



## Dante Pietro Isidoro Capaldi

Clinical Instructor, Radiation Oncology - Radiation Physics

### Bio

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#### BIO

Dante Capaldi, PhD, simultaneously completed both PhD and MClSc degrees in Medical Biophysics at the University of Western Ontario, Canada, in 2018. His PhD research, funded by the Natural Sciences and Engineering Research Council of Canada, focused on the development and application of novel image acquisition and analysis methods to measure pulmonary ventilation in patients with lung disease.

Dante joined the Stanford University Medical Physics Residency in 2018.

#### ACADEMIC APPOINTMENTS

- Clinical Instructor, Radiation Oncology - Radiation Physics

### Publications

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#### PUBLICATIONS

- **Ultra-short echo-time magnetic resonance imaging lung segmentation with under-Annotations and domain shift.** *Medical image analysis*  
Guo, F., Capaldi, D. P., McCormack, D. G., Fenster, A., Parraga, G.  
2021; 72: 102107
- **Prior-image-based CT reconstruction using attenuation-mismatched priors.** *Physics in medicine and biology*  
Zhang, H., Capaldi, D., Zeng, D., Ma, J., Xing, L.  
2021; 66 (6): 064007
- **Prior-image-based CT reconstruction using attenuation mismatched prior.** *Physics in medicine and biology*  
Zhang, H., Capaldi, D. P., Zeng, D., Ma, J., Xing, L.  
2021
- **A robotically assisted 3D printed quality assurance lung phantom for Calypso.** *Physics in medicine and biology*  
Capaldi, D. P., Skinner, L. B., Dubrowski, P. n., Zhang, H. n., Xing, L. n., Chuang, C. F., Loo, B. W., Bush, K. K., Fahimian, B. P., Yu, A. S.  
2021
- **Pulmonary Ventilation Maps Generated with Free-breathing Proton MRI and a Deep Convolutional Neural Network.** *Radiology*  
Capaldi, D. P., Guo, F., Xing, L., Parraga, G.  
2020: 202861
- **Precision radiotherapy using monochromatic inverse Compton x-ray sources.** *Medical physics*  
Simiele, E. A., Breikreutz, D. Y., Capaldi, D. P., Liu, W., Bush, K. K., Skinner, L. B.  
2020
- **Parametric Response Mapping of Co-registered Positron Emission Tomography and Dynamic Contrast Enhanced Computed Tomography to Identify Radio-resistant Sub-volumes in Locally Advanced Cervical Cancer.** *International journal of radiation oncology, biology, physics*

