Curriculum Vitae

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PO-HAO CHEN

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Education:

2012	MD	Harvard Medical School
2012	MBA	Harvard Business School
2007	BS	Duke University, computer science and biology, s*umma cum laude*

Postgraduate Training and Fellowship Appointments:

07/2017 – 06/2018 (expected)	Fellow, Musculoskeletal Imaging, Hospital of the University of Pennsylvania, Philadelphia
07/2013 – 06/2017	Resident, Nuclear Medicine and Diagnostic Radiology Combined Pathway, Hospital of the University of Pennsylvania, Philadelphia
06/2012 – 06/2013	Preliminary Medicine, Temple University Hospital, Philadelphia

Other Education:

07/2017 – 06/2018 (expected)	Fellow, Imaging Informatics, Perelman School of Medicine, University of Pennsylvania *12-month program embedded into clinical radiology fellowship training, including didactics, mentorship, and hands-on capstone project.*
07/2015 – Present	Healthcare Leadership in Quality Track, Perelman School of Medicine, University of Pennsylvania. *Two-year longitudinal pathway embedded into residency training including formal curriculum, longitudinal participation in a clinical QI team, and leadership in a QI capstone project.*

Academic and Institutional Committees:

2016 – 2017	Chief Resident, Diagnostic Radiology, Hospital of the University of Pennsylvania
2015 – 2017	Executive Committee, Department of Radiology, Hospital of the University of Pennsylvania (Member)
2015 – Present	Clinical Excellence and Quality Improvement Committee, Department of Radiology, Hospital of the University of Pennsylvania (Member)
2013 – Present	Clinical Informatics Subcommittee, Department of Radiology, Hospital of the University of Pennsylvania (Member)
2013 – Present	Center for Translational Imaging Informatics, Department of Radiology, Hospital of the University of Pennsylvania (Member)

Awards, Honors, and Membership in Honorary Societies:

2017	Baum-Laufer Excellence in Service to the Radiology Residency Award, Hospital of the University of Pennsylvania

2017	Resident Quality Improvement Project Annual Award, Hospital of the University of Pennsylvania
2017	New Investigator Travel Award, Society of Imaging Informatics in Medicine
2017	Research Scholar Award, Association of University Radiologists
2016	Recipient, RLI Radiology Leadership Summit scholarship, Pennsylvania Radiology Society
2016	Resident Quality Improvement Project Annual Award, Hospital of the University of Pennsylvania
2014	Recipient, Imaging Informatics Open-Source Leadership Award, Society of Imaging Informatics in Medicine
2007	Raymond D. Lublin, MD award. *Outstanding premedical student in graduating class from Duke University, Durham, NC*
2006	Student Marshall, Duke University, Durham, NC
2006	Phi Beta Kappa, Durham, NC chapter
2005, 2006, 2007	Dean's List

Memberships in Professional and Scientific Societies:

2017 – Present	Co-Chair for Conference Track, SPIE: Imaging Informatics for Healthcare, Research, and Applications.
2016 – Present	Program Steering Committee Member, Society of Imaging Informatics in Medicine
2016 – Present	Vice President, American Alliance of Academic Chief Residents in Radiology, Association of University Radiologists
2016 – Present	Education Committee Member, Association of University Radiologists
2016 – Present	Member, Society of Nuclear Medicine and Molecular Imaging
2015 – Present	Program Committee Member, SPIE: Imaging Informatics for Healthcare, Research, and Applications Conference
2013 – Present	Member, Society of Photo-Optical Instrumentation Engineers (SPIE)
2013 – Present	Member, Association of University Radiologists
2013 – Present	Member, Society of Imaging Informatics in Medicine
2013 – Present	Member, Radiology Society of North America
2013 – Present	Member, Pennsylvania Radiology Society

Board Certifications:

2017	American Board of Nuclear Medicine, Board Eligible
2016	American Board of Radiology, Board Eligible

Licensure:

2015-Present	Unrestricted Medical Physician and Surgeon License, Pennsylvania
2012-Present	Medical Trainee License, Pennsylvania

Funding:

Microsoft Azure Research Grant, $20,000 in cloud computing resources (2015)
Departmental Stipend, $5,000 for development of residency data analytics software (2013)

Bibliography:

Peer-Reviewed Publications:

Chen P-H, Mankoff DA, Sebro RA. Clinical overview of the current state and future applications of positron emission tomography in bone and soft tissue sarcoma. *Clinical and Translational Imaging*. 2017 Jun 23.

