Stanford

Daniel Rubin

Professor of Biomedical Data Science, of Radiology (Integrative Biomedical Imaging Informatics at Stanford), of Medicine (Biomedical Informatics Research) and, by courtesy, of Ophthalmology

CONTACT INFORMATION

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Bio

BIO

Daniel L. Rubin, MD, MS is Professor of Biomedical Data Science, Radiology, Medicine (Biomedical Informatics), and Ophthalmology (courtesy) at Stanford University. He is Principal Investigator of two centers in the National Cancer Institute's Quantitative Imaging Network (QIN) and is Director of Biomedical Informatics for the Stanford Cancer Institute. He also leads the Research Informatics Center (RIC) of the School of Medicine (https://med.stanford.edu/ric.html). He previously chaired the Informatics Committee of the ECOG-ACRIN cooperative group, of the QIN Executive Committee, and of the RadLex Steering Committee of the Radiological Society of North America. His NIH-funded research program focuses on quantitative imaging and integrating imaging data with clinical and molecular data to discover imaging phenotypes that can predict the underlying biology, define disease subtypes, and personalize treatment. He is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), Fellow of the American College of Medical Informatics (ACMI), Fellow of the Society of Imaging Informatics in Medicine (SIIM), and recipient of the Distinguished Investigator Award from the Academy for Radiology & Biomedical Imaging Research. He has published over 350 scientific publications in biomedical imaging informatics, data science, and radiology.

ACADEMIC APPOINTMENTS

- Professor, Biomedical Data Science
- Professor, Radiology
- Professor, Medicine - Biomedical Informatics Research
- Professor (By courtesy), Ophthalmology
- Member, Bio-X
- Member, Cardiovascular Institute
- Faculty Affiliate, Institute for Human-Centered Artificial Intelligence (HAI)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Director of Biomedical Informatics, Stanford Cancer Institute, (2016-2024)

- Co-Director, Cancer Imaging and Early Detection Program, Stanford Cancer Institute, (2018-2024)
- Director, Scholarly Concentration in Informatics and Data Driven Medicine, Stanford School of Medicine, (2011-2024)

HONORS AND AWARDS

- Fellow (FSIIM), Society of Imaging Informatics in Medicine (2018)
- Distinguished Investigator Award, Academy for Radiology & Biomedical Imaging Research (2017)
- Fellow (FACMI), American College of Medical Informatics (ACMI) (2012)
- Honored Educator Award, Radiological Society of North America, Radiological Society of North America (RSNA) (2012, 2013)
- Cum Laude Award, Radiological Society of North America (2011)
- caBIG Connecting Collaborators Award, National Cancer Institute (2010)
- Certificate of Merit, Radiological Society of North America (2009)
- Cum Laude Award, Radiological Society of North America (2008)
- Cum Laude Award, Radiological Society of North America (2006)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Diplomate, American Board of Radiology (1990 - present)
- Certified Physician and Surgeon, California Board of Medical Quality Assurance (1986 - present)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research interest is imaging informatics--ways computers can work with images to leverage their rich information content and to help physicians use images to guide personalized care. Just as biology has been revolutionized by online genetic data, now clinical medicine can be transformed by mining huge image repositories and electronically correlating image data with pathology and molecular data. Work in our lab thus lies at the intersection of biomedical informatics and imaging science, and we are working in several major areas. We are developing methods to extract information and meaning from images for data mining. We are also developing statistical natural language processing methods to extract and summarize information in radiology reports and published articles. We are building resources to integrate images with related clinical and molecular data to discover novel image biomarkers of disease. Finally, we are translating these methods into practice by creating decision support applications that relate radiology findings to diagnoses and that will improve diagnostic accuracy and clinical effectiveness.

