Sossena Wood, Ph.D.

scwood@andrew.cmu.edu || 412-613-3624 (c)
LinkedIn: www.linkedin.com/in/sossena-wood-profile

EDUCATION

Doctor of Philosophy, Bioengineering **December 2018**
University of Pittsburgh, Pittsburgh, PA
Dissertation Topic: "Anthropomorphic Phantom Developments for the Characterization & Evaluation of MRI RF Coil"
Committee: Tamer S. Ibrahim, Ph.D. (Chair), Howard Aizenstein, M.D./Ph.D., George Stetten, M.D./Ph.D., John Brigham, Ph.D.

Bachelor of Science, Electrical Engineering **April 2011**
University of Pittsburgh, Pittsburgh, PA
Chancellor's Scholar

WORK EXPERIENCE

11/2018 – Present	Presidential Postdoctoral Fellow in the Biomedical Department, Carnegie Mellon University, Pittsburgh, PA	*Postdoctoral Researcher*
03/2016 – 10/2018	Doctoral Candidate, RF Research Facility in the Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA	*Doctoral Candidate and Researcher*
08/2011 – 10/2018	Graduate Student Researcher, RF Research Facility in the Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA	*Researcher*
01/2011 – 08/2011	Human Engineering Research Laboratories and the Department of Veteran Affairs, Pittsburgh, PA	*Research Associate*
01/2009 – 12/2009	ANSYS, Inc., Canonsburg, PA	*Co-Op Student*
05/2008 – 08/2008	Powercast Corporation, Pittsburgh, PA	*Co-Op Student*

RESEARCH EXPERIENCE

11/2018 – Present Presidential Postdoctoral Fellow in the Biomedical Department, Carnegie Mellon University, Pittsburgh, PA — *Postdoctoral Researcher*
Biophotonics Lab (PI: Jana Kainerstorfer, Ph.D.)

Responsibilities: I conducted noninvasive optics imaging and electroencephalography that monitors cerebral health in diseased and healthy adult humans. I used multimodal imaging (EEG-NIRS-Pulse oximeter) to study neurovascular coupling to understand the relationship between neurons and the vasculature. I investigated if these changes are driven only by the neurons or by additional physiological changes in the body, such as blood pressure. I worked with Jana Kainerstorfer, Enrico Novelli, and Theodore Huppert using NIRS to understand Sickle Cell Disease. Using FD-NIRS, I observed differences in the cerebral microvasculature of patients with Sickle Cell Disease compared to controls by quantifying tissue saturation and cerebral autoregulation. Through my tenure, I mentored several 2 undergraduate students and 3 graduate students. My work resulted in 3 journal articles in preparation, 2 conference proceedings, and 1 oral talk.

Programming Language: MATLAB, Psychtoolbox
Software: Oxysoft (Artinis), Boxy (ISS)
Instrumentation: EEG amplifier and electrodes (Ripple and TMSI), Frequency Domain-NIRS (ISS), Continuous Wave-NIRS (Artinis), Pulse Oximeter, Blood Pressure Device with Arm and Finger Cuffs, Respiration Belt

03/2016 – 10/2018 Doctoral Candidate in the Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA — *Doctoral Candidate and Researcher*
08/2011 – 10/2018 Graduate Student Researcher, in the Department of Bioengineering, University of Pittsburgh, Pittsburgh, PA
RF Research Facility (PI: Tamer S. Ibrahim, Ph.D.)

Responsibilities: I studied the interaction of biological tissues and electromagnetic fields at ultra-high field MRI (7 Tesla (T)). I developed an anthropomorphic head phantom using 3D printing to be used as a tool for MR quality assurance in the MR scanner and RF safety testing in RF coil development. Using pulse sequences and fiber optic probes, I performed RF Heating and thermal assessments of the head phantom at 7T in various RF coils. I worked on 10 NIH-funded studies focused on using a designed RF coil (32 channel Tic-Tac-Toe coil) to study and detect neurological damage and neurodegenerative diseases in the human brain using 7T MRI technology. I screened and paid patients and volunteers on studies. I managed and mentored several undergraduate students and peer-graduate students. My work resulted in 8 peer-reviewed journal articles, 26 international abstracts, and 2 international talks.

Programming Language: MATLAB, C++, Python
MRI Tools: iSeg, Siemens MRI interface, ITK-SNAP, MIPAV, Psychtoolbox, E-Prime, ImageJ, SPEAG DAK

Hardware Skills: RF Coil Design, network analyzer, fiber optic probes
CAD Software: Geomagics CAD, 3D-Tool, Materialise Mimics

01/2011 – 08/2011 Human Engineering Research Laboratories and the Department of Veteran Affairs, Pittsburgh, PA (PI: Dan Ding, Ph.D.) *Research Associate*

Responsibilities: I developed the initial testing system on the "Cueing Kitchen" project. I implemented and integrated software and hardware in a kitchen environment with ubiquitous sensing. The goal of the kitchen was to be in a living environment for those with cognitive impairments that have impaired their memory. The sensing cues would aid in replacing the memory loss. I was awarded 2nd place in PhD category for the 2011 National GEM Technical Research Exhibition.

