Samantha Santomartino

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OBJECTIVE

As a medical student passionate about exploring the intersection of healthcare and technology, I aim to leverage my knowledge and research in artificial intelligence to improve patient outcomes and revolutionize the healthcare industry.

EDUCATION

2022

Drexel University College of Medicine (DUCOM), Philadelphia, PA
Doctor of Medicine
Expected date of Graduation: May, 2026

2019

Bucknell University, Lewisburg, PA
Bachelor of Arts, Computer Science and Economics
Graduated: May 2019
Summa cum laude, Phi Beta Kappa, GPA 3.94/4.0

RESEARCH EXPERIENCE

July 2021 – Present

Research Assistant, University of Maryland Medical Intelligent Imaging (UM2ii) Center, Baltimore, MD

- Investigates medical applications of artificial intelligence, specifically examining radiology images.
- Evaluates autoML platforms on performance and feasibility.
- Synthesizes attitudes of medical professionals on the role of AI in radiology.
- Evaluates state-of-the-art bone age prediction model for robustness using computational stress tests.

PI: Dr. Paul Yi, Department of Diagnostic Radiology and Nuclear Medicine, University of Maryland School of Medicine

August 2019 – July 2021

Research Assistant & Lab Manager, University of Maryland (UMD) Language and Music Cognition Lab, College Park, MD

- Assisted in research that uses psycholinguistic paradigms to investigate language processing and sound perception.
- Aided study development, execution, and data analysis with a team of lab members.
- Developed and managed lab website.

PI: Dr. Bob Slevc, Department of Psychology

August 2015 – May 2019

Research Fellow, Bucknell University Music Cognition Lab, Lewisburg, PA

- Conducted cognitive psychology research and assisted experiment development, protocol, and software.
- Developed and supervised musical cognition experiments on human participants using custom created software.
- Introduced and managed the creation of a song file database.

PI: Dr. Andrea Halpern, Department of Psychology

WORK EXPERIENCE

January 2020 – July 2021

Medical Scribe, Scribe America, Rockville, MD

- Thoroughly documented medical record documentation as verbalized by physician and patient.
- Accompanied physicians into the exam room and helped physicians maintain a more efficient schedule and workload.
- Assisted in various other clerical duties that helped improve clinic productivity and workflow.

January 2019

Physician Shadowing, Evangelical Community Hospital, Lewisburg, PA

- Observed multiple hospital departments including but not limited to: the orthopedic operating room, the vascular operating room, laboratory services, radiology, surgical specialties, the heart and vascular clinic, the surgical nursing unit, and billing/coding compliance

May 2018 - August 2018

Software Engineering Intern, DisputeSoft, Potomac, MD

- Assisted in full stack development of an analytics tool that utilizes a MVVM pattern and a multi-tier WCF back end.
- Created and implemented database designs, end user documentation, and SSRS reporting templates.
- Worked on a client case as an analyst in assessing patent infringement disputes on software by conducting source code traces and documenting technical research.

February 2018 - April 2018

Research Analyst Intern, Europe Economics, London, England

- Conducted comprehensive research on the role of SMEs in the defense supply chain.
- Interviewed companies, analyzed patterns in responses, and wrote briefs on results.
- Collected data, analyzed studies, and summarized research materials to be used in client reports.

June 2017 - August 2017

Software Engineering Intern, Legal Technologies, LLC, Rockville, MD

- Wrote a C# “Custom Fields” module for case management software for processing evictions, tied to a MS SQL database.
- Allowed end users to define custom fields of different types and sizes.
- Allowed end user to define custom fields for new jurisdictions, not already part of the case management system so data could be merged into existing software.

May 2016 - July 2016

Software Engineering Intern, U.S. Department of Justice, Community Oriented Policing Services IT, Washington, DC

- Assisted Program Manager, Business Analysts, QA, Web Development, Database, and Development teams.
- Attended daily scrum meetings and client User Acceptance Tests from initial testing through the final signoff stages.
- Researched detailed Workflows that analyzed alternative software products to be implemented in the office.

GRANTS AND SCHOLARSHIPS

May 2023

Radiological Society of North America (RSNA) R&E Foundation, Medical Student Research Grant

$6000 in funding to secure protected time for research of artificial intelligence in radiology medical imaging

October 2022

Drexel University College of Medicine, Alumni Association Professional Development (POD) Grant

$500 in funding to attend the RSNA 2022 Annual Meeting in Chicago, IL

Drexel University College of Medicine, Student Government Association Medical Student Research Grant

$500 in funding to attend the RSNA 2022 Annual Meeting in Chicago, IL

September 2021

Amazon Web Services (AWS) Proof of Concept Program Awardee

$300 AWS Credits: "Evaluating AutoML Performance and Feasibility on Radiological Images"

August 2015 - May 2019

Bucknell University Presidential Fellowship Recipient

$60,000 in academic scholarship across four years

PUBLICATIONS

2023

Santomartino SM, Siegel E, Yi PH. Author Response to "Letter to the Editor: Academic Radiology Departments Should Lead Artificial Intelligence Initiatives." Acad Radiol. 2023.