Chen P-H, Roth H, Galperin-Aizenberg M, Ruutiainen AT, Gefter W, Cook TS. Improving Abnormality Detection on Chest Radiography Using Game-Like Reinforcement Mechanics. *Academic Radiology*. 2017 Jun

Wildenberg JC, **Chen P-H,** Scanlon MH, Cook TS. Attending Radiologist Variability and Its Effect on Radiology Resident Discrepancy Rates. *Academic Radiology*. 2017 Jan 24.

Chen P-H, Loehfelm T, Kamer A, Lemmon A, Cook T, Kohli M. Toward data-driven radiology education–early experience building Multi-Institutional Academic Trainee Interpretation Log Database (MATILDA). *Journal of Digital Imaging*. 2016 Mar 4.

Chen P-H, Chen YJ, Cook TS. Capricorn – A web-based automatic case log and analytic tool for diagnostic radiology residents. *Academic Radiology*. 2015 Oct;22(10):1242–51.

Traeger LL, Volkening JD, Moffett H, Gallant JR, **Chen P-H,** Novina CD, et al. Unique patterns of transcript and miRNA expression in the South American strong voltage electric eel (Electrophorus electricus). *BMC Genomics*. 2015;16:243.

Gallant J, Traeger L, Volkening J, Moffett H, **Chen P-H,** Novina C, et al. Genomic basis for the convergent evolution of electric organs. *Science*. 2014 Jun 27;344(6191):1522–5.

Chen P-H, Slanetz P. Incremental clinical value of ultrasound in men with mammographically confirmed gynecomastia. *Eur J Radiol*. 2014 Jan;83(1):123–9.

Kung J, Slanetz P, **Chen P-H,** Lee K, Donohoe K, Eisenberg R. Resident and attending physician attitudes regarding an audience response system. *Journal of the American College of Radiology*. 11:828–31, 2012

Janas M, Wang E, Love T, Harris A, Stevenson K, Semmelmann K, Shaffer J, **Chen P-H,** et al. Reduced expression of ribosomal proteins relieves microRNA-mediated repression. *Molecular Cell*. 46:171–86, 2012

Chen P-H, Ghosh E, Slanetz P, Segmental breast calcifications. *American Journal of Roentgenology* 199:532-542, 2012

Levy C, Khaled M, Iliopoulos D, Janas M, Schubert S, Pinner S, **Chen P-H,** et al. Intronic miR-211 assumes the tumor suppressive function of its host gene in melanoma. *Molecular Cell*. 40:841-849, 2010

Levy C, Khaled M, Robinson K, Veguilla R, **Chen P-H,** Yokoyama S, et al. Lineage-specific transcriptional regulation of DICER by MITF in melanocytes. *Cell*. 141:994-1005, 2010

Ramappa A, **Chen P-H,** Hawkins R, Noonan T, Hackett T, Sabick M, et al. Anterior shoulder forces in Professional and Little League pitchers. *Journal of Pediatric Orthopaedics*. 30:1-7, 2010

Reed R, **Chen P-H,** Nijhout H, Cryptic variation in butterfly eyespot development: the importance of sample size in gene expression studies. *Evolution & Development* 9:2-9, 2007

Other Publications:

Chen P-H, Botzolakis E, Mohan S, Bryan RN, Cook TS. Feasibility of streamlining an interactive Bayesian-based diagnostic support tool designed for clinical practice. In: Zhang J, Cook TS, editors. *Proc SPIE Medical Imaging*. 2016. p. 97890C.

Chen P-H, Rodriguez E, Chacko A, Appleton P, Minimally invasive plate osteosynthesis of periprosthetic femur fractures associated with total hip replacement: a case series. *Orthopaedic Journal at Harvard Medical School*, 10:57-59, 2008.