Programming Language: Java, C++, and Arduino Development
Hardware Skills: PCB Development using PSpice

09/2010 – 04/2011 Independent Research Project, Electrical Engineering, University of Pittsburgh, Pittsburgh, PA *Undergraduate Researcher*

06/2010 – 08/2010 Pre-PhD Research Program, University of Pittsburgh, Pittsburgh, PA
Engineering Office of Diversity (Dr. Slyvanus Wosu)
RF Research Facility (PI: Tamer S. Ibrahim, Ph.D.)

Responsibilities: I continued the "Head Tissue Segmentation" to create phantoms with electrical parameters of various tissue types in a phantom to solve inhomogeneity in 7 Tesla and greater imaging. In the project "Head Tissue Segmentation," I created an algorithm and atlas with MATLAB for head tissue segmentation of 3 Tesla MRI for the testing of 7 Tesla RF coils.

09/2005 – 04/2006 Science and Technology Program, Eleanor Roosevelt High School and University of Maryland College Park, College Park, MD *High School Researcher*
"Hyperchaos in Transistors" (PI: Robert Newcomb, Ph.D.)

Responsibilities: I researched investigated if hyperchaos would appear in a CMOS transistor circuit through analytical software. I used MATLAB and Altium in the project. This project was part of my senior practicum for the science and technology program.

FELLOWSHIPS, HONORS, and AWARDS

Fellowships

11/2018 – Present *Postdoctoral Fellowships*
Presidential Postdoctoral Fellowship at Carnegie Mellon University **inaugural cohort*

Doctoral Fellowships

08/2016 – 4/2017 University of Pittsburgh's Provost Development Fund
12/2014 – 11/2016 NIH Ruth L. Kirschstein National Research Service Award (NRSA) Individual Pre-doctoral Fellow
05/2012 – 10/2018 National GEM Consortium Ph.D. Fellow
08/2011 – 10/2018 K. Leroy Irvis Fellow at the University of Pittsburgh

Honors

04/2020 Associate Fellow for Ernest E. Just Postgraduate Fellowship Program
01/2020 FOCUS Fellow 2020, Georgia Institute of Technology
11/2018 Rising Stars in Biomedical Engineering, Massachusetts Institute of Technology
03/2017 Mike Shinn Distinguished Member of the Year (Female), National Society of Black Engineers' 20th Annual Golden TORCH Awards, NSBE 43rd Annual Convention
03/2016 New Pittsburgh Courier, FAB 40 Recipient, a select group of Pittsburgh's young African Americans under age 40
08/2015 National GEM Consortium's GEM Fellow of the Year (Female)
04/2013 Rising African American Leaders (RAAL) Award, University of Pittsburgh African American Alumni Council (AAAC)

Awards

11/2020 American Society of Hematology Abstract Achievement Award
04/2018 University of Pittsburgh's Engineering Graduate Student Organization (EGSO) & Biomedical Engineering Society (BMES), 2018 Travel Award
02/2018 ISMRM 2018 Educational Stipend
10/2017 American Institute for Medical and Biological Engineering (AIMBE) 2017 Travel Award
05/2017 University of Pittsburgh, Pitt STRIVE Travel Stipend
04/2017 ISMRM 2017 Educational Stipend
05/2014 ISMRM 2014 Educational Stipend

08/2011 — 2nd Place in the 2011 Technical Presentation (Ph.D.) at the 35th Annual National GEM Consortium Conference

TEACHING EXPERIENCE

Graduate Education Courses

02/2020, 03/2020 — 42-689, Introduction to Biomedical Imaging — *Lecturer*
Carnegie Mellon University (Taught one-third of course)
Responsibilities: Developed lecture slides, led discussions, designed homework, created partial midterm material, and organized class field trip to MRI center
Course Evaluation: 5/5

04/2019 — 42-201, Professional Issues in Biomedical Engineering, — *Lecturer*
Carnegie Mellon University
Responsibilities: Developed lecture slides

12/2014, 12/2015, 11/2016,12/2016, & 10/2018 — BIOENG 2005, Radiofrequency (RF) Medical Devices, — *Teaching Assistant & Lecturer*
University of Pittsburgh
Responsibilities: Descriptive feedback, created lab reports, and designed lab experiments; office hours

08/2012 –12/2012 — BIOENG 2005, Radiofrequency (RF) Medical Devices, — *Teaching Assistant*
University of Pittsburgh
Responsibilities: Graded homework, quizzes, and tests; office hours

Undergraduate Education Courses

11/01/2013 — BIOENG 1320, Biological Signals and Systems — *Seminar Co-Instructor*
Responsibilities: Guest lecturer; Developed and presented an interactive lecture; grading

01/2013 – 04/2013 — BIOENG 1150, BIOENG Methods and Applications — *Teaching Assistant*
Responsibilities: Led lab sessions explaining lab experiments and reports; grading