CLINICAL TRIALS

- Genetic & Pathological Studies of BRCA1/BRCA2: Associated Tumors & Blood Samples, Recruiting
- A Study of GDC-0853 in Patients With Resistant B-Cell Lymphoma or Chronic Lymphocytic Leukemia., Not Recruiting
- A Study of the Bruton's Tyrosine Kinase Inhibitor, PCI-32765 (Ibrutinib), in Combination With Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone in Patients With Newly Diagnosed Non-Germinal Center B-Cell Subtype of Diffuse Large B-Cell Lymphoma, Not Recruiting
- A Study to Evaluate Safety, Tolerability, and Pharmacokinetics of Escalating Doses of AGS67E Given as Monotherapy in Subjects With Refractory or Relapsed Lymphoid Malignancies, Not Recruiting
- Correlation of PET-CT Studies With Serum Protein Analysis, Not Recruiting
- Ibrutinib With Rituximab in Adults With Waldenström's Macroglobulinemia, Not Recruiting
- Perfusion CT as a Predictor of Treatment Response in Patients With Rectal Cancer, Not Recruiting

PROJECTS

- Quantitative image analysis and machine learning - Stanford University
- The ePAD project - Stanford University
- Automatic abstraction of imaging observations with their characteristics - Stanford University

- Natural language processing of radiology reports - Stanford University
- AI-Enabled Cancer Tumor Boards - Stanford University

Teaching

COURSES

2023-24

- Precision Practice with Big Data: BIOMEDIN 205 (Aut)

2022-23

- Computational Methods for Biomedical Image Analysis and Interpretation: BIOMEDIN 260, BMP 260, CS 235, RAD 260 (Spr)
- Precision Practice with Big Data: BIOMEDIN 205 (Aut)

2021-22

- Computational Methods for Biomedical Image Analysis and Interpretation: BIOMEDIN 260, CS 235, RAD 260 (Spr)

2020-21

- Computational Methods for Biomedical Image Analysis and Interpretation: BIOMEDIN 260, CS 235, RAD 260 (Spr)
- Precision Practice with Big Data: BIOMEDIN 205 (Aut)

STANFORD ADVISEES

Med Scholar Project Advisor

Niranjan Balachandar

Doctoral (Program)

Matthew Aguirre

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biomedical Informatics (Phd Program)
- Biomedical Informatics (Masters Program)

Publications

PUBLICATIONS

- **Learning domain-agnostic visual representation for computational pathology using medically-irrelevant style transfer augmentation** *IEEE Transactions on Medical Imaging*
  Yamashita, R., Long, J., Banda, S., Shen*, J., Rubin*, D. L., (*equal contribution)
  2021: 3945-3954

- **A Probabilistic Model to Support Radiologists' Classification Decisions in Mammography Practice** *MEDICAL DECISION MAKING*
  Zeng, J., Gimenez, F., Burnside, E. S., Rubin, D. L., Shachter, R.
  2019; 39 (3): 208–16

- **Geographic atrophy segmentation in SD-OCT images using synthesized fundus autofluorescence imaging.** *Computer methods and programs in biomedicine*
  Wu, M. n., Cai, X. n., Chen, Q. n., Ji, Z. n., Niu, S. n., Leng, T. n., Rubin, D. L., Park, H. n.
  2019; 182: 105101

- **Automatic inference of BI-RADS final assessment categories from narrative mammography report findings** *Journal of Biomedical Informatics*
  Banerjee, I., Bozkurt, S., Alkim, E., Sagreiya, H., Kurian, A. W., Rubin, D. L.
  2019

- **Deep learning enables automatic detection and segmentation of brain metastases on multisequence MRI.** *Journal of magnetic resonance imaging : JMRI*

Grøvik, E. n., Yi, D. n., Iv, M. n., Tong, E. n., Rubin, D. n., Zaharchuk, G. n.
2019

- **Automated Survival Prediction in Metastatic Cancer Patients Using High-Dimensional Electronic Medical Record Data.** *Journal of the National Cancer Institute*
  Gensheimer, M. F., Henry, A. S., Wood, D. J., Hastie, T. J., Aggarwal, S., Dudley, S. A., Pradhan, P., Banerjee, I., Cho, E., Ramchandran, K., Pollom, E., Koong, A. C., Rubin, et al
  2018

- **Association of Tumor [18F]FDG Activity and Diffusion Restriction with Clinical Outcomes of Rhabdomyosarcomas.** *Molecular imaging and biology : MIB : the official publication of the Academy of Molecular Imaging*
  Pourmehdi Lahiji, A., Jackson, T., Nejadnik, H., von Eyben, R., Rubin, D., Spunt, S. L., Quon, A., Daldrup-Link, H.
  2018

