



## Safwan S. Halabi, MD

Clinical Associate Professor, Radiology - Pediatric Radiology

 Curriculum Vitae available Online

### CLINICAL OFFICES

- **Stanford Radiology**

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### ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

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### Bio

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#### BIO

Dr. Safwan Halabi is a Clinical Associate Professor of Radiology at the Stanford University School of Medicine and serves as the Medical Director for Radiology Informatics at Stanford Children's Health. He is board-certified in Radiology with Certificate of Added Qualification in Pediatric Radiology. He is also board-certified in Clinical Informatics. He clinically practices obstetric and pediatric imaging at Lucile Packard Children's Hospital. Dr. Halabi's clinical and administrative leadership roles are directed at improving quality of care, efficiency, and patient safety. He has also lead strategic efforts to improve the enterprise imaging platforms at Stanford Children's Health. He is a strong advocate of patient-centric care and has helped guide policies for radiology report and image release to patients. He has published in peer-reviewed journals on various clinical and informatics topics. His current academic and research interests include: imaging informatics, deep/machine learning in imaging, artificial intelligence in medicine, clinical decision support and patient-centric health care delivery. He is currently the Chair of the RSNA Informatics Data Science Committee and serves as a Board Member for the Society for Imaging Informatics in Medicine.

#### CLINICAL FOCUS

- Medical Informatics
- Fetal Imaging
- Pediatric Imaging
- Pediatric Radiology

#### ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Radiology - Pediatric Radiology

#### PROFESSIONAL EDUCATION

- Board Certification: Diagnostic Radiology, American Board of Radiology (2006)
- Fellowship: Cincinnati Childrens Hospital and Medical Center Radiology Fellowships (2007) OH
- Board Certification: Clinical Informatics, American Board of Preventive Medicine (2014)
- Board Certification: Pediatric Radiology, American Board of Radiology (2009)
- Residency: Henry Ford Health System (2006) MI

- Internship: Henry Ford Health System (2002) MI
- Medical Education: University of Toledo College of Medicine (2001) OH

