



Tom A.D. Stone

Ph.D. Student in Electrical Engineering, admitted Autumn 2025

Bio

BIO

I am a mathematician and engineer by training and am driven to use my analytical skills to better understand brain networks through physiologically informed signal processing, information theory, network theory, dynamical systems, and topological methods. I am particularly interested in alterations of brain networks due to drugs and pathologies such as anesthetics, cancer, chemotherapeutic drugs, neurodegenerative diseases, and radiation exposure.

EDUCATION AND CERTIFICATIONS

- Sc.M., Brown University , Mathematics (2020)
- B.A., University of Wisconsin - Madison , Mathematics (2018)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

EEG Signal Processing for Clinical Neuroscience

Publications

PUBLICATIONS

- **A Prospective Study Characterizing Cognitive Function in Patients with Inflammatory Bowel Disease.** *Clinical and translational gastroenterology*
Raje, P., Stone, T. A., Alkourabi, J., Mather, R. V., Liu, R., Higuchi, M., Nipp, R. D., Purdon, P. L., Kochar, B., Kunitake, H.
2026
- **Intraoperative Electroencephalogram Alpha Power Associated with Mortality: Reply.** *Anesthesiology*
Mather, R. V., Nipp, R. D., Balanza, G., Stone, T. A., Gutierrez, R., Raje, P., Higuchi, M., Liu, R., Mercado, L. A., Bittner, E. A., Kunitake, H., Purdon, P. L.
2025; 143 (5): 1425-1427
- **The Effects of Timing of Intraoperative Opioid Administration on Postoperative Pain and Opioid Use Outcomes**
Liu, R., Gutierrez, R., Mather, R., Stone, T., Bittner, E., Purdon, P.
LIPPINCOTT WILLIAMS & WILKINS.2025: 734-738
- **Intraoperative Frontal EEG Alpha Power is Associated with Postoperative Mortality and Other Adverse Outcomes**
Mather, R., Villegas, G., Stone, T., Gutierrez, R., Raje, P., Higuchi, M., Liu, R., Mercado, L., Bittner, E., Nipp, R., Kunitake, H., Purdon, P.
LIPPINCOTT WILLIAMS & WILKINS.2025: 554-558
- **EEG Artifact Removal Using Switching State Space Models 2025** *2025 59th Asilomar Conference on Signals, Systems, and Computers*

Stone, T. A., Tou, S., He, M., Beck, A., Purdon, P. L.
2025: 6

- **Electroencephalographic (EEG) Characteristics in Children Undergoing Sevoflurane Anesthesia: Comparing EEG-Guided Anesthesia vs Standard Care**

Bong, C., Villegas, G., Stone, T., Gutierrez, R., Liang, S., Allen, J., Purdon, P.
LIPPINCOTT WILLIAMS & WILKINS.2024: 677

- **Development and multicentre validation of the FLEX score: personalised preoperative surgical risk prediction using attention-based ICD-10 and Current Procedural Terminology set embeddings.** *British journal of anaesthesia*

Liu, R., Stone, T. A., Raje, P., Mather, R. V., Santa Cruz Mercado, L. A., Bharadwaj, K., Johnson, J., Higuchi, M., Nipp, R. D., Kunitake, H., Purdon, P. L.
2024

- **Development and prospective validation of postoperative pain prediction from preoperative EHR data using attention-based set embeddings.** *NPJ digital medicine*

Liu, R., Gutiérrez, R., Mather, R. V., Stone, T. A., Santa Cruz Mercado, L. A., Bharadwaj, K., Johnson, J., Das, P., Balanza, G., Uwanaka, E., Sydloski, J., Chen, A., Hagood, et al
2023; 6 (1): 209

- **Association of Intraoperative Opioid Administration With Postoperative Pain and Opioid Use** *JAMA SURGERY*

Mercado, L. A., Liu, R., Bharadwaj, K. M., Johnson, J. J., Gutierrez, R., Das, P., Balanza, G., Deng, H., Pandit, A., Stone, T. A. D., Macdonald, T., Horgan, C., Tou, et al
2023