- **Magnetic resonance imaging and molecular features associated with tumor-infiltrating lymphocytes in breast cancer.** *Breast cancer research : BCR*
  Wu, J., Li, X., Teng, X., Rubin, D. L., Napel, S., Daniel, B. L., Li, R.
  2018; 20 (1): 101

- **Automated dendritic spine detection using convolutional neural networks on maximum intensity projected microscopic volumes.** *Journal of neuroscience methods*
  Xiao, X., Djurisic, M., Hoogi, A., Sapp, R. W., Shatz, C. J., Rubin, D. L.
  2018

- **Distributed deep learning networks among institutions for medical imaging** *JOURNAL OF THE AMERICAN MEDICAL INFORMATICS ASSOCIATION*
  Chang, K., Balachandar, N., Lam, C., Yi, D., Brown, J., Beers, A., Rosen, B., Rubin, D. L., Kalpathy-Cramer, J.
  2018; 25 (8): 945–54

- **Probabilistic Prognostic Estimates of Survival in Metastatic Cancer Patients (PPES-Met) Utilizing Free-Text Clinical Narratives.** *Scientific reports*
  Banerjee, I., Gensheimer, M. F., Wood, D. J., Henry, S., Aggarwal, S., Chang, D. T., Rubin, D. L.
  2018; 8 (1): 10037

- **The LOINC RSNA radiology playbook - a unified terminology for radiology procedures** *JOURNAL OF THE AMERICAN MEDICAL INFORMATICS ASSOCIATION*
  Vreeman, D. J., Abhyankar, S., Wang, K. C., Carr, C., Collins, B., Rubin, D. L., Langlotz, C. P.
  2018; 25 (7): 885–92

- **Longitudinal Data in Ophthalmic Imaging: Curation and Annotation**
  Hallak, J., Yi, D., Noorozi, V., Lam, C., Mojab, N., Baker, J., Rubin, D., Azar, D. T., Rosenblatt, M.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2018

- **Proposing New RadLex Terms by Analyzing Free-Text Mammography Reports.** *Journal of digital imaging*
  Bulu, H., Sippo, D. A., Lee, J. M., Burnside, E. S., Rubin, D. L.
  2018

- **Automatic information extraction from unstructured mammography reports using distributed semantics** *JOURNAL OF BIOMEDICAL INFORMATICS*
  Gupta, A., Banerjee, I., Rubin, D. L.
  2018; 78: 78–86

- **Expanding a radiology lexicon using contextual patterns in radiology reports.** *Journal of the American Medical Informatics Association : JAMIA*
  Percha, B. n., Zhang, Y. n., Bozkurt, S. n., Rubin, D. n., Altman, R. B., Langlotz, C. P.
  2018

- **Relevance Feedback for Enhancing Content Based Image Retrieval and Automatic Prediction of Semantic Image Features: Application to Bone Tumor Radiographs.** *Journal of biomedical informatics*
  Banerjee, I. n., Kurtz, C. n., Edward Devorah, A. n., Do, B. n., Rubin, D. L., Beaulieu, C. F.
  2018

- **Beyond Retinal Layers: A Deep Voting Model for Automated Geographic Atrophy Segmentation in SD-OCT Images** *TRANSLATIONAL VISION SCIENCE & TECHNOLOGY*
  Ji, Z., Chen, Q., Niu, S., Leng, T., Rubin, D. L.
  2018; 7 (1): 1

- **Locally adaptive magnetic resonance intensity models for unsupervised segmentation of multiple sclerosis lesions** *JOURNAL OF MEDICAL IMAGING*
  Galimzianova, A., Lesjak, Z., Rubin, D. L., Likar, B., Pernus, F., Spiclin, Z.
  2018; 5 (1): 011007

- **Retinal Lesion Detection With Deep Learning Using Image Patches** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*
  Lam, C., Yu, C., Huang, L., Rubin, D.
  2018; 59 (1): 590–96