Secondary Education Courses

09/2016 – 05/2017 — FAME Fund, STEM Curriculum for 5th-12th Grade Students — *STEM Coordinator*
Responsibilities: Created Makerspace; developed achievable goals for students while creating a team-oriented and safe learning space for students; implement a curriculum of five programs (FIRST LEGO League, Nascar Ten80, Vex Robotics, Try Math-A-lon, Mathcounts)
**** Students received national recognition in Ten80 & Vex Robotics in 2017***

09/2015 – 05/2017 — FAME Fund, Accelerated Algebra (8th) and Pre-Algebra (7th) — *Math Instructor*
Responsibilities: Developed syllabi and designed and graded homework, quiz, and exams

PUBLICATIONS

Recent publication and citations statistics are featured on **Google Scholar:** [click here] || **Research Gate**: [click here]

Journal Publications (Peer-Reviewed), Editorials

1. Santini, T., **Wood, S.**, Krishnamurthy N., Martins, T., Aizenstein, H., and Ibrahim, T.S., "Improved 7 Tesla Transmit Field Homogeneity with Reduced Electromagnetic Power Deposition Using Coupled Tic Tac Toe Antennas," Nature Scientific Reports, 2020, November, in press.
2. **Wood, S.**, Santini, T., Krishnamurthy N., Martins, T., Farhat, N., and Ibrahim, T.S., "A Comprehensive Evaluation of an Advanced MRI Anthropomorphic Head Phantom, *NMR in Biomedicine*, 2020, October, in press.
3. **Wood, S.** *, Martins, T. *, and Ibrahim, T.S., "How to design and construct a 3D-printed human head phantom," Journal of 3D Printing in Medicine, *Journal of 3D Printing in Medicine*, August 2019, https://doi.org/10.2217/3dp-2019-0016.
4. Krishnamurthy N., Santini, T., **Wood, S.**, Kim, J., Aizenstein, H., and Ibrahim, T.S., "Computational and Experimental Evaluations of transmission line Based RF Coils at 7T," *PLoS ONE*, 2019, January, https://doi.org/10.1371/journal.pone.0209663.
5. Santini, T.*, Zhao, Y.*, **Wood, S.**, Krishnamurthy, N., Kim, J., Farhat, N., Martins, T., Zhao, T., and Ibrahim, T.S., "In-vivo and Numerical Analysis of the Eigenmodes Produced by a Multi-Level Tic-Tac-Toe Head Transmit Array for 7 Tesla MRI," *PLoS ONE*, November 2018. https://doi.org/10.1371/journal.pone.0206127

Smagula, S., Karim, H., Rangarajan, A., Pasquini, F., **Wood, S.**, Santini, T., Jakicic, J., Reynolds, C., Cameron, J.,
6. Vallejo, A., Butters, M., Rosano, C., Ibrahim, T., Erickson, K., and Aizenstein, H., "Association of hippocampal substructure resting-state functional connectivity with memory performance in older adults," *American Journal of Geriatric Psychiatry,* March 2018. https://doi.org/10.1016/j.jagp.2018.03.003
7. Santini, T., Kim, J., **Wood, S.**, Krishnamurthy N., Farhat, N., Maciel, C., Raval, S., and Ibrahim, T.S., "A new RF Transmit Coil for Foot and Ankle Imaging at 7T MRI," *Magnetic Resonance Imaging*, September 2017. https://doi.org/10.1016/j.mri.2017.09.005
8. **Wood, S.**, Krishnamurthy, N., Santini, T., Raval, S., Farhat, N., Holmes, J. and Ibrahim, T.S., "Design and Fabrication of a Realistic Anthropomorphic Heterogeneous Head Phantom for MR Purposes," *PLoS ONE*, August 2017. https://doi.org/10.1371/journal.pone.0183168
top 10% most cited PLOS ONE paper published in 2017

Journal Publications in Manuscript

1. McKeon, S., Rangarajan, Anusha, Wu, M., Farhat, N., Santini, T., **Wood, S.**, Ibrahim, T.S., Abrahamson, E.E, Ikonomovic, M.D., Kofler, J., Lopez, O.L., Klunk, W.E., Aizenstein, H.J., "A Nonlinear Registration Method for Co-Registration of White Matter Hyperintensities from In-vivo MRI to Post-Mortem Digital Photographs," *Journal of Neuroscience Methods*, Under Revision.

Journal Publications Under Preparation

1. **Wood, S.**, Fanta, A., Dosunmu-Ogunbi, A., Ruesch, A., Huppert, T., Kainerstorfer, J., and Novelli, E., "Quantifying Cerebral Autoregulation in Sickle Cell Disease Patients using NIRS."
2. Kim, DH., **Wood, S.**, Ruesch, A., Yang, J., and Kainerstorfer, J., "Developing a Photoplethysmograms based NIRS Protocol to Quantify Trends in Blood Volume and Blood Pressure: A Feasibility Study."
3. **Wood, S.**, Santini, T., Martins, T., Farhat, N., Alkhateeb, S., Krishnamurthy N., and Ibrahim, T.S., "Phantom Robustness and Evaluation using Several RF Coils at 7T MRI."
4. Wu, J., TabAssum, S., **Wood, S.**, Yang, J., and Kainerstorfer, J., "Two-layer analytical model for estimation of layer thickness and flow using Diffuse Correlation Spectroscopy."