Santomartino SM, Hafezi-Nejad N, Parekh V, Yi PH. Performance and usability of code-free deep learning for chest radiograph classification, object detection, and segmentation. Radiol Artif Intell. 2023.

2022

Beheshtian E, Putman K, Santomartino SM, Parekh VS, Yi PH. Generalizability and Bias in a Deep Learning Pediatric Bone Age Prediction Model using Hand Radiographs. Radiology. 2022.

Venkatesh K, Santomartino SM, Sulam J, Yi PH. Code and Data Sharing Practices in the Radiology AI Literature: A Meta-Research Study. Radiol Artif Intell. 2022.

Santomartino SM, Siegel E, Yi PH. Academic Radiology Departments Should Lead Artificial Intelligence Initiatives Academic Radiology. Acad Radiol. 2022.

Zech JR, Santomartino SM, Yi PH. Artificial Intelligence (AI) for Fracture Diagnosis: An Overview of Current Products and Considerations for Clinical Adoption, From the AJR Special Series on AI Applications. AJR. 2022.

Santomartino SM, Yi PH. Systematic Review of Radiologist and Medical Student Attitudes on the Role and Impact of AI in Radiology Academic Radiology. Acad Radiol. 2022.

2021

Halpern, AR and Pfordresher, PQ. What Do Less Accurate Singers Remember? Pitch Matching Ability and Long-Term Memory for Music. Attention, Perception, & Psychophysics. 2021.

2018

Colley, Ian D.; Keller, Peter E.; and Halpern, Andrea R. Working Memory and Auditory Imagery Predict Sensorimotor Synchronisation with Expressively Timed Music. Quarterly Journal of Experimental Psychology: 1781-1796. 2018.

PRESENTATIONS

2023

Santomartino SM, Hafezi-Nejad N, Parekh V, Yi PH. Evaluation of useability and performance of code-free deep learning platforms for chest x-ray classification, object detection, and segmentation: A retrospective study. Scientific Poster, Drexel University College of Medicine, 2023 Clinical and Translational Research Symposium, Philadelphia, PA.

2022

Santomartino SM, Putman K, Beheshtian E, Parekh VS, Yi PH. Can AI Handle the Stress? A Robustness Evaluation of a State-of-the-Art Deep Learning Bone Age Algorithm. Podium Presentation, 2022 Radiological Society of North America 108th Scientific Assembly and Annual Meeting, Chicago, IL.

Beheshtian E, Putman K, Santomartino SM, Parekh V, Yi PH. Evaluation of Generalizability and Bias in a State-of-the-Art Bone Age Deep Learning Model. Podium Presentation, 2022 Radiological Society of North America 108th Scientific Assembly and Annual Meeting, Chicago, IL.

Johnston AR, Santomartino SM, Venkatesh V, Parekh V, Yi PH. Automated Machine Learning (AutoML) for MSK Radiograph Abnormality Detection: Feasibility Study of Six Codeless Platforms. Scientific Poster, 2022 Radiological Society of North America 108th Scientific Assembly and Annual Meeting, Chicago, IL.

Santomartino SM, Hafezi-Nejad N, Parekh V, Yi PH. Evaluation of useability and performance of code-free deep learning platforms for chest x-ray classification, object detection, and segmentation: A retrospective study. Scientific Poster, Drexel University Graduate School of Biomedical Sciences and Professional Studies, 2022 Discovery Day, Philadelphia, PA.

Santomartino SM, Hall K, Jeudy J, Zech J, Parekh V, Yi PH. Evaluating Bias in Natural Language Processing Tools used to Annotate Radiology Reports. Podium Presentation, 2022 Conference on Machine Intelligence in Medical Imaging, Society for Imaging Informatics in Medicine, Virtual Meeting.

Beheshtian E, Putman K, Santomartino SM, Parekh V, Yi PH. No Bones About It: Clinically Significant Bias in a State-of-the-Art Bone Age Deep Learning Model. Scientific Poster, 2022 Conference on Machine Intelligence in Medical Imaging, Society for Imaging Informatics in Medicine, Virtual Meeting.

Johnston AR, Santomartino SM, Venkatesh K, Parekh V, Yi PH. Automated Machine Learning (AutoML) for MSK Radiograph Abnormality Detection: Feasibility Study of Six Codeless Platforms. Podium Presentation, 2022 Conference on Machine Intelligence in Medical Imaging, Society for Imaging Informatics in Medicine, Virtual Meeting.