- **Non-Small Cell Lung Cancer Radiogenomics Map Identifies Relationships between Molecular and Imaging Phenotypes with Prognostic Implications.** *Radiology*
  Zhou, M. n., Leung, A. n., Echegaray, S. n., Gentles, A. n., Shrager, J. B., Jensen, K. C., Berry, G. J., Plevritis, S. K., Rubin, D. L., Napel, S. n., Gevaert, O. n.
  2018; 286 (1): 307–15

- **Radiology report annotation using intelligent word embeddings: Applied to multi-institutional chest CT cohort** *JOURNAL OF BIOMEDICAL INFORMATICS*
  Banerjee, I., Chen, M. C., Lungren, M. P., Rubin, D. L.
  2018; 77: 11–20

- **Assessing treatment response in triple-negative breast cancer from quantitative image analysis in perfusion magnetic resonance imaging.** *Journal of medical imaging (Bellingham, Wash.)*
  Banerjee, I. n., Malladi, S. n., Lee, D. n., Depeursinge, A. n., Telli, M. n., Lipson, J. n., Golden, D. n., Rubin, D. L.
  2018; 5 (1): 011008

- **Intratumoral Spatial Heterogeneity at Perfusion MR Imaging Predicts Recurrence-free Survival in Locally Advanced Breast Cancer Treated with Neoadjuvant Chemotherapy.** *Radiology*
  Wu, J. n., Cao, G. n., Sun, X. n., Lee, J. n., Rubin, D. L., Napel, S. n., Kurian, A. W., Daniel, B. L., Li, R. n.
  2018: 172462

- **Association of Omics Features with Histopathology Patterns in Lung Adenocarcinoma** *CELL SYSTEMS*
  Yu, K., Berry, G. J., Rubin, D. L., Re, C., Altman, R. B., Snyder, M.
  2017; 5 (6): 620-+

- **A curated mammography data set for use in computer-aided detection and diagnosis research** *SCIENTIFIC DATA*
  Lee, R., Gimenez, F., Hoogi, A., Miyake, K., Gorovoy, M., Rubin, D. L.
  2017; 4: 170177

- **Automated detection of foveal center in SD-OCT images using the saliency of retinal thickness maps** *MEDICAL PHYSICS*
  Niu, S., Chen, Q., de Sisternes, L., Leng, T., Rubin, D. L.
  2017; 44 (12): 6390–6403

- **GLIOBLASTOMA TUMOR SEGMENTATION USING DEEP CONVOLUTIONAL NEURAL NETWORKS**
  Liu, T., Achrol, A., Rubin, D., Chang, S.
  OXFORD UNIV PRESS INC.2017: 147

- **Quantitative Image Feature Engine (QIFE): an Open-Source, Modular Engine for 3D Quantitative Feature Extraction from Volumetric Medical Images.** *Journal of digital imaging*
  Echegaray, S., Bakr, S., Rubin, D. L., Napel, S.
  2017

- **Piecewise convexity of artificial neural networks** *NEURAL NETWORKS*
  Rister, B., Rubin, D. L.
  2017; 94: 34–45

- **Volumetric Image Registration From Invariant Keypoints** *IEEE TRANSACTIONS ON IMAGE PROCESSING*
  Rister, B., Horowitz, M. A., Rubin, D. L.
  2017; 26 (10): 4900–4910

- **Age at Menarche and Late Adolescent Adiposity Associated with Mammographic Density on Processed Digital Mammograms in 24,840 Women** *CANCER EPIDEMIOLOGY BIOMARKERS & PREVENTION*
  Alexeeff, S. E., Odo, N. U., Lipson, J. A., Achacosol, N., Rothstein, J. H., Yaffe, M. J., Liang, R. Y., Acton, L., McGuire, V., Whittemore, A. S., Rubin, D. L., Sieh, W., Habel, et al

2017; 26 (9): 1450–58

- **Mammographic Density: Is There a Public Health Significance Linked to Published Relative Risk Data? Response** *RADIOLOGY*
  Sieh, W., Lipson, J. A., Whittemore, A. S., Rubin, D. L.
  2017; 284 (3): 919

- **Use of Radiology Procedure Codes in Health Care: The Need for Standardization and Structure** *RADIOGRAPHICS*
  Wang, K. C., Patel, J. B., Vyas, B., Toland, M., Collins, B., Vreeman, D. J., Abhyankar, S., Siegel, E. L., Rubin, D. L., Langlotz, C. P.
  2017; 37 (4): 1099–1110

