Alexandra G. Tremblay-McGaw

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Summary

Detail-oriented Clinical Research Analyst with 7+ years of experience leading innovative, data-driven research across academic medical centers. Proven track record in designing and analyzing complex multimodal datasets, particularly in neuroscience and mental health. Adept in Python-based data analysis, machine learning, and clinical data pipelines. Recognized for establishing best practices in clinical trials and contributing to high-impact publications. Passionate about improving outcomes for stakeholders through evidence-based, human-centered research. Collaborative leader with experience leading teams, mentoring underrepresented scholars and driving cross-functional teamwork across clinical, technical, and academic settings.

Experience

University of California, San Francisco — San Francisco, CA
Clinical Research Analyst (Sleep and Mood Lab) – Dr. Andrew Krystal, MS, MD — 07/2023 - present

- Led advanced data modeling projects using Python (pandas, scikit-learn, statsmodels) to uncover individualized neural and behavioral patterns in treatment-resistant depression, applying ElasticNet regression, bootstrapping, and permutation testing to support personalized neurostimulation.
- Built robust, end-to-end data pipelines processing wearable, physiological, neural, and audio features; applied feature scaling, cross-validation, and Gaussian Mixture Models to support longitudinal symptom prediction and circadian rhythm analysis.
- Collaborated with cross-functional teams (neurosurgeons, engineers, data scientists) to adjust stimulation parameters in real-time, assess safety and efficacy, and improve patient outcomes.
- Co-developed machine learning research using naturalistic audio and intracranial data to classify emotional states and link neural activity to symptom fluctuations.

Stanford University, School of Medicine — Stanford, CA
Lead Clinical Research Analyst (Biobehavioral Pediatric Pain Lab) – Dr. Laura Simons, PhD — 05/2021-07/2023

- Led multi-site NIH study, overseeing recruitment, protocol execution, and data management across large, multimodal datasets (MRI, biospecimens, surveys) across three institutions and a team of over 50 people.
- Designed and processed data for hundreds of participants; ensured data quality across institutions and visualized data (matplotlib and seaborn).
- Managed 4 teams conducting analyses for neuroimaging and psychophysiological studies; led peer-reviewed publications, presentations, and NIH reports.

University of Oregon — Eugene, OR
Data and Lab Manager (Kuhl Memory and Attention Lab) – Dr. Brice Kuhl, PhD — 06/2018 - 08/2021

- Managed data collection and quality assurance for large-scale EEG and fMRI studies examining memory encoding, retrieval, and imagination using tools like MATLAB and Python.
- Led participant testing and study execution across multiple NSF and NIH-funded projects; implemented design changes and troubleshooting protocols to improve data integrity.
- Contributed to manuscript preparation, presentations, and figure generation; authored abstract accepted to a national conference.
- Oversaw experimental protocols and collaborated on study planning, ensuring smooth coordination between research aims and technical implementation.

Research

Lead Researcher — 05/2021 - present

- First author on five research manuscripts (two in press) applying scikit-learn–based machine learning (ElasticNet, Gaussian Mixture Models, cross-validation, GridSearchCV) to multimodal data (neural, behavioral, physiological) for personalized depression prediction and improving clinical trial diversity, with results published in *Frontiers in Human Neuroscience* and *Pain Medicine*.
- Led the design and execution of a predictive modeling study identifying depression symptom variability using Gaussian Mixture Models and regularized neural networks (ridge, lasso), revealing that symptom predictability varies significantly across individuals.
- Leader in developing and establishing best practices within teams and in clinical trial recruitment.

Education

Skidmore College — Saratoga Springs, NY
BA in Economics (3.9/4.0) and Psychology (3.9/4.0) *magna cum laude and honors within both majors* — 08/2018 - 06/2024
Awards: See Beyond Award, Dean's List Honors, Mary Shafer Dennis Scholarship, Skidmore College Grant, Foley Research Award
Courses: Advanced Macroeconomic Theory and Policy, Calculus, Research Methods, Clinical Psychopharmacology, Statistical methods

San Francisco Ballet School and Company — San Francisco, CA
Full-scholarship pre-professional dancer and student with various solos — 08/2003 - 06/2012
Awards: Recruited through Dance in Schools Program, 10-year full scholarship, performance solos
Courses: Pointe, Variations, Pas de Deux, Music Theory, Character

Skills

Programming	Python (NumPy, Pandas, Scikit-learn, StatsModels, Seaborn, Matplotlib), SQL (basic querying), Jupyter Notebooks, MATLAB, Excel (data modeling, forecasting), Google Suite, Illustrator (visualization)
Methods	Analytics, Statistics, Regression Analysis (ElasticNet, Ridge, Lasso), Gaussian Mixture Models, Data Visualization, Forecasting, Bootstrapping, Large Language Models (LLMs), Supervised & Unsupervised Learning, Predictive Modeling, Clinical Data Pipelines, Familiarity with sEEG & neurostimulation analytics
Languages	English (native), Spanish (fluent)

Publications

Tremblay-McGaw, A.G., Sellers, K., Khambhati, A., Hamlat, E., & Krystal, A.D. (in preparation). *Identification of symptom variability within Major Depression Disorder.*