## Publications

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### PUBLICATIONS

- **Deep learning augments liver stiffness classification in children.** *Pediatric radiology*  
Halabi, S. S.  
2021
- **Decoding COVID-19 pneumonia: comparison of deep learning and radiomics CT image signatures.** *European journal of nuclear medicine and molecular imaging*  
Wang, H., Wang, L., Lee, E. H., Zheng, J., Zhang, W., Halabi, S., Liu, C., Deng, K., Song, J., Yeom, K. W.  
2020
- **Deep learning to automate Brasfield chest radiographic scoring for cystic fibrosis** *JOURNAL OF CYSTIC FIBROSIS*  
Zucker, E. J., Barnes, Z. A., Lungren, M. P., Shpanskaya, Y., Seekins, J. M., Halabi, S. S., Larson, D. B.  
2020; 19 (1): 131–38
- **Sonographic Diagnosis of Velamentous and Marginal Placental Cord Insertion.** *Ultrasound quarterly*  
Kelley, B. P., Klochko, C. L., Atkinson, S., Hillman, D., Craig, B. M., Sandberg, S. A., Gaba, A. R., Halabi, S. S.  
2020; 36 (3): 247–54
- **The Effect of Including Benchmark Prevalence Data of Common Imaging Findings in Spine Image Reports on Health Care Utilization Among Adults Undergoing Spine Imaging: A Stepped-Wedge Randomized Clinical Trial.** *JAMA network open*  
Jarvik, J. G., Meier, E. N., James, K. T., Gold, L. S., Tan, K. W., Kessler, L. G., Suri, P., Kallmes, D. F., Cherkin, D. C., Deyo, R. A., Sherman, K. J., Halabi, S. S., Comstock, et al  
2020; 3 (9): e2015713
- **In fetuses with congenital lung masses, decreased ventricular and atrioventricular valve dimensions are associated with lesion size and clinical outcome.** *Prenatal diagnosis*  
Mardy, C., Blumenfeld, Y. J., Arunamata, A. A., Girsen, A. I., Sylvester, K. G., Halabi, S., Rubesova, E., Hintz, S. R., Tacy, T. A., Maskatia, S. A.  
2019
- **Deep learning to automate Brasfield chest radiographic scoring for cystic fibrosis.** *Journal of cystic fibrosis : official journal of the European Cystic Fibrosis Society*  
Zucker, E. J., Barnes, Z. A., Lungren, M. P., Shpanskaya, Y., Seekins, J. M., Halabi, S. S., Larson, D. B.  
2019
- **The RSNA Pediatric Bone Age Machine Learning Challenge** *RADIOLOGY*  
Halabi, S. S., Prevedello, L. M., Kalpathy-Cramer, J., Mamonov, A. B., Bilbily, A., Cicero, M., Pan, I., Pereira, L., Sousa, R., Abdala, N., Kitamura, F., Thodberg, H. H., Chen, et al  
2019; 290 (2): 498–503
- **Human-machine partnership with artificial intelligence for chest radiograph diagnosis.** *NPJ digital medicine*  
Patel, B. N., Rosenberg, L., Willcox, G., Baltaxe, D., Lyons, M., Irvin, J., Rajpurkar, P., Amrhein, T., Gupta, R., Halabi, S., Langlotz, C., Lo, E., Mammarrappallil, et al  
2019; 2: 111
- **CheXpert: A Large Chest Radiograph Dataset with Uncertainty Labels and Expert Comparison**  
Irvin, J., Rajpurkar, P., Ko, M., Yu, Y., Ciurea-Ilcus, S., Chute, C., Marklund, H., Haghighoo, B., Ball, R., Shpanskaya, K., Seekins, J., Mong, D. A., Halabi, et al  
ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2019: 590–97
- **Erratum: Author Correction: Human-machine partnership with artificial intelligence for chest radiograph diagnosis.** *NPJ digital medicine*  
Patel, B. N., Rosenberg, L., Willcox, G., Baltaxe, D., Lyons, M., Irvin, J., Rajpurkar, P., Amrhein, T., Gupta, R., Halabi, S., Langlotz, C., Lo, E., Mammarrappallil, et al  
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2019; 2 (1): 129
- **Obstetric and neonatal outcomes in pregnancies complicated by fetal lung masses: does final histology matter?** *The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians*  
Anderson, J. N., Girsen, A. I., Hintz, S. R., El-Sayed, Y. Y., Davis, A. S., Barth, R. A., Halabi, S., Hazard, F. K., Sylvester, K. G., Bruzoni, M., Blumenfeld, Y. J.  
2019: 1–7
  - **Improving Automated Pediatric Bone Age Estimation Using Ensembles of Models from the 2017 RSNA Machine Learning Challenge.** *Radiology. Artificial intelligence*  
Pan, I., Thodberg, H. H., Halabi, S. S., Kalpathy-Cramer, J., Larson, D. B.  
2019; 1 (6): e190053
  - **Obstetric and neonatal outcomes in pregnancies complicated by fetal lung masses: does final histology matter?**  
Anderson, J. N., Girsen, A. I., Hintz, S. R., El-Sayed, Y. Y., Davis, A. S., Barth, R. A., Halabi, S., Sylvester, K. G., Bruzoni, M., Blumenfeld, Y. J.  
MOSBY-ELSEVIER.2019: S151
  - **Deep Learning-Assisted Diagnosis of Cerebral Aneurysms Using the HeadXNet Model.** *JAMA network open*  
Park, A., Chute, C., Rajpurkar, P., Lou, J., Ball, R. L., Shpanskaya, K., Jabarkheel, R., Kim, L. H., McKenna, E., Tseng, J., Ni, J., Wishah, F., Wittber, et al  
2019; 2 (6): e195600
  - **The RSNA Pediatric Bone Age Machine Learning Challenge.** *Radiology*  
Halabi, S. S., Prevedello, L. M., Kalpathy-Cramer, J., Mamonov, A. B., Bilbily, A., Cicero, M., Pan, I., Pereira, L. A., Sousa, R. T., Abdala, N., Kitamura, F. C., Thodberg, H. H., Chen, et al  
2018: 180736
  - **Deep-learning-assisted diagnosis for knee magnetic resonance imaging: Development and retrospective validation of MRNet** *PLOS MEDICINE*  
Bien, N., Rajpurkar, P., Ball, R. L., Irvin, J., Park, A., Jones, E., Bereket, M., Patel, B. N., Yeom, K. W., Shpanskaya, K., Halabi, S., Zucker, E., Fanton, et al  
2018; 15 (11)
  - **Deep learning for chest radiograph diagnosis: A retrospective comparison of the CheXNeXt algorithm to practicing radiologists.** *PLoS medicine*  
Rajpurkar, P., Irvin, J., Ball, R. L., Zhu, K., Yang, B., Mehta, H., Duan, T., Ding, D., Bagul, A., Langlotz, C. P., Patel, B. N., Yeom, K. W., Shpanskaya, et al  
2018; 15 (11): e1002686
  - **Deep-learning-assisted diagnosis for knee magnetic resonance imaging: Development and retrospective validation of MRNet.** *PLoS medicine*  
Bien, N., Rajpurkar, P., Ball, R. L., Irvin, J., Park, A., Jones, E., Bereket, M., Patel, B. N., Yeom, K. W., Shpanskaya, K., Halabi, S., Zucker, E., Fanton, et al  
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  - **Deep learning for chest radiograph diagnosis: A retrospective comparison of the CheXNeXt algorithm to practicing radiologists** *PLOS MEDICINE*  
Rajpurkar, P., Irvin, J., Ball, R. L., Zhu, K., Yang, B., Mehta, H., Duan, T., Ding, D., Bagul, A., Langlotz, C. P., Patel, B. N., Yeom, K. W., Shpanskaya, et al  
2018; 15 (11)
  - **Migrating to the Modern PACS: Challenges and Opportunities** *RADIOGRAPHICS*  
Berkowitz, S. J., Wei, J. L., Halabi, S.  
2018; 38 (6): 1761–72
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  - **Performance of a Deep-Learning Neural Network Model in Assessing Skeletal Maturity on Pediatric Hand Radiographs** *RADIOLOGY*  
Larson, D. B., Chen, M. C., Lungren, M. P., Halabi, S. S., Stence, N. V., Langlotz, C. P.  
2018; 287 (1): 313–22
  - **Translational Radiomics: Defining the Strategy Pipeline and Considerations for Application-Part 2: From Clinical Implementation to Enterprise** *JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY*  
Shaikh, F., Franc, B., Allen, E., Sala, E., Awan, O., Hendrata, K., Halabi, S., Mohiuddin, S., Malik, S., Hadley, D., Shrestha, R.  
2018; 15 (3): 543–49