- **Deep Learning for Brain MRI Segmentation: State of the Art and Future Directions.** *Journal of digital imaging*
  Akkus, Z., Galimzianova, A., Hoogi, A., Rubin, D. L., Erickson, B. J.
  2017

- **Opening the Black Box: Visualization of Deep Neural Network for Detection of Disease in Retinal Fundus Photographs**
  Huang, L. C., Yu, C., Kleinman, R. A., Shields, R. A., Smith, R. G., Lam, C., Yi, D., Rubin, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2017

- **Prediction of EGFR and KRAS mutation in non-small cell lung cancer using quantitative 18F FDG-PET/CT metrics.** *Oncotarget*
  Minamimoto, R., Jamali, M., Gevaert, O., Echegaray, S., Khuong, A., Hoang, C. D., Shrager, J. B., Plevritis, S. K., Rubin, D. L., Leung, A. N., Napel, S., Quon, A.
  2017

- **Transfer learning on fused multiparametric MR images for classifying histopathological subtypes of rhabdomyosarcoma.** *Computerized medical imaging and graphics*
  Banerjee, I., Crawley, A., Bhethanabotla, M., Daldrup-Link, H. E., Rubin, D. L.
  2017

- **Software for Distributed Computation on Medical Databases: A Demonstration Project** *JOURNAL OF STATISTICAL SOFTWARE*
  Narasimhan, B., Rubin, D. L., Gross, S. M., Bendersky, M., Lavori, P. W.
  2017; 77 (13): 1-22

- **Adaptive local window for level set segmentation of CT and MRI liver lesions.** *Medical image analysis*
  Hoogi, A., Beaulieu, C. F., Cunha, G. M., Heba, E., Sirlin, C. B., Napel, S., Rubin, D. L.
  2017; 37: 46-55

- **Revealing cancer subtypes with higher-order correlations applied to imaging and omics data** *BMC MEDICAL GENOMICS*
  Graim, K., Liu, T. T., Achrol, A. S., Paull, E. O., Newton, Y., Chang, S. D., Harsh, G. R., Cordero, S. P., Rubin, D. L., Stuart, J. M.
  2017; 10

- **Automated intraretinal segmentation of SD-OCT images in normal and age-related macular degeneration eyes** *BIOMEDICAL OPTICS EXPRESS*
  de Sisternes, L., Jonna, G., Moss, J., Marmor, M. F., Leng, T., Rubin, D. L.
  2017; 8 (3): 1926-1949

- **Adaptive Estimation of Active Contour Parameters Using Convolutional Neural Networks and Texture Analysis** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Hoogi, A., Subramaniam, A., Veerapaneni, R., Rubin, D. L.
  2017; 36 (3): 781-791

- **Dynamic Strategy for Personalized Medicine: An Application to Metastatic Breast Cancer.** *Journal of biomedical informatics*
  Chen, X., Shachter, R., Kurian, A., Rubin, D.
  2017

- **Breast Cancer Risk and Mammographic Density Assessed with Semiautomated and Fully Automated Methods and BI-RADS.** *Radiology*
  Jeffers, A. M., Sieh, W., Lipson, J. A., Rothstein, J. H., McGuire, V., Whittemore, A. S., Rubin, D. L.
  2017; 282 (2): 348-355

- **Individual Drusen Segmentation and Repeatability and Reproducibility of Their Automated Quantification in Optical Coherence Tomography Images.** *Translational vision science & technology*
  de Sisternes, L., Jonna, G., Greven, M. A., Chen, Q., Leng, T., Rubin, D. L.
  2017; 6 (1): 12-?