Tremblay-McGaw, A.G.*, Allawala, A.*, Sellers, K., Khambhati, A., Astudillo Maya, D., & Krystal, A.D. (in preparation). *An integrative approach for personalized deep brain stimulation using multimodal behavior, neurophysiological signals, and stimulation.*

Tremblay-McGaw, A.G., Biggs, E.E., Timmers, I., Moulton, E., & Simons, L.E. (in preparation). *The role of the cerebellum in threat learning in youth with chronic pain.*

Sellers, K., Sugrue, L.P., **Tremblay-McGaw, A.G.**, Becker, N., Nedelec, P., Hamlat, E., Chang, E., & Krystal, A.D. (under review). *Bladder control side-effects of deep brain stimulation for major depressive disorder related to recruitment of distinct subcomponents of the anterior limb of the internal capsule.*

Sellers, K.K., Hamlat, E.J., Choi, I., Astudillo Maya, D.A., **Tremblay-McGaw, A.G.**, Mergenthaler, J., Chang, E.F., & Krystal, A.D. (in press). *Sustained benefit of closed-loop deep brain stimulation for major depressive disorder.* Brain Stimulation.

Tremblay-McGaw, A.G., Hamlat, E., Becker, N., Astudillo Maya, D., Krystal, A.D., & Sellers, K. (2025). *Best practices for clinical trials of deep brain stimulation for neuropsychiatric indications.* Frontiers in Human Neuroscience, Brain Imaging and Stimulation.

Lee, A. Moses, Kist, A., Alvarez, J., Sellers, K. K., Khambhati, A. N., Sugrue, L. P., Reid, L. B., Kadlec, K., Fan, J. M., Allawala, A. B., Racine, C. A., Norbu, T., Astudillo, D., **Tremblay-McGaw, A.G.**, Becker, N., Alhourani, A., Starr, P. A., Chang, E. F., & Krystal, A.D. (2025). *Invasive Brain Mapping Identifies Personalized Therapeutic Neuromodulation Targets for Obsessive-Compulsive Disorder.* Biological Psychiatry.

Tremblay-McGaw, A.G., Biggs, E.E., Sokol, O., Wiseman, A.M., Goya Arce, A., & Simons, L.E. (2025). *Who is being represented in research? A researcher-driven method for assessing diversity and representation in prospective research cohorts.* Pain Medicine.

Kist, A., Alvarez, J., **Tremblay-McGaw, A.G**., Becker, N., Allawala, A., Fan, J., Khambhati, A.N., Norbu, T., Sugrue, L., Sellers, K.K., Starr, P.A., Chang, E.F., Krystal, A.D., & Lee, A.M. (2025). Personalizing deep brain stimulation for obsessive compulsive disorder using invasive brain mapping. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 18(1), 452. Elsevier.

Fan, J., Woodworth, K., Murphy, K.R., Hinkley, L., Cohen, J.L., Yoshimura, J., Choi, J., **Tremblay-McGaw, A.G.**, Mergenthaler, J., Good, C.H., Pellionisz, P.A., Lee, A.M., Ianni, T.D., Sugrue, L.P., & Krystal, A.D. (2024). *Thalamic low intensity focused ultrasound stimulation in treatment resistant depression.* Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation.

Biggs, E.E., Heathcote, L.C., Timmers, I., **Tremblay-McGaw, A.G.**, Noel, M., Borsook, D., & Simons, L.E. (2024). *Emotional memory bias in adolescents with chronic pain: examining the relationship with neural, stress, and psychological factors.* PAIN.

Timmers, I., Bruckert, L., Biggs, E.E., **Tremblay-McGaw, A.G.**, Borsook, D., Zhang, H., & Simons, L.E. (2024). *Probing white matter microstructure in youth with chronic pain and its relation to catastrophizing using neurite orientation dispersion and density imaging.* PAIN.

Neville, A., Biggs, E**., Tremblay-McGaw, A.G.**, Wiseman Miner, A., Coghill, R., King, C., Lopez-Sola, M., Moayedi, M., Gaudilliere, B., Aghaeepour, N., Angst, M., Stinson, J., & Simons, L.E. (2023). A longitudinal examination of parent diagnostic uncertainty in pediatric chronic pain. *Journal of Pediatric Psychology*, 48, 144–145. Oxford Univ Press Inc.

Simons, L.E., Hess. C.W., Choate, E.S., Van Orden, A.R., **Tremblay-McGaw, A.G.**, Menendez, M., Boothroyd, D.B., Parvathinathan, G., Griffin, A., Caruso, T. J., Stinson, J., Weisman, A., Liu, T., Christensen, R., & Koeppen, K. (2022). *Virtual Reality Augmented Physiotherapy for Chronic Pain in Youth: Protocol for a randomized controlled trial enhanced with single case experimental design.* Journal of Medical Internet Research.

Chanales, A.J.H., **Tremblay-McGaw, A.G.**, Drascher, M.L., & Kuhl, B.A. (2020). *Adaptive repulsion of long-term memory representations is triggered by event similarity.* 32 (5), 705-720. Psychological Science.