Proceedings of Conferences and Symposia (Peer-Reviewed)

1. **Wood, S.**, Fanta, A., Dosunmu-Ogunbi, A., Ruesch, A., Jonassaint, J., Huppert, T., Novelli, E., and Kainerstorfer, J., "Assessing Dynamic Cerebral Autoregulation in Patients with Sickle Cell Disease Using Near-Infrared Spectroscopy and Paced Breathing," *Blood*; 136 (Supplement 1) 57-58; 2020. (accepted) https://doi.org/10.1182/blood-2020-137624
**** Oral Presentation top 10% acceptance rate & ASH Abstract Achievement Award***
2. **Wood, S.**, Fanta, A., Dosunmu-Ogunbi, A., Ruesch, A., Jonassaint, J., Huppert, T., Novelli, E., and Kainerstorfer, J., "Quantifying Cerebral Autoregulation in Patients with Sickle Cell Disease Using Near-Infrared Spectroscopy," In Proc. of 10th OSA Biophotonics Congress: Biomedical Optics, Ft. Lauderdale, FL, USA; 2020, April 20-23. (accepted) https://doi.org/10.1364/TRANSLATIONAL.2020.JTu3A.5
3. Thirukumaran, D., Santini, T., **Wood, S.**, Farhat, N., Alkhateeb, S., Martins, T., Aizenstein, H., Novelli, E., and Ibrahim, T.S. "Utilization of DTI analysis for Sickle Cell Disease related Cerebral Infarction," BMES 2019 Annual Meeting, Philadelphia, Pennsylvania, USA; 2019, October. (accepted)
4. Santini, T., **Wood, S.,** Aizenstein, H.J., and Ibrahim, T.S., "Optimization of RF system for homogenous, consistent, and safe neuro imaging at 7T MRI," In Proc. of the 27th International Society of Magnetic Resonance in Medicine Annual Meeting, Vancouver, Canada; 2019, May 11-16. (accepted).
5. Santini, T., **Wood, S.,** Martins, T., Farhat, N., Alkhateeb, S., Aizenstein, H.J., and Ibrahim, T.S., "Homogenous 64-channel RF transmit array for brain imaging at 7T, 9.4T, and 10.5T," In Proc. of the 27th International Society of Magnetic Resonance in Medicine Annual Meeting, Vancouver, Canada; 2019, May 11-16. (accepted).
6. Alkhateeb, S., Santini, T., Martins, T., Farhat, N., **Wood, S.,** and Ibrahim, T.S., "Arterial Spin Labeling Coil Array for Ultra-High Frequency 7 Tesla MRI", In Proc. of the 27th International Society of Magnetic Resonance in Medicine Annual Meeting, Vancouver, Canada; 2019, May 11-16. (accepted).
7. Koo, M., Santini, T., Vinjamuri, N., **Wood, S.**, Farhat, N., Martins, T., Alkhateeb, S., Ibrahim, T.S., "Building/Testing of the 64-channel RF Head Coil Modules for Ultra-High Field Human MRI Applications," BMES 2018 Annual Meeting; Atlanta, GA, USA; 2018, October 17-20 (accepted).
8. McKeon, S., Rangarajan, A., Wi, M., Farhat, N., Santini, T., **Wood, S.**, Ibrahim, T.S., Ikonomovic, M., Kofler, J., Lopez, O., Klunk, B., Aizenstein, H., "Co-registration of MRI-defined White Matter Lesions with Ex-Vivo Histopathology," BMES 2018 Annual Meeting; Atlanta, GA, USA; 2018, October 17-20 (accepted).
9. **Wood, S.**, Santini, T., Farhat, N., Martins, T., Krishnamurthy, N., Ibrahim, T.S., " B1+ and Temperature Analysis in Two UHF RF Coils", In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (accepted).
10. **Wood, S.**, Santini, T., Krishnamurthy, N., Martins, T., Ibrahim, T.S., " Comparison of Electric and B1+ Fields for Heterogeneous and Homogeneous Anthropomorphic Phantoms and Anatomical Models: Numerical Simulations and

Experimental Findings", In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (accepted).