- **Building and Querying RDF/OWL Database of Semantically Annotated Nuclear Medicine Images** *JOURNAL OF DIGITAL IMAGING*
  Hwang, K. H., Lee, H., Koh, G., Willrett, D., Rubin, D. L.
  2017; 30 (1): 4-10

- **Predictive radiogenomics modeling of EGFR mutation status in lung cancer** *SCIENTIFIC REPORTS*
  Gevaert, O., Echegaray, S., Khuong, A., Hoang, C. D., Shrager, J. B., Jensen, K. C., Berry, G. J., Guo, H. H., Lau, C., Plevritis, S. K., Rubin, D. L., Napel, S., Leung, et al
  2017; 7

- **Robust noise region-based active contour model via local similarity factor for image segmentation** *PATTERN RECOGNITION*
  Niu, S., Chen, Q., de Sisternes, L., Ji, Z., Zhou, Z., Rubin, D. L.
  2017; 61: 104-119

- **Computerized Prediction of Radiological Observations Based on Quantitative Feature Analysis: Initial Experience in Liver Lesions** *Journal of Digital Imaging*
  Banerjee, I.
  2017: 506–18

- **Heterogeneous Enhancement Patterns of Tumor-adjacent Parenchyma at MR Imaging Are Associated with Dysregulated Signaling Pathways and Poor Survival in Breast Cancer.** *Radiology*
  Wu, J. n., Li, B. n., Sun, X. n., Cao, G. n., Rubin, D. L., Napel, S. n., Ikeda, D. M., Kurian, A. W., Li, R. n.
  2017: 162823

- **Perioperative Retinal Artery Occlusion: Risk Factors in Cardiac Surgery from the United States National Inpatient Sample 1998-2013.** *Ophthalmology*
  Calway, T. n., Rubin, D. S., Moss, H. E., Joslin, C. E., Beckmann, K. n., Roth, S. n.
  2017; 124 (2): 189–96

- **Ischemic Optic Neuropathy in Cardiac Surgery: Incidence and Risk Factors in the United States from the National Inpatient Sample 1998 to 2013.** *Anesthesiology*
  Rubin, D. S., Matsumoto, M. M., Moss, H. E., Joslin, C. E., Tung, A. n., Roth, S. n.
  2017

- **Web-Based Tools for Exploring the Potential of Quantitative Imaging Biomarkers in Radiology Intensity and Texture Analysis on the ePAD Platform** *BIOMEDICAL TEXTURE ANALYSIS: FUNDAMENTALS, TOOLS AND CHALLENGES*
  Schaer, R., Cid, Y., Alkim, E., John, S., Rubin, D. L., Depeursinge, A., Depeursinge, A., AlKadi, O. S., Mitchell
  2017: 379–410

- **Differential Data Augmentation Techniques for Medical Imaging Classification Tasks.** *AMIA ... Annual Symposium proceedings. AMIA Symposium*
  Hussain, Z., Gimenez, F., Yi, D., Rubin, D.
  2017; 2017: 979–84

- **Intelligent Word Embeddings of Free-Text Radiology Reports.** *AMIA ... Annual Symposium proceedings. AMIA Symposium*
  Banerjee, I., Madhavan, S., Goldman, R. E., Rubin, D. L.
  2017; 2017: 411–20

- **Mining Electronic Health Records to Extract Patient-Centered Outcomes Following Prostate Cancer Treatment.** *AMIA ... Annual Symposium proceedings. AMIA Symposium*
  Hernandez-Boussard, T., Kourdis, P. D., Seto, T., Ferrari, M., Blayney, D. W., Rubin, D., Brooks, J. D.
  2017; 2017: 876–82

- **Toward Automated Pre-Biopsy Thyroid Cancer Risk Estimation in Ultrasound.** *AMIA ... Annual Symposium proceedings. AMIA Symposium*
  Galimzianova, A. n., Siebert, S. M., Kamaya, A. n., Desser, T. S., Rubin, D. L.
  2017; 2017: 734–41

- **A Convolutional Neural Network for Automatic Characterization of Plaque Composition in Carotid Ultrasound** *IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS*
  Lekadir, K., Galimzianova, A., Betriu, A., del Mar Vila, M., Igual, L., Rubin, D. L., Fernandez, E., Radeva, P., Napel, S.
  2017; 21 (1): 48-55

- **A 3-D Riesz-Covariance Texture Model for Prediction of Nodule Recurrence in Lung CT** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Cirujeda, P., Cid, Y. D., Muller, H., Rubin, D., Aguilera, T. A., Loo, B. W., Diehn, M., Binefa, X., Depeursinge, A.

