bartley, J.E., Hayes, T., Riedel, M.C., **Salo, T.**, Bravo, E. I., Odean, R., Nazareth, A., Laird, R. W., Sutherland, M. T., Brewe, E., Pruden, S. M., & Laird, A. R. (2019). Sex differences in brain correlates of STEM anxiety. *NPJ Science of Learning* 4(18). doi:[10.1038/s41539-019-0058-9](https://doi.org/10.1038/s41539-019-0058-9).
- Yarkoni, T., Markiewicz, C. J., de la Vega, A., Gorgolewski, K. J., **Salo, T.**, Halchenko, Y. O., McNamara, Q., DeStasio, K., Poline, J. B., Petrov, D., Hayot-Sasson, V., Nielson, D. M., Carlin, J., Kiar, G., Whitaker, K., DuPre, E., Wagner, A., Tirrell, L. S., Jas, M., Hanke, M., Poldrack, R. A., Esteban, O., Appelhoff, S., Holdgraf, C., Staden, I., Thirion, B., Kleinschmidt, D. F., Lee, J. A., Visconti di Oleggio Castello, M., Notter, M. P., & Blair, R. (2019). PyBIDS: Python tools for BIDS datasets. *Journal of Open Source Software*, 4(40), 1294. doi:[10.21105/joss.01294](https://doi.org/10.21105/joss.01294).
- Riedel, M. C., **Salo, T.**, Hays, J., Turner, M. D., Sutherland, M. T., Turner, J. A., & Laird, A. R. (2019). Automated, efficient, and accelerated knowledge modeling of the cognitive neuroimaging literature using the ATHENA toolkit. *Frontiers in Neuroscience*, 13, 494. doi:[10.3389/fnins.2019.00494](https://doi.org/10.3389/fnins.2019.00494).
- Bartley, J. E., Boevig, E. R., Riedel, M. C., Bottenhorn, K. L., **Salo, T.**, Eickhoff, S. B., Brewe, E., Sutherland, M. T., & Laird, A. R. (2018). Meta-analytic evidence for a core problem solving network across multiple representational domains. *Neuroscience and Biobehavioral Reviews*, 92, 318-337. doi:[10.1016/j.neubiorev.2018.06.009](https://doi.org/10.1016/j.neubiorev.2018.06.009).
- Brewe, E., Bartley, J. E., Riedel, M. C., Sawtelle, V., **Salo, T.**, Boevig, E. R., Bravo, E. I., Odean, R., Nazareth, A., Bottenhorn, K. L., Laird, R. W., Sutherland, M. T., Pruden, S. M., & Laird, A. R. (2018). Toward a Neurobiological Basis for Understanding Learning in University Modeling Instruction Physics Courses. *Frontiers in ICT*, 5, 10. doi:[10.3389/fict.2018.00010](https://doi.org/10.3389/fict.2018.00010).
- Ray, K. L., Lesh, T. A., Howell, A. M., **Salo, T.**, Ragland, J. D., MacDonald, A. W., Gold, J. M., Silverstein, S. M., Barch, D. M., & Carter, C. S. (2017). Functional network changes and cognitive control in schizophrenia. *NeuroImage: Clinical*, 15, 161-170. doi:[10.1016/j.nicl.2017.05.001](https://doi.org/10.1016/j.nicl.2017.05.001).
- Lopez-Garcia, P., Lesh, T. A., **Salo, T.**, Barch, D. M., MacDonald, A. W., Gold, J., Ragland, J. D., Strauss, M., Silverstein, S., & Carter, C. S. (2016). The neural circuitry supporting goal maintenance during cognitive control: a comparison of AX-CPT and dot probe expectancy paradigms. *Cognitive, Affective, & Behavioral Neuroscience*, 16(1), 164. doi:[10.3758/s13415-015-0384-1](https://doi.org/10.3758/s13415-015-0384-1).
- Phillips, R. C., **Salo, T.**, & Carter, C. S. (2015). Distinct neural correlates for attention lapses in patients with schizophrenia and healthy participants. *Frontiers in human neuroscience*, 9. doi:[10.3389/fnhum.2015.00502](https://doi.org/10.3389/fnhum.2015.00502).