Oral Presentations:

Chen P-H, Zafar H, Cook T. Integrating natural language processing and machine learning algorithms to categorize oncologic response in radiology reports. Presented at Society of Imaging Informatics in Medicine Annual Conference, Jun 1-Jun 3, 2017. Pittsburgh, PA

Chen P-H, How to Teach Millennials from the Perspective of a Millennial. Presented at Association of University Radiologists Annual Meeting, May 8-May 11, 2017. Hollywood, FL

Chen P-H, Mohan S, Cook T, Nasrallah I, Bryan R, Botzolakis E, Development of a Novel Bayesian Network Interface for Radiology Diagnosis Support and Education. Presented at Radiology Society of North America 2016 Scientific Assembly and Annual Meeting, Nov 26-Dec 2, 2016. Chicago, IL

Chen P-H, Roth H, Galperin-Aizenberg M, Ruutiainen A, Cook TS, Implementation and Initial Experience Using a Web-Based, Rapid-Fire Teaching System with Game-Like Elements for Chest Radiography. Presented at Society of Imaging Informatics in Medicine Annual Conference 2016, Jun 28-Jul 1, 2016. Portland, OR

Chen P-H, Botzolakis E, Mohan S, Bryan R, Cook T, Streamlining an Interactive Bayesian-Based Diagnostic Support Tool Alongside Traditional PACS System. Presented at Society of Photo-Optical Instrumentation Engineers Medical Imaging 2016, Feb 27–Mar 3, 2016. San Diego, CA

Chen P-H, Chen Y, Scanlon M, Cook T, Resident Performance Analytics Using Structured Attending Feedback and #Hashtag Sharing Features. Presented at Radiology Society of North America 2015 Scientific Assembly and Annual Meeting, Nov 29-Dec 4, 2015. Chicago, IL

Chen P-H, Radiology for Non-Radiologists: Challenges and Opportunities, Invited Speaker, Society of Photo-Optical Instrumentation Engineers, Medical Imaging Conference (2015)

Chen P-H, Chen Y, Ruutiainen A, Kim S, Cook T. The More You See - Effect of First Year Residents' Interpretation Volume on Independent Call as Second Year Residents. Presented at: Radiological Society of North America 2014 Scientific Assembly and Annual Meeting, November 30 – December 5, 2014, Chicago, IL

Chen P-H, Slanetz P, Incremental clinical value of ultrasound in men with mammographically confirmed gynecomastia. Presented at: Radiological Society of North America 2012 Scientific Assembly and Annual Meeting, November 25–30, 2012, Chicago, IL

Posters and Other Abstracts:

Rudie JD, Xie L, Rauschecker AM, Ding Y, **Chen P-H,** Nasrallah IM, Bryan RN, Mohan S, Botzolakis EJ, Gee J. Automated Diagnosis of Basal Ganglia Diseases Using a Customized Image-Processing Pipeline Coupled with Bayesian Networks. Presented at American Society of Neuroradiology, Apr 22 – Apr 27, 2017, Long Beach, CA

Wildenberg J, **Chen P-H,** Cook T, Resident Discrepancy Rates Are Not Entirely Explained by Attending Variability. Presented at Society of Imaging Informatics in Medicine Annual Conference 2016, Jun 28-Jul 1, 2016. Portland, OR

Wildenberg J, **Chen P-H,** Kahn C, Zafar H, Cook T, Structured Reporting of Focal Lesions in the Abdomen to Assess Radiology Trainees' Performance Demonstrates Decreased Detection Errors for Suspicious Lesions with Increased Training. Presented at Radiology Society of North America 2015 Scientific Assembly and Annual Meeting, Nov 29-Dec 4, 2015. Chicago, IL

Wildenberg J, **Chen P-H,** Kahn C, Cook T, Using Structured Reporting of Focal Lesions in the Abdomen to Assess Radiology Trainees' Performance. Presented at American College of Radiology Annual Meeting, May 17-21, 2015, Washington, DC

Loehfelm T, **Chen P-H,** Kamer A, Lemmon A, Cook T, Kohli M, Multi-Institutional Resident Case Log Analysis: Effect of the new Core Exam Format on Fourth-Year Resident Productivity. Presented at: Association of University Radiologists Annual Meeting, April 14-17, 2015, New Orleans, LA