- **Data Science: Big Data, Machine Learning, and Artificial Intelligence** *JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY*  
Carlos, R. C., Kahn, C. E., Halabi, S.  
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- **Translational Radiomics: Defining the Strategy Pipeline and Considerations for Application-Part 1: From Methodology to Clinical Implementation** *JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY*  
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2018; 15 (3): 538-42
- **Imaging before 24 weeks gestation can predict neonatal respiratory morbidity in pregnancies complicated by fetal lung masses**  
Sherwin, K., Girsen, A. I., Halabi, S. S., Spiegel, A. M., Lee, C. J., Hintz, S. R., El-Sayed, Y. Y., Barth, R. A., Blumenfeld, Y. J.  
MOSBY-ELSEVIER.2018: S287-S288
- **Artificial Swarm Intelligence employed to Amplify Diagnostic Accuracy in Radiology**  
Rosenberg, L., Lungren, M., Halabi, S., Willcox, G., Baltaxe, D., Lyons, M., Chakrabarti, S., Saha, H. N.  
IEEE.2018: 1186-91
- **Evaluating the Effect of Unstructured Clinical Information on Clinical Decision Support Appropriateness Ratings.** *Journal of the American College of Radiology*  
Moriarity, A. K., Green, A., Klochko, C., O'Brien, M., Halabi, S.  
2017; 14 (6): 737-743
- **Technical Challenges in the Clinical Application of Radiomics** *JCO CLINICAL CANCER INFORMATICS*  
Shaikh, F. A., Kolowitz, B. J., Awan, O., Aerts, H. J., von Reden, A., Halabi, S., Mohiuddin, S. A., Malik, S., Shrestha, R. B., Deible, C.  
2017; 1
- **Technical Challenges in the Clinical Application of Radiomics.** *JCO clinical cancer informatics*  
Shaikh, F. A., Kolowitz, B. J., Awan, O., Aerts, H. J., von Reden, A., Halabi, S., Mohiuddin, S. A., Malik, S., Shrestha, R. B., Deible, C.  
2017; 1: 1-8
- **Concierge and Second-Opinion Radiology: Review of Current Practices.** *Current problems in diagnostic radiology*  
Shaikh, S., Bafana, R., Halabi, S. S.  
2016; 45 (2): 111-114
- **Large intra-thoracic desmoid tumor with airway compression: A case report and review of the literature** *JOURNAL OF PEDIATRIC SURGERY CASE REPORTS*  
Robinson, T. D., Bruzoni, M., Than, P., Halabi, S., Wall, J.  
2016; 5: 15-18
- **Systematic Literature Review of Imaging Features of Spinal Degeneration in Asymptomatic Populations** *AMERICAN JOURNAL OF NEURORADIOLOGY*  
Brinjikji, W., Luetmer, P. H., Comstock, B., Bresnahan, B. W., Chen, L. E., Deyo, R. A., Halabi, S., Turner, J. A., Avins, A. L., James, K., Wald, J. T., Kallmes, D. F., Jarvik, et al  
2015; 36 (4): 811-816
- **The Effect of Clinical Decision Support for Advanced Inpatient Imaging** *JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY*  
Moriarity, A. K., Klochko, C., O'Brien, M., Halabi, S.  
2015; 12 (4): 358-363
- **Improving the Application of Imaging Clinical Decision Support Tools: Making the Complex Simple** *JOURNAL OF THE AMERICAN COLLEGE OF RADIOLOGY*  
Broder, J. S., Halabi, S. S.  
2014; 11 (3): 257-261