Thomas (Tom) William Earnest

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EDUCATION

Doctor of Philosophy, Computational and Data Sciences **2026 (expected)**
Division of Computational and Data Sciences
Washington University in St. Louis

Master of Science, Psychiatric Research **2017**
Institute of Psychiatry, Psychology, and Neuroscience
King's College London

Bachelor of Arts, Biology with Concentration in Neuroscience **2016**
Grinnell College

RESEARCH EXPERIENCE

Research Technician II **2019 - 2020**
Washington University in St. Louis
- Supervisors: Alexxai Kravitz, Meaghan Creed
- Research assistant studying basal ganglia circuits encoding reward and learning
- Skills/techniques: mouse colony management, *in vivo* electrophysiology and optogenetics, dissection/anatomy, *in situ* hybridization, confocal imaging, mouse behavior, 3D printing, device building, programming, data analysis & visualization, software development

NIH Intramural Research Training Award **2017-2019**
National Institute of Dental and Craniofacial Research
- Mentors: Mark Hoon, Hans Jürgen Solinski
- Research internship studying somatosensory processing in the peripheral nervous system
- Skills/techniques: mouse behavior (nociception, pruriception, proprioception), mouse breeding, dissection/anatomy, *in situ* hybridization, immunohistochemistry, confocal imaging, chemogenetics, optogenetics, PCR, cell culture, ELISA, bacterial artificial chromosomes, statistical analysis

Master's Thesis Research **2016-2017**
Institute of Psychiatry, Psychology, and Neuroscience
- Mentors: Elizabeth Shephard, Patrick Bolton
- Thesis research project using actigraphy to study ADHD in child and adolescent patients with tuberous sclerosis complex as part of the TS2000 study
- Skills/techniques: psychometric testing (WASI-II, TROG-II), test scoring, patient visit scheduling, liaising with families, home visits, study design, collection of actigraph motion tracking data, scientific writing

Grinnell College Mentored Advanced Project **2015 – 2016**
Grinnell College
- Mentor: Nancy Rempel-Clower
- Independent research project studying glucocorticoid-induced anxiety and dendritic remodeling in adolescent rats
- Skills/techniques: rat behavior, perfusion, Golgi staining, sectioning, neuron tracing, statistical analysis, scientific writing

PUBLICATIONS & PREPRINTS

Earnest, T., Shephard, E., Tye, C., McEwen, F., Woodhouse, E., Liang, H., Sheerin, F., & Bolton, P. F. (2020). Actigraph-Measured Movement Correlates of Attention-Deficit/Hyperactivity Disorder (ADHD) Symptoms in Young People with Tuberous Sclerosis Complex (TSC) with and without Intellectual Disability and Autism Spectrum Disorder (ASD). Brain Sciences, 10(8), 491. https://doi.org/10.3390/brainsci10080491

Matikainen-Ankney, B. A., **Earnest, T.**, Ali, M., Casey, E., Sutton, A. K., Legaria, A., Barclay, K., Murdaugh, L. B., Norris, M. R., Chang, Y.-H., Nguyen, K. P., Lin, E., Reichenbach, A., Clarke, R. E., Stark, R., Conway, S. M., Carvalho, F., Al-Hasani, R., McCall, J. G., … Kravitz, A. V. (2020). Feeding Experimentation Device version 3 (FED3): An open-source home-cage compatible device for measuring food intake and operant behavior. *BioRxiv*, 2020.12.07.408864. https://doi.org/10.1101/2020.12.07.408864

Murphy, C., Chang, Y.-H., Pareta, R., Li, J.-N., **Earnest, T.**, Tooley, J., Vachez, Y. M., Gereau, R. W., Copits, B. A., Kravitz, A. V., & Creed, M. C. (2021). Modeling features of addiction with an oral oxycodone self-administration paradigm. *BioRxiv*, 2021.02.08.430180. https://doi.org/10.1101/2021.02.08.430180

