

Chong Duan, PhD

Boston, MA
+1 (314) 691-7072

Homepage: chongduan.github.io
Email: duanchong520@gmail.com

Executive Summary

AI and Oncology Clinical Development leader with 10+ years of experience leveraging machine learning, multimodal modeling, quantitative imaging and biomarkers to advance cancer research and drug development. Proven track record leading cross-functional teams spanning AI, clinical development, biometrics, regulatory, and external partnerships to translate AI innovation into clinical impact through novel endpoints, prognostic and predictive biomarkers, dose optimization, patient stratification, and regulatory-facing evidence generation. Recognized scientific leader with expertise in integrating AI into development strategies to accelerate decision-making, reduce development risk, and improve the probability of clinical and regulatory success.

Experience

Pfizer – Cambridge, MA

Director, Digital & Imaging AI Lead	Translational Clinical Sciences	04/2023 – present
Assoc. Director	--	07/2021 – 04/2023
Manager	--	07/2019 – 07/2021

1. Led the development and deployment of AI-enabled biomarkers, endpoints, multimodal models, and digital measurements across Pfizer’s Oncology portfolio to support dose optimization, early efficacy assessment, patient stratification, and data-driven development decisions, accelerating Phase I/II clinical development and reducing program risk.
2. Pioneered AI-assisted tumor response endpoints in **prospective trials** (aligned with FDA CPIM recommendations) across early and late development, navigating complex operational, regulatory, legal, and data privacy challenges to enable data-driven development decisions and regulatory-facing evidence generation.
3. Selected scientific contributions:
 - a. Deep learning-based prognostic and predictive biomarkers - [ASCO 2024](#), [JCO CCI 2024](#) [Invited paper], [ASCO 2025](#).
 - b. AI-powered RECIST v1.1 and beyond in clinical trials - [ESMO 2023](#), [ESMO 2025](#) [[ESMO Daily Reporter Highlight](#)].
 - c. Multimodal learning (clinical imaging + ctDNA) for early on-treatment prediction of long-term survival outcomes - [WCLC 2026](#) [Accepted].
4. Led multidisciplinary teams of direct reports and matrixed contributors spanning in AI, clinical development, operations, biometrics, imaging sciences, regulatory, and external collaborators across academia, AI companies, and nonprofits.
5. Leveraged cloud platforms for the development and deployment of advanced deep learning models:
 - a. Fully automated echocardiogram analysis framework on **AWS** that reduces analysis time by >92% - [AWS Architecture](#), [Paper](#), [Code](#). [Pfizer Breakthrough Science & Innovation Award - the highest honor for a Pfizer R&D colleague]
 - b. Leading evaluation and deployment of external foundation models through **Azure AI Foundry** to enable secure, scalable, and compliant AI use within clinical development while addressing external data sharing and privacy challenges.
6. Led Pfizer’s engagement in high-profile public-private partnerships to advance the development, validation, and regulatory acceptance of AI-enabled clinical solutions including:
 - a. Friends of Cancer Research: [ai.RECIST](#)
 - b. Innovative Health Initiative (IHI) consortium: [SYNTHIA](#)
 - c. FNIH Biomarkers Consortium: [Mucosal Healing in Ulcerative Colitis](#)

Invicro (now Perceptive) – Boston, MA

Study Director, Discovery Research 02/2019 – 07/2019

1. Led imaging studies supporting PK/PD, bio-distribution, toxicology, and translational research for Pharmaceutical and Biotech clients.

Harvard Medical School – Boston, MA

Research Fellow, Cardiovascular Imaging 09/2017 – 01/2019

1. Developed deep learning methods for accelerated MRI reconstruction (>4x scan acceleration).
2. Developed a novel non-contrast MRI method for myocardial scar detection (>50% increase in contrast-to-noise ratio). [[Code](#) & [MRM 2018](#)].

Schlumberger – Cambridge, MA

Research Intern, Sensor Physics 05/2016 – 10/2016

1. Developed a simulation tool for virtual oil-well logging apparatus prototyping [[JMR 2017](#)].

Washington University School of Medicine – St. Louis, MO

Graduate Research Assistant 08/2014 – 08/2017

1. Developed Bayesian and pharmacokinetic modeling approaches for cancer imaging data, resulting in multiple first author publications [[MRM 2016](#), [MIB 2018](#)].