11. **Wood, S.**, Martins, T., Santini, T., Ibrahim, T.S., "An electrically conductive SLA resin used for the Design of Anthropomorphic Phantoms," In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (accepted).
12. Santini, T., Zhao, Y., **Wood, S.**, Kim, J., Farhat, N., Krishnamurthy, N., Zhao, T., Ibrahim, T.S., "Experimental and numerical evaluations of simultaneously excitable Eigenmodes in a 20-channel transmit RF array for 7 Tesla human MRI", In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (accepted).
13. Santini, T., **Wood, S.**, Krishnamurthy, N., Kim, J., Farhat, N., Martins, T., Alkhateeb, S., Zhao, T., Aizenstein, H., Ibrahim, T.S., "Recent advances in the Tic-Tac-Toe RF coil system for 7T MRI", In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (submitted).
14. Santini, T., Brito, F., **Wood, S.**, Martins, T., Mettenburg, J., Aizenstein, H., Vieira, M., Ibrahim, T.S., "Noise mitigation of high-resolution 7T MRI images", In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (accepted).
15. Santini, T., **Wood, S.**, Krishnamurthy, N., Zhang, Y., Farhat, N., Vinjamuri, N., Koo, M., Aizenstein, H., Ibrahim, T.S., "New optimization strategies for RF shimming at UHF MRI", In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (accepted).
16. Farhat, N., Kofler, J., Santini, T., **Wood, S.**, Martins, T., Mettenburg, J., Aizenstein, H., Ibrahim, T.S., "Towards an automatic assessment of postmortem brains using 7 Tesla SWI," In Proc. of the 26th International Society of Magnetic Resonance in Medicine Annual Meeting, Paris, France; 2018, June 16-21. (submitted).
17. McKeon, S., Joseph, N., Rangarajan, A., Wi, M., Farhat, N., Santini, T., **Wood, S.**, Ibrahim, T.S., Ikonomovic, M., Kofler, J., Lopez, O., Klunk, B., Aizenstein, H., "Co-registration of In-Vivo and Ex-Vivo Human MRI Brain Images," in Science 2017; Pittsburgh, PA, USA; 2017, October 19 (accepted).
18. Vinjamuri, N., Santini, T., Wood, S., Ibrahim, T.S., "Optimizing Geometry of a 64-channel RF Head Coil," BMES 2017 Annual Meeting; Phoenix, AZ; 2017, October 11-14 (accepted).
19. **Wood, S.**, Krishnamurthy N., Santini, T., Raval, S., and Ibrahim, T.S., "Evaluation of an Anthropomorphic Phantom with In-Vivo Using Quantitative MRI," In Proc. of the 25th International Society of Magnetic Resonance in Medicine Annual Meeting, Honolulu, Hawaii, USA; 2017, April 21-27. (accepted).
20. Santini, T., Kim, J., **Wood, S.**, Krishnamurthy N., Raval, S., and Ibrahim, T.S., "A new RF coil for foot and ankle imaging at 7T MRI", In Proc. of the 25th International Society of Magnetic Resonance in Medicine Annual Meeting, Honolulu, Hawaii, USA; 2017, April 21-27. (accepted).
21. Raval S., Santini T, **Wood, S.**, Krishnamurthy N., Ibrahim, T.S., "In-vivo (8x4) 32-ch Tx-only Body Array for UHF MR", In Proc. of the 25th International Society of Magnetic Resonance in Medicine Annual Meeting, Honolulu, Hawaii, USA; 2017, April 21-27. (accepted).
22. Santini T., Krishnamurthy N., **Wood, S.**, Raval S., Zhao Y., Fischetti A., Koo M., Aizenstein H., and Ibrahim, T.S., "A 64-channel Double-Octagon Tx Head Coil for 7T Imaging", In Proc. of the 25th International Society of Magnetic Resonance in Medicine Annual Meeting, Honolulu, Hawaii, USA; 2017, April 21-27. (accepted).
23. Ibrahim, T.S., Santini T., Raval S., Krishnamurthy N., **Wood, S.**, Kim, J., Zhao, Y., Wu, X., Yacoub, E., Aizenstein, H., Zhao, T., "Towards Homogenous 7T Neuro Imaging: Findings and Comparisons between 7T TTT and NOVA RF Coil Systems", In Proc. of the 25th International Society of Magnetic Resonance in Medicine Annual Meeting, Honolulu, Hawaii, USA; 2017, April 21-27. (accepted).
24. Raval S., Zhao T., Smith D., Britton C., Krishnamurthy N., Santini T., **Wood, S.**, Ibrahim, T.S., and Gorantla V. "Ultra-high resolution non-contrast imaging for chronic rejection monitoring and procedural planning in reconstructive transplantation," 26th International Congress of the Transplantation Society. Hong Kong, China; 2016, August. (accepted).
25. Zhao Y., Krishnamurthy N., **Wood, S.**, Zhao T., Raval S., and Ibrahim, T.S., "3D Eigenmodes Optimizations for 3D Imaging at 7T", In Proc. of the 23rd International Society of Magnetic Resonance in Medicine Annual Meeting, Toronto, Canada, p 3760; 2015, June. (accepted).
26. Raval S., Zhao T., Krishnamurthy N., Zhao Y., **Wood, S.**, Bae K, and Ibrahim, T.S., "Initial Results: Ultra-High Field 32-ch Tx Body Array with Bright Centers", In Proc. of the 23rd International Society of Magnetic Resonance in Medicine Annual Meeting, Toronto, Canada, p 3135; 2015, June. (accepted).
27. Krishnamurthy N., Zhao Y., Raval S., Kim J., **Wood, S.**, Santini T., Zhao T., and Ibrahim, T.S., "7T Multi-slab Whole-Head Homogeneous and Low SAR T2 Acquisitions with Limited RF Power Amplifiers Capabilities", In Proc. of the 23rd International Society of Magnetic Resonance in Medicine Annual Meeting, Toronto, Canada, p 3760; 2015, June. (accepted).
28. **Wood, S.**, Krishnamurthy N., Zhao Y., Raval S., Zhao T., Holmes J., Ibrahim, T.S., "Anatomically Detailed Human Head Phantom for MR Testing Purposes." The International Society for Magnetic Resonance in Medicine 22nd Annual Meeting