Capaldi, D. P., Hristov, D. H., Kidd, E. A.  
2020

- **Pulmonary Imaging Phenotypes of Chronic Obstructive Pulmonary Disease Using Multiparametric Response Maps.** *Radiology*  
MacNeil, J. L., Capaldi, D. P., Westcott, A. R., Eddy, R. L., Barker, A. L., McCormack, D. G., Kirby, M., Parraga, G.  
2020: 191735
- **Incorporating prior knowledge via volumetric deep residual network to optimize the reconstruction of sparsely sampled MRI** *MAGNETIC RESONANCE IMAGING*  
Wu, Y., Ma, Y., Capaldi, D., Liu, J., Zhao, W., Du, J., Xing, L.  
2020; 66: 93–103
- **Technical Note: Performance of CyberKnife® Tracking Using Low-Dose CT and kV Imaging.** *Medical physics*  
Nano, T. F., Capaldi, D. P., Yeung, T. n., Chuang, C. F., Wang, L. n., Descovich, M. n.  
2020
- **An integrated quality assurance phantom for frameless single-isocenter multitarget stereotactic radiosurgery.** *Physics in medicine and biology*  
Capaldi, D. P., Skinner, L. B., Dubrowski, P. n., Yu, A. S.  
2020
- **Technical Note: Evaluation of Audiovisual Biofeedback Smartphone Application for Respiratory Monitoring in Radiation Oncology.** *Medical physics*  
Capaldi, D. P., Nano, T. F., Zhang, H. n., Skinner, L. B., Xing, L. n.  
2020
- **Chronic Obstructive Pulmonary Disease: Thoracic CT Texture Analysis and Machine Learning to Predict Pulmonary Ventilation.** *Radiology*  
Westcott, A., Capaldi, D. P., McCormack, D. G., Ward, A. D., Fenster, A., Parraga, G.  
2019: 190450
- **Incorporating prior knowledge via volumetric deep residual network to optimize the reconstruction of sparsely sampled MRI.** *Magnetic resonance imaging*  
Wu, Y., Ma, Y., Capaldi, D. P., Liu, J., Zhao, W., Du, J., Xing, L.  
2019
- **CT and Functional MRI to Evaluate Airway Mucus in Severe Asthma.** *Chest*  
Svenningsen, S. n., Haider, E. n., Boylan, C. n., Mukherjee, M. n., Eddy, R. L., Capaldi, D. P., Parraga, G. n., Nair, P. n.  
2019; 155 (6): 1178–89
- **Development and Evaluation of Pulmonary Imaging Multi-Parametric Response Maps for Deep Phenotyping of Chronic Obstructive Pulmonary Disease**  
MacNeil, J. L., Capaldi, D. P., Eddy, R. L., Westcott, A., Matheson, A. M., Barker, A. L., Ong-Ly, C., McCormack, D. G., Parraga, G., Gimi, B., Krol, A.  
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **Fourier decomposition free-breathing H-1 MRI perfusion maps in asthma**  
Matheson, A. M., Capaldi, D. P., Guo, F., Eddy, R. L., McCormack, D. G., Parraga, G., Angelini, E. D., Landman, B. A.  
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **Texture Analysis of Thoracic CT to Predict Hyperpolarized Gas MRI Lung Function**  
Westcott, A., Capaldi, D. P., McCormack, D. G., Fenster, A., Parraga, G., Gimi, B., Krol, A.  
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **A framework for Fourier-decomposition free-breathing pulmonary 1 H MRI ventilation measurements.** *Magnetic resonance in medicine*  
Guo, F. n., Capaldi, D. P., McCormack, D. G., Fenster, A. n., Parraga, G. n.  
2019; 81 (3): 2135–46
- **Hyperpolarized 3 He MRI ventilatory apparent diffusion coefficient of alpha-1 antitrypsin deficiency.** *Journal of magnetic resonance imaging : JMIR*  
Westcott, A. n., Capaldi, D. P., Ouriadov, A. n., McCormack, D. G., Parraga, G. n.  
2019; 49 (1): 311–13
- **Trainee Research Prizes from the 2017 RSNA Scientific Assembly and Annual Meeting** *RADIOLOGY*  
Aboutalib, S. S., Abdelfadeel, A., Schreuder, A., Jang, J., Pandey, P., Shiradkar, R., Galimzianova, A., Qi, X., Larimer, B., McDonald, R. J., Orita, E., Dercle, L., Khosravi, et al  
2018; 287 (1): 1–4