Loehfelm T, **Chen P-H,** Kamer A, Lemmon A, Kohli M, Cook T, Multi-Institutional Resident Case Log Analysis: Evaluating Performance against ACGME Minimum Requirements. Presented at: Association of University Radiologists Annual Meeting, April 14-17, 2015, New Orleans, LA

Chen P-H, Ruutiainen A, Roth H, Cook T, A Web-based Open Source Platform for Radiology Education using Rapid Reinforced Learning Mechanics. Presented at: Radiological Society of North America 2014 Scientific Assembly and Annual Meeting, November 30-December 5, 2014, Chicago, IL

Ruutiainen A, **Chen P-H,** Roth H, Cook T, Rapid-feedback using a Web-based Module to Teach the Grading of Degeneration on an MRI of the Lumbar Spine. Presented at: Radiological Society of North America 2014 Scientific Assembly and Annual Meeting, November 30 – December 5, 2014, Chicago, IL

Chen Y, **Chen P-H,** Scanlon M, Cook T, What studies did you interpret last year? – Creation of Capricorn Platform for Monitoring Study Volume and Assessment of Residents' Experience. Presented at: Radiological Society of North America 2014 Scientific Assembly and Annual Meeting, November 30 – December 5, 2014, Chicago, IL

Iuanow E, **Chen P-H,** Slanetz P, Increasing incidence of benign breast disease in Men: Is this a cause for concern? Presented at: Men's Health World Congress. October 2011, Vienna, Austria

Chen P-H, Magwene P. Global patterns of coregulatory modules across multiple genomic networks. Presented at: Howard Hughes Poster Presentation at Duke University, 2006, Durham, NC.

Chen P-H, Nijhout H., A model for Lepidopteran eyespot formation. Presented at: NC Triangle Undergraduate Research Symposium Conference, 2004, Raleigh, NC

<u>Editorials, Reviews, Chapters:</u>

Chen P-H, Complexity of Communication in Diagnostic Radiology, Society of Imaging Informatics in Medicine, December 2015, http://siim.org/blogpost/1178515/234749/Complexity-of-Communication-in-Diagnostic-Radiology

Chen P-H, Towards Healthcare Interoperability: What Must Be Done?
American Journal of Managed Care, November 2015. https://shar.es/1cFa7c

Chen P-H, After Big Data — Keep Healthcare Ahead with Internet of Things
American Journal of Managed Care, August 2015. https://shar.es/1uuPRG

Chen P-H, Watson Will Replace Me? Not a Chance. The Health Care Blog, July, 2015
http://thehealthcareblog.com/blog/2015/07/16/watson-will-replace-me-not-a-chance/

Chen P-H, The "Why" Question
Pennsylvania Radiology Society Bulletin, July 2015

Chen P-H, Before the End of the Day
Pennsylvania Radiology Society Bulletin, January 2015

Amber I, Chen P, Second Take: Notify patients of radiation risk from CT scans,
AuntMinnie.com, December 2013

Neurology (Chapter 5) in Le, T. (Ed.) First Aid for the Basic Sciences: Organ Systems 2ed,
McGraw-Hill Medical, New York, 2011

Chen P, From "Liu Xue Sheng" to Medical Student - Immigration Experience on American East Coast
(translated title, from Chinese). Tainan Primary Medical Journal, Tainan, Taiwan, 2011.

Chen P, contributor. In: Le T, Feinstein J, Ball M, Dude A, Hoffman R, Jensen, et al, editors. First Aid Q&A for the USMLE Step 1, Third Edition. New York City: McGraw-Hill Medical. 2011

Chen P, Neurology. In: Le T, Hwang W, editors. First Aid for the Basic Sciences: Organ Systems, Second Edition. New York City: McGraw-Hill Medical. 2011

Contributor, Step 1 Qmax (USMLERx), 2011 Edition

Contributor, Step 1 Qmax (USMLERx), 2010 Edition

Activities:

Quality Improvement:

Resident Leader, Quality Improvement Questionnaire for Radiology (QUIQ-Rad), *a low-threshold reporting system to capture variations in standard practice. Improved reporting rate by physicians two-fold over six-months*. (2016 – Present)

Team Leader, RadCare, *an integrated resident rotation for shoulder-to-shoulder inpatient radiology consultation on the general medicine wards. ~50% of consultations led to a change in management. Won 2017 QI award of the year in Department of Radiology.* (2015 – 2017)

Team Member, Improving trainee interpretations of off-hours pulmonary-embolism (PE) protocol CTA. *Reduced missed PE by trainees from 3.6% to 2.0%, or decrease of 13 cases per year. Won 2016 departmental QI award of the year in Department of Radiology.* (2015 – 2016)

Chair, Resident Clinical Excellence and Quality Improvement Sub-Committee, Department of Radiology, Hospital of the University of Pennsylvania (2015 – 2016)

Resident Representative, Clinical Excellence and Quality Improvement Committee, Department of Radiology, Hospital of the University of Pennsylvania (2015 – Present)

Informatics and Innovation:

Creator and software engineer, Capricorn. *Designed and developed radiology resident-focused performance analytics software. Streamlined nightfloat workflow, enabled data tracking for quality improvement projects such as missed PE reduction, reduced lag time for feedback from 6 months to 1 day. Provides quarterly score cards for both radiology and emergency departments.* (2013 – Present)

2nd Place Grand Prize Winner, Enterprise Image Capture and Viewing Hackathon, Society of Imaging Informatics in Medicine Annual Conference (2016)

Finalist, Penn Center for Innovation Ventures "App It Up" Competition. *Mobile platform to improve the quality of care in radiology through intelligent closed-loop feedback. Startup venture backed by University of Pennsylvania.* (2017 – Present)

Creator and software engineer, Centaur. *Web-based rapid-fire teaching module for abnormality detection on radiography. Measurable improvement in abnormality detection rate after a 20-minute session.* (2013 – 2017)

Top 3%, Cortana Machine Learning - Women Health Risk Assessment. *Algorithm design competition hosted by Microsoft Corporation. Ranked 14th out of 2,392 competing algorithms in predictive accuracy.* (2016)

Prototype designer and software engineer, Adaptive Radiology Interpretation Education System (ARIES). *Web-based software using Bayesian network for clinical decision support and automated teaching.* (2015)

Teaching:

Chen P. “Artifacts and Non-Osseous Findings on Bone Scintigraphy.” Presented at Society of Nuclear Medicine and Molecular Imaging – Technologist Section. Apr 7, 2017. *Invited teaching session on atypical findings seen on bone scan.*

Chen P. “Educational Informatics with Radiology Resident Analytics.” Presented at Hospital of University of Pennsylvania Radiology Informatics Fellowship. Aug 31, 2016. *Small group lectured on the role of data science and analytic tools in residency training.*

Moderator, “Fake it ‘til You Make it: Innovation Strategies in Imaging” Roundtable session at Society of Imaging Informatics in Medicine, July 1, 2016. *Teaching session using rapid prototyping techniques to test innovation ideas at minimal cost.*

Lecturer, “Introduction to Radiology,” University of the Sciences in Philadelphia, 2016. *For 1st year students in physical therapy training program.*

Lecturer, “Clinical Correlation: Musculoskeletal Imaging,” University of the Sciences in Philadelphia, 2016. Physical therapy students. *For 2nd year students in physical therapy training program.*

Lecturer, “Engaging Grassroots to Improve Healthcare Quality,” morning conference in diagnostic radiology residency, Hospital of the University of Pennsylvania, 2015. *Using Harvard Business School’s Cincinnati Children’s Hospital case to apply quality improvement science in healthcare settings.*

Organizer and Lecturer, “Introduction to Radiology,” Hospital of the University of Pennsylvania, 2014

Instructor, Radiology Anatomy for First Year Radiology Residents (2013-2014)

Writing:

Radiology Data Quest (2016 – Present) https://www.raddq.com

Figure Stuff Out blog (2012 – Present) http://blog.howardpchen.com

Contributor, American Journal of Managed Care

Contributor, KevinMD.com

Contributor, The Health Care Blog