Stanford

Benjamin N. Frey

Ph.D. Student in Applied Physics, admitted Autumn 2022

Bio

BIO

In May of 2022, I graduated as a Schulze Innovation Scholar from the University of St. Thomas (Saint Paul, MN).

I am interested in developing sensing and imaging technologies that can increase access to basic diagnostic healthcare.

EDUCATION AND CERTIFICATIONS

- Bachelor of Science, University of St. Thomas (Saint Paul, MN) , Physics (2022)
- Bachelor of Science, University of St. Thomas (Saint Paul, MN) , Computer Science (2022)
- Bachelor of Arts, University of St. Thomas (Saint Paul, MN) , Business Administration (2022)

LINKS

- Portfolio Website (benfrey.com): https://www.benfrey.com

Publications

PUBLICATIONS

- **Ultrasound Autofocusing: Common Midpoint Phase Error Optimization via Differentiable Beamforming** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Simson, W., Zhuang, L., Frey, B. N., Sanabria, S. J., Dahl, J. J., Hyun, D.
  2026; 45 (2): 681-692
- **UltraFlex: Iterative Model-Based Ultrasonic Flexible-Array Shape Calibration** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Frey, B. N., Hyun, D., Simson, W., Zhuang, L., Hashemi, H. S., Schneider, M., Dahl, J. J.
  2025; 72 (11): 1462-1475
- **Differentiable Beamforming for Distributed Attenuation Estimation and Spatial Gain Compensation (SGC)**
  Frey, B. N., Hyun, D., Simson, W., Brevett, T., Zhuang, L., Baek, J., Sanabria, S. J., Dahl, J. J., IEEE
  IEEE.2024
- **Multi-stage investigation of deep neural networks for COVID-19 B-line feature detection in simulated and in vivo ultrasound images**
  Frey, B., Zhao, L., Fong, T., Bell, M.
  edited by Drukker, K., Iftekharuddin, K. M.
  SPIE-INT SOC OPTICAL ENGINEERING.2022
- **Semicomputational calculation of Bragg shift in stratified materials** *PHYSICAL REVIEW E*
  Frey, B., Snyder, P., Ziock, K., Passian, A.

2021; 104 (5): 055307