Education

MS in Computer Science (specialization in Machine Learning)

Georgia Institute of Technology 2020

PhD in Physical Chemistry (focusing on Cancer Imaging)

Washington University in St. Louis 2017

BS in Chemistry

Nankai University 2012

Technical Skills

Python, R, MATLAB, C++, Fortran

PyTorch, TensorFlow, MONAI, Keras/PyTorch Lightning, OpenCV, scikit-learn, scikit-image, Pyradiomics

Regression Classification / Clustering / Dimensionality Reduction

CNN, RNN, Transformer, ViT, VAE, GANs, traditional ML models (SVM, XGBoost, KNN, ...)

AWS, Azure, Git/GitHub, Hugging Face, Docker, Jupyter Notebook

Leadership & Awards

Breakthrough Science & Innovation Award (Pfizer) 2021

William E. Upjohn Prizes Award (Pfizer) 2020

Journal of Cardiovascular Magnetic Resonance (JCMR) Gold Star Reviewer Award 2019 & 2020

Dean's Dissertation Fellowship (Washington University in St. Louis) 2017

The ISMRM Summa Cum Laude Merit Award 2016 & 2017

(Top 5% oral presentations)

Teaching Assistant Award (Washington University in St. Louis)	2014
Chemical Safety Contest winner (Washington University in St. Louis)	2012
First Prize of Excellence Scholarship (Nankai University)	2009 – 2011

Invited Talks & Oral Presentations

1. Joint Statistical Meeting (JSM) 2022, “Deep Learning for Image Analysis - Initial Development of Digital Diagnostic/Prognostic Algorithms: Analogies and Lessons Learned from Drug Development”, Washington, DC, August 2022.
2. AWS Healthcare & Life Sciences Symposium 2022, “Developing and Deploying Deep Learning-based Echocardiography Analysis with AWS”, March 2022.
3. 77th AALAS National Meeting, “Fully Automated Mouse Echocardiography Analysis with Deep Convolutional Neural Networks”, October 2021.
4. Summit for Clinical Ops Executives (SCOPE) 2021 – “Clinical Image Management and Exploration at Pfizer”, June 2020.
5. 22nd annual meeting of the Society for Cardiovascular Magnetic Resonance, “Non-contrast Myocardial Viability Assessment Using a Hybrid Native T1 and Magnetization Transfer Imaging Sequence”, Bellevue, Washington, June 2019.
6. 27th annual meeting of the International Society of Magnetic Resonance in Medicine, “CMR in Kidney Failure: Non-Contrast Imaging”, Montreal, Québec, Canada, 2019.
7. 22nd annual meeting of the Society for Cardiovascular Magnetic Resonance, “Focus Session 6: MR Techniques and Methods: Non-contrast CMR and New Contrast Mechanisms”, Bellevue, Washington, 2019.
8. 25th annual meeting of the International Society of Magnetic Resonance in Medicine, “Irradiated Brain Parenchyma Promotes Virulent Proliferation of Naive Glioma Cells: Mouse Model of Recurrent Glioblastoma”, Honolulu, Hawaii, May 2017.
9. 24th annual meeting of the International Society of Magnetic Resonance in Medicine, “Can anti-VEGF Antibody Reverse Radiation Necrosis? A Preclinical Investigation”, Singapore, May 2016.

Selected Publications

Full list available on [Google Scholar](#); *Corresponding Author.

1. Zhang, H., Wang, I. M., Rifi, N., Lu, J. T., Deng, S., Solomon, B., and **Duan, C.*** (2026) Early on-treatment prediction of long-term PFS using a joint AI-imaging and ctDNA model in the CROWN study. *WCLC 2026*. [Accepted]
2. Lu, S. L., Chang, Y. C., Liang, C. H., Chiang, P. L., Maresca, K., Pollom, E., Wilner K., Lu, J. T., Toffalorio, F., Giaccone G., and **Duan, C.*** (2026). AI-Enabled Early Intracranial Volumetric Response Predicts Systemic Progression Free Survival in the Phase III CROWN Study. *Neuro-Oncology Advances*. [In review]
3. Liu, A., **Duan, C.**, Maresca, K., Pithavala, Y., Lu, J. T., Guo, C., and Hibma, J. (2026). AI-powered Lesion-level Tumor Growth Inhibition Modeling Improves Model Stability and Prognostic Association with PFS. *CPT: Pharmacometrics & Systems Pharmacology*. [In press]
4. Lu, S. L., Chang, Y. C., Liang, C. H., Chiang, P. L., Maresca, K., Pollom, E., ... & **Duan, C.*** (2025). 2012P A post-hoc analysis of the CROWN study in ALK+ NSCLC using AI to predict progression-free survival based on early response. *Annals of Oncology*, 36, S1146.
5. Sako, C., Schmidt, T., **Duan, C.**, Maresca, K., Gowan, A. C., Vyas, S., ... & Kelly, R. J. (2025). Association of deep learning CT response assessment and interpretable components with overall survival in advanced NSCLC: Validation in a trial of sasanlimab and a real-world dataset. *J Clin Oncol* **43**, 1559.