Competition; 2014, May 10-16; Milan, Italy (accepted)

29. Krishnamurthy N., **Wood, S.**, Kim J.**,** Zhao Y., Raval S., Zhao T., Ibrahim, T.S., "Transmit Array Performance across Subjects at 7T MRI: Simulations and Experiments." The International Society for Magnetic Resonance in Medicine 22nd Annual Meeting Competition; 2014, May 10-16; Milan, Italy (submitted).
30. **Wood, S.**, Krishnamurthy N., Zhao Y., Raval S., Holmes J., Ibrahim, T.S., "Anatomically Detailed Human Head Phantom." Pittsburgh Imaging Community Retreat; 2013, Oct 21; Pittsburgh, PA, USA (accepted)
31. Zhao Y., **Wood, S.**, Zhao T., Krishnamurthy N., Ibrahim, T.S., "Simultaneous Excitation of Distinct Electromagnetic Modes using a Tx Arrays." The International Society for Magnetic Resonance in Medicine 21st Annual Meeting Competition; 2013, Apr 20-26; Salt Lake City, UT, USA (accepted).
32. Ibrahim, T.S., Zhao Y., Krishnamurthy N., Raval S, Zhao T, **Wood, S.**, Kim J. "20-to-8 Channel Tx Array with 32-Channel Adjustable Receive-Only Insert for 7T Head Imaging." The International Society for Magnetic Resonance in Medicine 21st Annual Meeting Competition; 2013, Apr 20-26; Salt Lake City, UT, USA. (accepted).
33. Zhao Y., Zhao T., **Wood, S.**, Krishnamurthy N., Raval S., Kim J., Ibrahim, T.S., "3D SAR-Constrained Homogeneous B1+ Field at 7T." The International Society for Magnetic Resonance in Medicine 21st Annual Meeting Competition; 2013, Apr 20-26; Salt Lake City, UT, USA (submitted).
34. Zhao Y., Zhao T., **Wood, S.**, Krishnamurthy N., Kim J., Raval S, Ibrahim, T.S., "SAR-Constrained Ultra Homogeneous Slice Excitation at 7T with B1 Shimming." The International Society for Magnetic Resonance in Medicine 21st Annual Meeting Competition; 2013, Apr 20-26; Salt Lake City, UT, USA. (submitted).

Press Release Related to Research Effort

1. Pitt bioengineering grad student makes waves in MR research with a 3D printed phantom head, EurekaAlert!, 2018, September 28.
2. Bioe Grad Student Makes Waves in MR Research with a 3D Printed Phantom Head. Featured in University of Pittsburgh Bioengineering Site. 2018, September 26. https://www.engineering.pitt.edu/News/2018/phantom-head/
3. DSM, Biomedical researchers reduce need for human testing with 3D printed model, DSM Case Study Phantom Head, 2018, July.

INVITED LECTURES

1. **Wood, S.**, Fanta, A., Dosunmu-Ogunbi, A., Ruesch, A., Jonassaint, J., Huppert, T., Novelli, E., and Kainerstorfer, J., "Quantifying Cerebral Autoregulation in Patients with Sickle Cell Disease Using Near-Infrared Spectroscopy," Sickle Cell Research Meeting at the Vascular Medicine Institute at the University of Pittsburgh Medical Center; 2020, April 28; Pittsburgh, PA, USA.
2. **Wood, S.**, MRI Safety & Efficacy in Ultrahigh Field MRI, 42-201 Professional Issues in Biomedical Engineering, Carnegie Mellon University; 2019, March 21; Pittsburgh, PA, USA.
3. **Wood, S.**, Development of an Anthropomorphic Heterogeneous Head Phantom, BIOE 2005 Radiofrequency (RF) Medical Devices, University of Pittsburgh; 2018, October 10; Pittsburgh, PA, USA.
4. **Wood, S.**, RF Coil Developments at 7T MRI, BIOE 2005 Radiofrequency (RF) Medical Devices, University of Pittsburgh; 2016, December 8; Pittsburgh, PA, USA.
5. **Wood, S.**, Development of an Anthropomorphic Heterogeneous Head Phantom, BIOE 2005 Radiofrequency (RF) Medical Devices, University of Pittsburgh; 2016, November 30; Pittsburgh, PA, USA.
6. **Wood, S.**, RF Developments to Identify Human Diseases in 7T Human MRI, Emerging Scholars in Engineering Lecture Series, Vanderbilt University; 2016, November 14; Nashville, TN, USA.