2016; 35 (12): 2620-2630

- **Computational Challenges and Collaborative Projects in the NCI Quantitative Imaging Network** *TOMOGRAPHY*
  Farahani, K., Kalpathy-Cramer, J., Chenevert, T. L., Rubin, D. L., Sunderland, J. J., Nordstrom, R. J., Buatti, J., Hylton, N.
  2016; 2 (4): 242–49

- **Radiomics of Lung Nodules: A Multi-Institutional Study of Robustness and Agreement of Quantitative Imaging Features.** *Tomography : a journal for imaging research*
  Kalpathy-Cramer, J., Mamomov, A., Zhao, B., Lu, L., Cherezov, D., Napel, S., Echegaray, S., Rubin, D., McNitt-Gray, M., Lo, P., Sieren, J. C., Uthoff, J., Dilger, et al
  2016; 2 (4): 430-437

- **Common Data Elements in Radiology.** *Radiology*
  Rubin, D. L., Kahn, C. E.
  2016: 161553-?

- **Improved Patch-Based Automated Liver Lesion Classification by Separate Analysis of the Interior and Boundary Regions** *IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS*
  Diamant, I., Hoogi, A., Beaulieu, C. F., Safdari, M., Klang, E., Amitai, M., Greenspan, H., Rubin, D. L.
  2016; 20 (6): 1585-1594

- **Early-Stage Non-Small Cell Lung Cancer: Quantitative Imaging Characteristics of (18)F Fluorodeoxyglucose PET/CT Allow Prediction of Distant Metastasis.** *Radiology*
  Wu, J., Aguilera, T., Shultz, D., Gudur, M., Rubin, D. L., Loo, B. W., Diehn, M., Li, R.
  2016; 281 (1): 270-278

- **Intratumor Partitioning of Serial Computed Tomography and FDG Positron Emission Tomography Images Identifies High-Risk Tumor Subregions and Predicts Patterns of Failure in Non-Small Cell Lung Cancer After Radiation Therapy** *58th Annual Meeting of the American-Society-for-Radiation-Oncology (ASTRO)*
  Wu, J., Gensheimer, M. F., Dong, X., Rubin, D. L., Napel, S., Diehn, M., Loo, B. W., Li, R.
  ELSEVIER SCIENCE INC.2016: S100–S100

- **Accuracy, repeatability and reproducibility of a novel approach to quantify individual drusen in spectral-domain optical coherence tomography images**
  De Sisternes, L., Jonna, G., Greven, M., Leng, T., Rubin, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2016

- **Automated quantitative analysis of SD-OCT scans to predict visual outcome after epiretinal membrane (ERM) removal surgery**
  Au, T. J., De Sisternes, L., Leng, T., Rubin, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2016

- **Fully automated prediction of geographic atrophy growth using quantitative SD-OCT imaging biomarkers**
  Leng, T., Niu, S., De Sisternes, L., Rubin, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2016

- **Robust Intratumor Partitioning to Identify High-Risk Subregions in Lung Cancer: A Pilot Study.** *International journal of radiation oncology, biology, physics*
  Wu, J., Gensheimer, M. F., Dong, X., Rubin, D. L., Napel, S., Diehn, M., Loo, B. W., Li, R.
  2016; 95 (5): 1504-1512

- **Using automatically extracted information from mammography reports for decision-support.** *Journal of biomedical informatics*
  Bozkurt, S., Gimenez, F., Burnside, E. S., Gulkesen, K. H., Rubin, D. L.
  2016; 62: 224-231

- **Fully Automated Prediction of Geographic Atrophy Growth Using Quantitative Spectral-Domain Optical Coherence Tomography Biomarkers.** *Ophthalmology*
  Niu, S., de Sisternes, L., Chen, Q., Rubin, D. L., Leng, T.
  2016; 123 (8): 1737-1750

- **Case-control study of mammographic density and breast cancer risk using processed digital mammograms** *BREAST CANCER RESEARCH*
  Habel, L. A., Lipson, J. A., Achacoso, N., Rothstein, J. H., Yaffe, M. J., Liang, R. Y., Acton, L., McGuire, V., Whittemore, A. S., Rubin, D. L., Sieh, W.
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