## PREPRINTS

- Karakuzu, A., Appelhoff, S., Auer, T., Boudreau, M., Feingold, F., Khan, A. R., Lazari, A., Markiewicz, C. J., Mulder, M. J., Phillips, C., **Salo, T.**, Stikov, N., Whitaker, K., & de Hollander, G. (2021). qMRI-BIDS: An extension to the brain imaging data structure for quantitative magnetic resonance imaging data. *medRxiv*. doi:[10.1101/2021.10.22.21265382](https://doi.org/10.1101/2021.10.22.21265382).
- Norgaard, M., Matheson, G. J., Hansen, H. D., Thomas, A. G., Searle, G., Rizzo, G., Veronese, M., Giacomel, A., Yaqub, M., Tonietto, M., Funck, T., Gillman, A., Boniface, H., Routier, A., Dalenberg, J. R., Betthausen, T., Feingold, F., Markiewicz, C. J., Gorgolewski, K. J., Blair, R. W., Appelhoff, S., Gau, R., **Salo, T.**, Niso, G., Pernet, C., Phillips, C., Oostenveld, R., Carson, R. E., Gallezot, J., Knudsen, G. M., Innis, R. B., & Ganz, M. (2021). PET-BIDS, an extension to the brain imaging data structure for positron emission tomography *bioRxiv*. doi:[10.1101/2021.06.16.448390](https://doi.org/10.1101/2021.06.16.448390).
- Bottenhorn, K. L., **Salo, T.**, Riedel, M. C., Sutherland, M. T., Robinson, J. L., Musser, E. D., & Laird, A. R. (2021). Denoising physiological data collected during multi-band, multi-echo EPI sequences. *bioRxiv*. doi:[10.1101/2021.04.01.437293](https://doi.org/10.1101/2021.04.01.437293).

Bottenhorn, K. L., Bartley, J. E., Riedel, M. C., **Salo, T.**, Bravo, E. I., Odean, R., Nazareth, A., Laird, R. W., Musser, E. D., Pruden, S. M., Brewe, E., Sutherland, M. T., & Laird, A. R. (2021). Intelligence and academic performance: Is it all in your head? *bioRxiv*. doi:[10.1101/2021.01.23.427928](https://doi.org/10.1101/2021.01.23.427928).

Bartley J. E., Riedel M. C., **Salo T.**, Bottenhorn K. L., Boevig E. R., Laird R. W., Sutherland M. T., Pruden S. M., Brewe E., & Laird A. R. (2019). Sex and pedagogy influences in learning-related reorganization of brain activity. *bioRxiv*. doi:[10.1101/791301](https://doi.org/10.1101/791301).

## INVITED TALKS AND SOFTWARE DEMONSTRATIONS

**Salo, T.** & Uruñuela, E. (2020). How to Start an Open Science Project from Scratch: ICA-AROMA. Presented at BrainHack Donostia; virtual. More information [here](#).

**Salo, T.** (2020). BIDS for MRI: Structure and Conversion. Presented at the University of Oldenburg Open and reproducible neuroimaging workshop; virtual. More information [here](#).

## PRESENTATIONS

**Salo, T.** (2018). NiMARE: A Neuroimaging Meta-Analysis Research Environment. Presented at Brainhack Global 2018; Miami, Florida. More information [here](#).

**Salo, T.**, Riedel, M. C., Bartley, J. E., Bottenhorn, K. L., Yarkoni, T., Turner, M. D., Turner, J. A., Sutherland, M. T., & Laird, A. R. (2017). A quantitative evaluation of Neurosynth's annotation methods. Presented at the 23<sup>rd</sup> annual meeting of the Organization for Human Brain Mapping; Vancouver, British Columbia. More information [here](#).

**Salo, T.**, Riedel, M. C., Bartley, J. E., Bottenhorn, K. L., Yarkoni, T., Turner, M. D., Turner, J. A., Sutherland, M. T., & Laird, A. R. (2017). A quantitative evaluation of Neurosynth's annotation methods. Presented at Florida International University's 2017 Graduate Student Scholarly Forum; Miami, Florida.

**Salo, T.** & Renfro, A. (2017). Open science tools: GitHub, BIDS, & preregistration. Presented at Brainhack Global 2017; Miami, Florida. More information [here](#).

## POSTERS

**Salo, T.**, Yarkoni T., Kent J. D., Gorgolewski K. J., Glerean E., Bottenhorn K. L., Bilgel M., Wright J., Reeders P., Nielson D. N., Nichols T. E., Riedel M. C., Sutherland M. T., & Laird A. R. (2019). NiMARE: A Neuroimaging Meta-Analysis Research Environment. Presented at the 25<sup>th</sup> annual meeting of the Organization for Human Brain Mapping (Rome, Italy). More information [here](#).

Poudel R., Riedel M. C., **Salo, T.**, Flannery J. S., Hill L. D., Laird A. R., & Sutherland M. T. (2019). Common and distinct brain regions associated with risky- and ambiguous decision-making. Presented at the SANS annual meeting (Miami, Florida). More information [here](#).

**Salo, T.**, Bottenhorn K. L., Nichols T. E., Riedel M. C., Sutherland M. T., Yarkoni T., & Laird A. R. (2018). NiMARE: A Neuroimaging Meta-Analysis Research Environment. Presented at INCF Neuroinformatics 2018 (Montreal, Quebec) and at the annual Brain Initiative Principal Investigators Meeting (Washington D.C.). More information [here](#).