INVITED PRESENTATIONS

Research Oral Talks

1. **Wood, S.**, Fanta, A., Dosunmu-Ogunbi, A., Ruesch, A., Jonassaint, J., Huppert, T., Novelli, E., and Kainerstorfer, J., "Assessing Dynamic Cerebral Autoregulation in Patients with Sickle Cell Disease Using Near-Infrared Spectroscopy and Paced Breathing," Presented at: 62nd American Society of Hematology Meeting*;* 2020, December. Virtual Meeting.
2. Ibrahim T.S., **Wood, S.**, Zhao Y., Sunrise Educational Course: Nuts & Bolts of Advanced Imaging: Reconstruction or Parallel Transmission. Presented at: ISMRM; 2015, June; Toronto, Canada.
3. Ibrahim T.S., **Wood, S**., Zhao Y., Sunrise Educational Course: Nuts & Bolts of Advanced Imaging: Reconstruction or Parallel Transmission. Presented at: ISMRM; 2014, May 15; Milan, Italy.
4. **Wood, S.**, Ding D., Mankodiya K., Cueing Kitchen - Development of Automated Prompting System for Multi-Step Tasks. Presented at: 35th Annual National GEM Consortium Conference; 2011, Aug 3-5; Washington, DC, USA.

Scientific Communication

5. **Wood, S.**, Presenting a Professional Presentation. Presented at: University of Pittsburgh's Summer Research Institute and Pre PhD; 2019, Jul 1; Pittsburgh, PA, USA.
6. **Wood, S.**, Pursuing a Graduate School Education: Engineering Perspective. Summer Research Institute, University of Pittsburgh, Swanson School of Engineering; 2017, June 28; Pittsburgh, PA, USA.
7. **Wood, S.**, Pursuing a Graduate School Education: Engineering Perspective. Summer Research Institute, University of Pittsburgh, Swanson School of Engineering; 2016, June 29; Pittsburgh, PA, USA.
8. Oborski, M., and **Wood, S.**, Reading a Scientific Paper. PNDNPP, University of Pittsburgh, Swanson School of Engineering; 2016, April 7; Pittsburgh, PA, USA.
9. Carey, L., Miller, M., and **Wood, S.**, Project Management. PNDNPP, University of Pittsburgh, Swanson School of Engineering; 2015, Nov 5; Pittsburgh, PA, USA.
10. **Wood, S.**, Presenting a Professional Presentation. Presented at: University of Pittsburgh's Summer Research Institute and Pre PhD; 2014, Jul 9; Pittsburgh, PA, USA.
11. **Wood, S.**, Graduate School Preparation. Presented at: NSBE Fall Regional Conference 2012, Region II; 2012, Nov 2-4; Norfolk, VA, USA.
12. **Wood, S.**, Transitioning to Graduate School. Presented at: Pitt EXCEL - 2012 Mid-Year Motivation; 2012, Jan 14; University of Pittsburgh, Pittsburgh, PA, USA.

GRANT WRITING EXPERIENCE

2020	UNCF's Ernest E. Just Postgraduate Fellowship in the Life Sciences Program (Received Associate Fellow)
2019	2019 L'Oréal USA For Women in Science Fellowship Program "Developing Multi-Modality Imaging Instrumentation and Strategies to Improve Microvascular Changes for the Advancement of Adult Cerebral Health" (Not awarded)

Current Research Support

Funding Agency:	Carnegie Mellon University (Internal Funding)
Wood Role on Grant:	Presidential Postdoctoral Fellow
Years Inclusive:	11/2018-11/2021

Research Support as a Graduate Student

Funding Agency:	University of Pittsburgh's Provost Development Fund (Internal Funding)
Wood Role on Grant:	Pre-Doctoral Fellow
Years Inclusive:	12/2016 – 4/2017
Total Amount Awarded:	$18,025.00
Funding Agency:	Ruth L. Kirschstein National Research Service Award (NRSA) Individual Pre-doctoral Fellowship (NIH F31EB019872-01) (External Funding) Advancing the Detection of Human Disease at 7T MRI
Wood Role on Grant:	Pre-Doctoral Fellow and Principal Investigator
Years Inclusive:	12/2014 – 11/2016
Total Amount Awarded:	$88,000
Funding Agency:	National GEM Consortium (GEM Fellowship) (External Funding)
Wood Role on Grant:	Pre-Doctoral Fellow
Years Inclusive:	8/2012 - 4/2013
Total Amount Awarded:	$21,000
Funding Agency:	K. Leroy Irvis Fellowship (Internal Funding)
Wood Role on Grant:	Pre-Doctoral Fellow
Years Inclusive:	8/2011 - Present
Total Amount Awarded:	$25,500 in 2011
Funding Agency:	National Institute of Health (NIH-1R01EB00984-A1) (External Funding)
Wood Role on Grant:	Graduate Student Researcher
Years Inclusive:	08/2011-07/2013

I contributed as a graduate student researcher to 10 National Institute of Health (NIH) funded awards. These awards focused on the development of radiofrequency coils for 7T MRI and clinical applications at 7T MRI in the following diseases:

dementia, psychosis, depression, small vessel disease, sickle cell disease, schizophrenia, and normal aging. The specific awards are R01MH112584-01A1, K01MH112683-01, R01AG055389-01, R01MH076079-11A1, R01MH111265-01, R01HL127107-01A1, R01HL127107-01A1, R21MH101566-01, R01AG044474-01, and R01EB00984-A1.