- **Development of a pulmonary imaging biomarker pipeline for phenotyping of chronic lung disease.** *Journal of medical imaging (Bellingham, Wash.)*  
Guo, F. n., Capaldi, D. n., Kirby, M. n., Sheikh, K. n., Svenningsen, S. n., McCormack, D. G., Fenster, A. n., Parraga, G. n.  
2018; 5 (2): 026002
- **Free-breathing Pulmonary MR Imaging to Quantify Regional Ventilation.** *Radiology*  
Capaldi, D. P., Eddy, R. L., Svenningsen, S. n., Guo, F. n., Baxter, J. S., McLeod, A. J., Nair, P. n., McCormack, D. G., Parraga, G. n.  
2018; 287 (2): 693–704
- **On the Potential Role of MRI Biomarkers of COPD to Guide Bronchoscopic Lung Volume Reduction.** *Academic radiology*  
Adams, C. J., Capaldi, D. P., Di Cesare, R. n., McCormack, D. G., Parraga, G. n.  
2018; 25 (2): 159–68
- **Through the Looking Glass and What Was Found There: Imaging Biomarkers of Chronic Obstructive Pulmonary Disease.** *American journal of respiratory and critical care medicine*  
Capaldi, D. P., Parraga, G. n.  
2017; 196 (11): 1364–66
- **Free-breathing Functional Pulmonary MRI: Response to Bronchodilator and Bronchoprovocation in Severe Asthma.** *Academic radiology*  
Capaldi, D. P., Sheikh, K. n., Eddy, R. L., Guo, F. n., Svenningsen, S. n., Nair, P. n., McCormack, D. G., Parraga, G. n.  
2017; 24 (10): 1268–76
- **Thoracic CT-MRI coregistration for regional pulmonary structure-function measurements of obstructive lung disease.** *Medical physics*  
Guo, F. n., Svenningsen, S. n., Kirby, M. n., Capaldi, D. P., Sheikh, K. n., Fenster, A. n., Parraga, G. n.  
2017; 44 (5): 1718–33
- **Ultrashort echo time MRI biomarkers of asthma.** *Journal of magnetic resonance imaging : JMRI*  
Sheikh, K. n., Guo, F. n., Capaldi, D. P., Ouriadov, A. n., Eddy, R. L., Svenningsen, S. n., Parraga, G. n.  
2017; 45 (4): 1204–15
- **A pilot randomised clinical trial of mepolizumab in COPD with eosinophilic bronchitis.** *The European respiratory journal*  
Dasgupta, A. n., Kjarsgaard, M. n., Capaldi, D. n., Radford, K. n., Aleman, F. n., Boylan, C. n., Altman, L. C., Wight, T. N., Parraga, G. n., O'Byrne, P. M., Nair, P. n.  
2017; 49 (3)
- **Anatomical pulmonary magnetic resonance imaging segmentation for regional structure-function measurements of asthma.** *Medical physics*  
Guo, F., Svenningsen, S., Eddy, R. L., Capaldi, D. P., Sheikh, K., Fenster, A., Parraga, G.  
2016; 43 (6): 2911-2926
- **Regional Heterogeneity of Chronic Obstructive Pulmonary Disease Phenotypes: Pulmonary (3)He Magnetic Resonance Imaging and Computed Tomography.** *COPD*  
Pike, D. n., Kirby, M. n., Eddy, R. L., Guo, F. n., Capaldi, D. P., Ouriadov, A. n., McCormack, D. G., Parraga, G. n.  
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- **Pulmonary Imaging Biomarkers of Gas Trapping and Emphysema in COPD: (3)He MR Imaging and CT Parametric Response Maps.** *Radiology*  
Capaldi, D. P., Zha, N. n., Guo, F. n., Pike, D. n., McCormack, D. G., Kirby, M. n., Parraga, G. n.  
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- **Imaging how and where we breathe oxygen: another Big Short?** *Journal of thoracic disease*  
Capaldi, D. P., Guo, F. n., Parraga, G. n.  
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- **Second-order Texture Measurements of (3)He Ventilation MRI: Proof-of-concept Evaluation of Asthma Bronchodilator Response.** *Academic radiology*  
Zha, N. n., Pike, D. n., Svenningsen, S. n., Capaldi, D. P., McCormack, D. G., Parraga, G. n.  
2016; 23 (2): 176–85
- **Globally optimal co-segmentation of three-dimensional pulmonary <sup>1</sup>H and hyperpolarized <sup>3</sup>He MRI with spatial consistence prior.** *Medical image analysis*  
Guo, F. n., Yuan, J. n., Rajchl, M. n., Svenningsen, S. n., Capaldi, D. P., Sheikh, K. n., Fenster, A. n., Parraga, G. n.  
2015; 23 (1): 43–55
- **Principal Component Analysis of the CT Density Histogram to Generate Parametric Response Maps of COPD**

Zha, N., Capaldi, D. I., Pike, D., McCormack, D. G., Cunningham, I. A., Parraga, G., Gimi, B., Molthen, R. C.  
SPIE-INT SOC OPTICAL ENGINEERING.2015

● **Fourier-Based Linear Systems Description of Free-Breathing Pulmonary Magnetic Resonance Imaging**

Capaldi, D. I., Svenningsen, S., Cunningham, I. A., Parraga, G., Gimi, B., Molthen, R. C.  
SPIE-INT SOC OPTICAL ENGINEERING.2015

● **Free-breathing pulmonary 1H and Hyperpolarized 3He MRI: comparison in COPD and bronchiectasis.** *Academic radiology*

Capaldi, D. P., Sheikh, K. n., Guo, F. n., Svenningsen, S. n., Etemad-Rezai, R. n., Coxson, H. O., Leipsic, J. A., McCormack, D. G., Parraga, G. n.  
2015; 22 (3): 320–29

● **Magnetic resonance imaging biomarkers of chronic obstructive pulmonary disease prior to radiation therapy for non-small cell lung cancer.** *European journal of radiology open*

Sheikh, K. n., Capaldi, D. P., Hoover, D. A., Palma, D. A., Yaremko, B. P., Parraga, G. n.  
2015; 2: 81–89

● **Functional lung avoidance for individualized radiotherapy (FLAIR): study protocol for a randomized, double-blind clinical trial.** *BMC cancer*

Hoover, D. A., Capaldi, D. P., Sheikh, K., Palma, D. A., Rodrigues, G. B., Dar, A. R., Yu, E., Dingle, B., Landis, M., Kocha, W., Sanatani, M., Vincent, M., Younus, et al  
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