

Chase Christenson

Computational Scientist

Data driven, quantitative researcher with 6+ years of experience in an academic setting. Excited about opportunities in industry or academia for advancing healthcare through data science. Defending dissertation in November 2024, available to work directly following.

Experience highlights

Graduate Research Assistant 2020 – Present

Center for Computational Oncology – UT Austin

- Developed imaging processing pipelines for 3D medical image datasets consisting of CT, SPECT, and/or MRI; used segmentation methods, rigid and non-rigid registration, data normalization and mathematical formulations to prep data for analysis.
- Constructed frameworks in MATLAB and Python for analysis of longitudinal imaging data with mechanism based models; calibrated models with either frequentist or Bayesian methods.
- Constructed digital twins capable of providing early predictions of response to therapy for glioblastoma and breast cancer patients and optimizing therapeutic regimens.

Undergraduate Research Assistant 2018 – 2020

Advanced Biophotonics and Nanomaterials Laboratory – UT San Antonio

- Worked in laboratory setting, evaluating protocols for chemical binding and detection abilities of a novel biosensor; custom engineered pneumatic system for delivering flow through microfluidic channels.
- Developed MATLAB programs for repeatable analysis of image outputs from the biosensor.

Publications

Christenson, C, Wu, C, Hormuth, DA, Stowers, CE, LaMonica, M, Ma, J, Rauch, GM, Yankeelov, TE. ***Fast model calibration for predicting the response of breast cancer to chemotherapy using proper orthogonal decomposition***, Journal of Computational Science, 82 (2024), <https://doi.org/10.1016/j.jocs.2024.102400>

Wu, C, Hormuth, DA, **Christenson, C**, Woodall, RT, Abdelmalik, MRA, Phillips, WT, Hughes, TJR, Brenner, AJ, Yankeelov, TE. ***Image-guided patient-specific optimization of catheter placement for convection-enhanced nanoparticle delivery in recurrent glioblastoma***, Computers in Biology and Medicine, 179 (2024), 108889–. <https://doi.org/10.1016/j.combiomed.2024.108889>

Christenson, C, Wu, C, Hormuth, DA, Huang, S, Bao, A, Brenner, A, Yankeelov, TE. ***Predicting the spatio-temporal response of recurrent glioblastoma treated with rhenium-186 labelled nanoliposomes***, Brain Multiphysics, 5 (2023), 100084–. <https://doi.org/10.1016/j.brain.2023.100084>.

Hormuth, DA, Farhat, M, **Christenson, C**, Curl, B, Quarles, C, Chung, C, Yankeelov, TE. ***Opportunities for improving brain cancer treatment outcomes through imaging-based mathematical modeling of the delivery of radiotherapy and immunotherapy***, Adv. Drug Deliv. Rev., 187 (2022), 114367. <https://doi.org/10.1016/j.addr.2022.114367>

Conference presentations

- Poster at 2023 Biomedical Engineering Society meeting
- Invited talk at 2023 Society for Mathematical Biology annual meeting
- Poster at 2022 American Association of Cancer Research meeting
- Poster at 2020 SPIE annual meeting

Contact

- Austin, TX (open to relocation, or remote)
- (210) 325-8748
- chasedchristenson@gmail.com
- [linkedin.com/in/chasechristenson/](https://www.linkedin.com/in/chasechristenson/)
- github.com/cchristenson2

Education

University of Texas at Austin

Ph.D. in Biomedical Engineering
Austin, TX – 2024 (in-progress)

University of Texas at Austin

M.S. in Biomedical Engineering
Austin, TX – 2022

University of Texas at San Antonio

B.S. in Biomedical Engineering
Minor in Computer Science
San Antonio, TX – 2020

Skills

Programming languages

- MATLAB
 - Image processing toolbox
 - Optimization toolbox
 - Curve fitting toolbox
 - Parallel computing toolbox
 - Statistics and Machine learning toolbox
- Python
 - NumPy
 - SciPy
 - Scikit-learn
 - PyTorch
 - PyMC
 - matplotlib
 - Custom modules
- C

Computational methods

- Cluster analysis
- Regression models
- Convolutional neural networks
- Decision trees
- ROC analysis

Mathematics

- Numerical simulations
- Parameter estimation
- Bayesian statistics
- Dimensionality reduction
- Constrained optimization

Soft skills

- Peer-reviewed publications
- Presentation skills
- Creative problem solving
- Project management