



Aaron Brown

Science Engineering Associate 3, Cardiothoracic Surgery - Pediatric Cardiac Surgery

 Resume available Online

Bio

BIO

I am originally from Towson, Maryland, and did my undergraduate at Brown University in Providence, Rhode Island. I like baseball, running, and playing the piano!

INSTITUTE AFFILIATIONS

- Member (Student), Cardiovascular Institute

EDUCATION AND CERTIFICATIONS

- BS, Brown University , Mechanical Engineering (2019)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Engineering research with applications to energy/environmental sustainability.

Publications

PUBLICATIONS

- **Cardiac Mechanics Modeling: Recent Developments and Current Challenges** *JOURNAL OF ELASTICITY*
Brown, A. L., Liu, J., Ennis, D. B., Marsden, A. L.
2026; 158 (2)
- **Personalized biventricular mechanics and sensitivity to model morphology.** *bioRxiv : the preprint server for biology*
Brown, A. L., Shi, L., Salvador, M., Kong, F., Ennis, D. B., Chen, I., Vedula, V., Marsden, A. L.
2025
- **Mechanically activated *snai1b* coordinates the initiation of myocardial delamination for trabeculation.** *Nature communications*
Wang, J., Brown, A. L., Park, S. K., Zheng, C. Z., Langenbacher, A., Zhu, E., O'Donnell, R., Zhao, P., Hsu, J. J., Yokota, T., Liu, J., Chen, J. N., Marsden, et al
2025; 16 (1): 8363
- **Cardiac mechanics modeling: recent developments and current challenges.** *ArXiv*
Brown, A. L., Liu, J., Ennis, D. B., Marsden, A. L.
2025
- **A fluid-structure interaction model of the zebrafish aortic valve.** *Journal of biomechanics*
Kaiser, A. D., Wang, J., Brown, A. L., Zhu, E., Hsiai, T., Marsden, A. L.
2025; 190: 112794

- **A software benchmark for cardiac elastodynamics** *COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING*
Arostica, R., Nolte, D., Brown, A., Gebauer, A., Karabelas, E., Jilberto, J., Salvador, M., Bucelli, M., Piersanti, R., Osouli, K., Augustin, C., Finsberg, H., Shi, et al
2025; 435
- **A Modular Framework for Implicit 3D-0D Coupling in Cardiac Mechanics.** *Computer methods in applied mechanics and engineering*
Brown, A. L., Salvador, M., Shi, L., Pfaller, M. R., Hu, Z., Harold, K. E., Hsiai, T., Vedula, V., Marsden, A. L.
2024; 421
- **Computational approaches for mechanobiology in cardiovascular development and diseases.** *Current topics in developmental biology*
Brown, A. L., Sexton, Z. A., Hu, Z., Yang, W., Marsden, A. L.
2024; 156: 19-50
- **Recent advances in quantifying the mechanobiology of cardiac development via computational modeling.** *Current opinion in biomedical engineering*
Brown, A. L., Gerosa, F. M., Wang, J., Hsiai, T., Marsden, A. L.
2023; 25