Bottenhorn K. L., **Salo, T.**, Sutherland M. T., & Laird A. R. (2018). Quantitative comparison of functional decoding approaches across meta-analytic frameworks. Presented at INCF Neuroinformatics 2018 (Montreal, Quebec). More information [here](#).

- Riedel M. C., **Saló, T.**, Hays J., Turner M. D., Sutherland M. T., Turner J. A., & Laird A. R. (2018). Automating annotations of the cognitive neuroimaging literature using ATHENA. Presented at INCF Neuroinformatics 2018 (Montreal, Quebec). More information [here](#).
- Yarkoni, T., de la Vega, A., DuPre, E., Esteban, O., Halchenko, Y. O., Hanke, M., Hayor-Sasson, V., Ivanov, A., Kiar, G., Markiewicz, C., McNamara, Q., Petrov, D., **Saló, T.**, Nielson, D., Poline, J. B., Poldrack, R., & Gorgolewski, K. (2018). Pybids: Python tools for manipulation and analysis of BIDS datasets. Presented at the 24<sup>th</sup> annual meeting of the Organization for Human Brain Mapping (Singapore). More information [here](#).
- DuPre, E., Kundu, P., Esteban, O., Markello, R., Whitaker, K., **Saló, T.**, & Spreng, N. (2018). Introducing a BIDS-compliant multi-echo fMRI preprocessing pipeline. Presented at the 24<sup>th</sup> annual meeting of the Organization for Human Brain Mapping (Singapore). More information [here](#).
- Kohn, N., Riedel, M. C., **Saló, T.**, Laird, A. R., Eickhoff, S. B., & Morawetz, C. (2018). Meta-analytic brain networks underlying emotion regulation. Presented at the 24<sup>th</sup> annual meeting of the Organization for Human Brain Mapping (Singapore). More information [here](#).
- Saló, T.**, Riedel, M. C., Bartley, J. E., Bottenhorn, K. L., Yarkoni, T., Turner, M. D., Turner, J. A., Sutherland, M. T., & Laird, A. R. (2017). A quantitative evaluation of Neurosynth's annotation methods. Presented at the 23<sup>rd</sup> annual meeting of the Organization for Human Brain Mapping (Vancouver, British Columbia). More information [here](#).
- Bartley, J. E., Riedel, M. C., **Saló, T.**, Boevig, E. R., Odean, R., Bravo, E., Laird, R. W., Pruden, S., Brewe, E., Sutherland, M. E., Laird, A. R. (2017). Understanding the neural substrates of physics problem solving: Brain mechanisms and behavior correlates. Presented at the 23<sup>rd</sup> annual meeting of the Organization for Human Brain Mapping (Vancouver, British Columbia). More information [here](#).
- Poudel, R., Riedel, M. C., Hill L. D, Flannery, J. F., **Saló, T.**, Laird A.R., Sutherland M.T. (2017). Behavioral decoding of functionally related brain areas consistently linked to drug cue reactivity. Presented at Florida International University's 2017 Graduate Student Scholarly Forum (Miami, Florida). More information [here](#).
- Riedel, M. C., Poudel, R., **Saló, T.**, Eickhoff S. B., Fox, P. T., Laird, A. R., & Sutherland, M. T. (2016). Co-activation based parcellation of the human insula. Presented at the 22<sup>nd</sup> annual meeting of the Organization for Human Brain Mapping (Geneva, Switzerland). More information [here](#).
- Lesh, T. A., Maddock, R. J., **Saló, T.**, Tanase, C., Ragland, J. D., Niendam, T. A., Solomon, M., & Carter, C. S. (2015). Diffusion Measures of Free Water and 1H-MRS Measures of Glutathione in First Episode Patients with Schizophrenia – A Multi-Modal Investigation of an Inflammatory Model for Psychosis. Presented at the 15<sup>th</sup> biennial meeting of the International Congress on Schizophrenia Research (Colorado Springs, CO) and at the annual meeting of the American College of Neuropsychopharmacology (Phoenix, AZ).
- Phillips, R. C., **Saló, T.**, & Carter, C. S. (2014). Default mode network activity precedes attention lapse in healthy subjects. Presented at the 44<sup>th</sup> annual meeting of the Society for Neuroscience (Washington D.C.) and at the second annual Northern California Consciousness meeting (Davis, CA).

## HONORS AND AWARDS

Brain Initiative Principal Investigators Meeting Trainee Travel Award	2019
Organization for Human Brain Mapping Hackathon Travel Award	2017
Organization for Human Brain Mapping Merit Abstract Travel Award	2017

## HACKATHONS

BrainHack Donostia	2020
OHBM Hackathon	2020
NIH Code Convergence	2019
NIH Tedana Hackathon	2019
OHBM Hackathon	2019
Coastal Coding	2019
FIU Brainconn Hackathon	2018
BrainHack Montreal	2018
Code Rodeo	2018
OHBM Hackathon	2017
Neurohackweek	2016

LAST COMPILED: 2022/01/01