6. Sako, C., **Duan, C.**, Maresca, K., Kent, S., Schmidt, T.G., Aerts, H.J., Parikh, R.B., Simon, G.R. and Jordan, P., 2024. Real-World and Clinical Trial Validation of a Deep Learning Radiomic Biomarker for PD-(L) 1 Immune Checkpoint Inhibitor Response in Advanced Non-Small Cell Lung Cancer. *JCO Clinical Cancer Informatics*, 8, p.e2400133.
7. Montgomery, M.K., **Duan, C.**, Mansukh, L., Chang, S., Cubias, A., Brun, S., Giddabasappa, A. and Jiang, Z.K., (2024), Applying deep learning to segmentation of murine lung tumors in pre-clinical micro-computed tomography. *Translational Oncology*, 40, p.101833.
8. Lu, S.-L., **Duan, C.**, Chang, Y.-C., Liang, C.-H., Chiang, P.-L., Lin, V., Yang, Y.-S., Schayowitz, A., Selaru, P., Wilner, K. D., & Lu, J.-T. (2023), 1421P AI-powered intracranial tumor response predicts systemic progression with high concordance in endpoint evaluation in the phase III CROWN study. *Annals of Oncology*, 34, S811. <https://doi.org/10.1016/J.ANNONC.2023.09.2452>.
9. **Duan C**, Montgomery MK, Chen X, Ullas S, Stansfield J, McElhanon K and Hirenallur-Shanthappa D, 2022. "Fully automated mouse echocardiography analysis using deep convolutional neural networks," *American Journal of Physiology-Heart and Circulatory Physiology*, 323(4), pp.H628-H639.
10. Zhu Y, Fahmy AS, **Duan C**, Nakamori S, Nezafat R. Automated Myocardial T2 and Extracellular Volume Quantification in Cardiac MRI Using Transfer Learning-based Myocardium Segmentation. *Radiology: Artificial Intelligence* (2020), 2(1), e190034.
11. **Duan C**, Yang R, Yuan L, et al. Late effects of radiation prime the brain microenvironment for accelerated tumor growth. *Int J Radiat Oncol Biol Phys* 103.1 (2019): 190-194.
12. **Duan C**, Zhu Y, Jang J, et al. Non-Contrast Assessment of Myocardial Viability using a Hybrid Native T1 and Magnetization Transfer Imaging Sequence. *Magn Reson Med*. (2018) <https://doi.org/10.1002/mrm.27636>
13. **Duan C**, Kallehauge JF, Pérez-Torres CJ, et al. Modeling Dynamic Contrast-Enhanced MRI data with a Constrained Local AIF. *Mol Imaging Biol* (2018) 20: 150. <https://doi.org/10.1007/s11307-017-1090-x>.
14. **Duan C**, Kallehauge JF, Bretthorst GL, et al. Are Complex DCE-MRI Models Supported by Clinical Data? *Magn Reson Med* (2017) 77:1329-1339.
15. **Duan C**, Ryan C, Utsuzawa S, et al. Effect of Off-Resonance on T₁ Saturation Recovery Measurement in Inhomogeneous Field. *J Magn Reson* (2017) 281: 31-43.
16. **Duan C**, Pérez-Torres CJ, Yuan L, et al. Can anti-Vascular Endothelial Growth Factor Antibody Reverse Radiation Necrosis? A Preclinical Investigation (**Cover Article**). *J Neurooncol* (2017) 133: 9-16.