Solinski, H. J., Dranchak, P., Oliphant, E., Gu, X., **Earnest, T. W.,** Braisted, J., Inglese, J., & Hoon, M. A. (2019). Inhibition of natriuretic peptide receptor 1 reduces itch in mice. Science Translational Medicine, 11(500). https://doi.org/10.1126/scitranslmed.aav5464

Solinski, H. J., Kriegbaum, M. C., Tseng, P.-Y., **Earnest, T. W.,** Gu, X., Barik, A., Chesler, A. T., & Hoon, M. A. (2019). Nppb Neurons Are Sensors of Mast Cell-Induced Itch. Cell Reports, 26(13), 3561-3573.e4. https://doi.org/10.1016/j.celrep.2019.02.089

Vachez, Y. M., Tooley, J. R., Abiraman, K., Matikainen-Ankney, B., Casey, E., **Earnest, T**., Ramos, L. M., Silberberg, H., Godynyuk, E., Uddin, O., Marconi, L., Le Pichon, C. E., & Creed, M. C. (2021). Ventral arkypallidal neurons inhibit accumbal firing to promote reward consumption. *Nature Neuroscience*, 1–12. https://doi.org/10.1038/s41593-020-00772-7

PRESENTATIONS

Earnest, T. W., Solinski, H. J., Kriegbaum, M. C., Tseng, P. Y., Gu, X., Barik, A., … Hoon, M. A. (2019, May). *Nppb-neurons are sensors of mast cell-induced itch.* Poster at NIH Postbac Poster Day. Bethesda, MD.

Earnest, T. W., Solinski, H. J., Kriegbaum, M. C., Tseng, P. Y., Gu, X., Barik, A., … Hoon, M. A. (2019, April). *Nppb-neurons are sensors of mast cell-induced itch.* Poster at the NIDCR Fellows Retreat. Washington, DC.

Earnest, T. (2017, July). *Using actigraphy to measure ADHD symptoms in tuberous sclerosis complex.* Poster at the IoPPN Psychiatric Research MSc year end session. London, UK.

Earnest, T. (2016, February). *Behavioral and morphological effects of stress in adolescent rats.* Talk in the Biology Student Seminar Series at Grinnell College. Grinnell, IA.

Earnest, T., Yetter, M. (2015, November). *Behavioral and morphological effects of stress in adolescent rats.* Talk in the Psychology Student Seminar Series at Grinnell College. Grinnell, IA.

Yetter, M., **Earnest, T.**, Rempel-Clower, N. (2015, October). *Acute corticosterone treatment increases anxiety and dendritic elongation and arborization in the orbitofrontal cortex in mid-adolescent but not early-adolescent rats.* Poster at the Faculty for Undergraduate Neuroscience at the Society for Neuroscience Annual Meeting. Chicago, IL.

Earnest, T. (2015, September). *Acute stress increases anxiety behaviors in mid-adolescent rats and may cause dendritic elongation & arborization in the orbitofrontal cortex.* Poster at Iowa State Neuroscience Research Day. Ames, IA.

AWARDS

- Outstanding Poster Award at NIH Postbac Poster Day (2019)
- NIH Postbaccalaureate Intramural Research Training Award (2017)
- Dean's Medal (2017): Best overall performance in all postgraduate taught programs in the Institute of Psychology, Psychiatry, and Neuroscience
- Sir Robin Murray Prize (2017): Best overall performance in the Psychiatric Research MSc
- Honorable Mention for poster presented at the Iowa State Neuroscience Research Day (2015)
- Dean's List for all semesters at Grinnell College (2012-2016)
- Trustee Honor Scholarship at Grinnell College (2012-2016)

TECHNICAL EXPERIENCE

- Proficient in Python (Projects available at https://github.com/earnestt1234/)
- Software experience: GitHub/Git, Graphpad Prism, SPSS, NeuroExplorer, Transetyx, Bonsai, Neurolucida, Noldus Ethovision XT