Santomartino SM, Putman K, Beheshtian E, Parekh VS, Yi PH. Evaluating the Robustness of a State-of-the-Art Deep Learning Bone Age Algorithm Using Computational Stress Testing. Podium Presentation, 2022 Annual Meeting of the Society for Imaging Informatics in Medicine, Orlando, FL.

Santomartino SM, Yi PH. What Do We Think About AI? Systematic Review of Radiologist and Medical Student Attitudes on the Role and Impact of AI in Radiology. Podium presentation, 2022 Annual Meeting of the Society for Imaging Informatics in Medicine, Orlando, FL.

Santomartino SM, Kung J, Yi PH. Systematic Review of Deep Learning Models for ACL Tear Identification: What is the State of the Art? Podium presentation, 2022 Annual Meeting of the Society for Imaging Informatics in Medicine, Orlando, FL

Santomartino SM, Hafezi-Nejad N, Parekh V, Yi PH. Evaluation of useability and performance of code-free deep learning platforms for chest x-ray classification, object detection, and segmentation: A retrospective study. Podium presentation, 2022 Annual Meeting of the Society for Imaging Informatics in Medicine, Orlando, FL.

Beheshtian E, Santomartino SM, Putman K, Parekh V, Yi PH. Is AI Fair? Evaluation of Bias in a State-of-the-Art Bone Age AI Model. Podium presentation (Emerging Research), 2022 122nd Annual Meeting of the American Roentgen Ray Society, New Orleans, LA.

2021

Yi PH, Santomartino SM. Systematic Review of Deep Learning Models for ACL Tear Identification: What is the State of the Art? Poster presentation, Society of Skeletal Radiology Annual Meeting 2022, Coronado Bay, CA.

Yi PH, Venkatesh K, Santomartino SM. Automated Deep Learning (AutoML) for Musculoskeletal Radiograph Abnormality Detection Using a Codeless Platform: Feasibility Study of Google AutoML. Podium presentation, Society of Skeletal Radiology Annual Meeting 2022, Coronado Bay, CA.

2019

Santomartino SM, Cook G. Artificial Intelligence in Medicine from an Ethical Perspective. Poster presentation, Bucknell University Computers and Society, Lewisburg, PA.

2018

Brill Z, Cook G, Perez D, Santomartino SM. Senior Design Final Project: Bison Lingual, a Mobile Application. Podium presentation, Bucknell University Senior Design, Lewisburg, PA.

HONORS AND AWARDS

2022

2022 Society of Skeletal Radiology Young Investigator Travel Award (YITA): "Automated Deep Learning (AutoML) for Musculoskeletal Radiograph Abnormality Detection Using a Codeless Platform: Feasibility Study of Google AutoML"

2022 American Roentgen Ray Society Resident/Fellow in Radiology Award (President's Award): "Is AI Fair? Evaluation of Generalizability and Bias in a State-of-the-Art Bone Age AI Mode.l"

2019

William C. Gretzinger Prize Recipient, graduating student with the highest achievement in economics. Bucknell University.

2015 - 2019

Dean's List Recipient. Bucknell University

MEDIA AND PRESS

2022

"New study questions reliability of bone age AI," Frances Rylands-Monk for Aunt Minnie, Nov. 28, 2022.

"Bone-age prediction models may not perform as well in real-world," Erik L. Ridley for Aunt Minnie, Nov. 27, 2022.
Video from SIIM 2022: Paul Yi on medical students and AI, June 9 2022.
"Both radiologists and medical students see the value of AI," Kate Madden Yee for Aunt Minnie, Feb. 2, 2022.

PROFESSIONAL ORGANIZATIONS AND SOCIETIES

2022
Radiological Society of North America (RSNA) – Member in Training
Society for Imaging Informatics in Medicine (SIIM) – Member in Training
2019
Omicron Delta Epsilon – Honor Society for Economics
2017
Order of Omega – Greek Honor Society
2016
Alpha Lambda Delta – National Honor Society
Alpha Delta Pi – Theta Iota Sorority
2015
Association for Computing Machinery (ACM)

SERVICE CONTRIBUTIONS

August 2022 – Present
Smoking Cessation at Whosoever Gospel Mission. Philadelphia, PA.
August 2022 – May 2023
Programs Employing People. Philadelphia, PA.
March 2020 – July 2022
The Senior Connection. Rockville, MD
November 2016 – February 2019
Ronald McDonald House (RMH). Danville, PA
Lewisburg Community Garden. Lewisburg, PA

EDUCATIONAL CONTRIBUTIONS

October 2022 – Present
Admissions Ambassador, Drexel University College of Medicine, Philadelphia, PA
Peer Mentor, American Medical Women's Association, Philadelphia, PA
Peer Mentor, Application First Aid, Philadelphia, PA
August 2019 – December 2019
Teaching Assistant, Introduction to Data Science, Bucknell University, Lewisburg, PA
August 2016 – December 2016
Study Group Facilitator, Calculus I, Bucknell University, Lewisburg, PA