CERTIFICATIONS

Mental Health First Aid; Advanced MRI Safety Training for MRI Healthcare Professionals: Level 2 MR Personnel; Pitt-CITRL Associate, University of Pittsburgh, Pittsburgh, PA; Academic Entrepreneurship, University of Pittsburgh, Pittsburgh, PA; American Institute for Medical and Biological Engineering (AIMBE) Public Policy Institute for Rising Leaders (2017), Washington, DC, USA

MEMBERSHIP in PROFESSIONAL and SCIENTIFIC SOCIETIES

Society of Photo-Optical Instrumentation Engineers (SPIE), Optical Society of America (OSA), The International Society of Magnetic Resonance in Medicine (ISMRM), Biomedical Engineering Society (BMES), National Society of Black Engineers (NSBE), Society of Women Engineers (SWE), American Association for the Advancement of Science (AAAS), National Postdoctoral Association, National Center for Faculty Development & Diversity (NCFDD)

COMMITTEES

2018 ISMRM RF Safety Committee: ISMRM Working Group on Best Practices for Safety Testing of Experimental RF Hardware

GRADUATE RESEARCH MENTORSHIP

Carnegie Mellon University

Masters: Jingyi Wu (2018-2020), Abeselom Fanta (2018-2019), Dong-Hwan Kim (2019)

UNDERGRADUATE RESEARCH MENTORSHIP

Carnegie Mellon University

Samantha Lavelle (2020-), Juan Cortes (2019)

University of Pittsburgh

Minesok Koo (2016-2018), Neilesh Vinjamuri (2016-2018), Azante Griffith (2017), Anthony Fischetti (2016-17), Mark Amaratunga (2016-17), Jacob Bartee (2015-16), Yanpei Ai (2012)

PEER REVIEWER

International Journal of Antennas and Propagation, IEEE Transactions on Instrumentation & Measurement, Journal of Magnetic Resonance

Sossena Wood, Ph.D.

scwood@andrew.cmu.edu || 412-613-3624 (c)
LinkedIn: www.linkedin.com/in/sossena-wood-profile

BROADENING PARTICIPATION in STEM

LEADERSHIP EXPERIENCE

09/2019 – Present	**Co-Chair**, Pitt EXCEL Alumni Council Advisory Board
04/2019 – Present	**Treasurer**, Your Village is My Village
05/2015 – 04/2016	**National Chairperson Emeritus**, National Society of Black Engineers
05/2013 – 04/2015	**National Chairperson**, National Society of Black Engineers
06/2012 – 04/2013	**National Vice Chairperson**, National Society of Black Engineers
05/2011 – 04/2012	**Region 2 Chairperson**, National Society of Black Engineers
05/2010 – 04/2011	**Region 2 Vice Chairperson**, National Society of Black Engineers
04/2009 – 04/2010	**President of University of Pittsburgh**, National Society of Black Engineers

RELEVANT SKILLS

Soft Skills: Public Speaking, Mentoring, Strategic Planning, Leadership Development, Writing, Organization Leadership, Grant Writing

PUBLICATIONS

Publications Related to Minority Engineering Effort

1. **Wood, S.**, "From 2015 to 2025, Reimagining the Future," *NSBE Magazine*, March 2015.
2. **Wood, S.**, "Planning for NSBE 2025," *NSBE Magazine*, March 2015.
3. **Wood, S.**, "Seeking Measurable Results," *NSBE Magazine*, Winter 2015.
4. **Wood, S.**, "Moving the Metrics," *NSBE Magazine*, Fall 2014.
5. **Wood, S.**, "Progress, by the Numbers," *NSBE Magazine*, March 2014
6. **Wood, S.**, "A Cause to Celebrate," *NSBE Magazine*, Fall 2013.

INVITED LECTURES

1. **Wood, S.**, Social Engineering: Creating the World You Want. Presented at: 2016 Joint Collegiate Black Student Summit; 2016, March 5; Rochester, NY, USA.

KEYNOTE ADDRESSES

1. **Wood, S.**, "There is Artistry in Becoming." Present at: University of Pittsburgh's Women's + Networking Conference: *How do we Support Each Other's Successes through Diversity and Inclusion*; 2019, November 16; Pittsburgh, PA, USA.
2. **Wood, S.**, "Beating the Odds." Presented at NSBE Fall Regional Conference 2019 Closing Banquet, Region II; 2019, November 9; Pittsburgh, PA, USA.
3. **Wood, S.**, Closing Banquet. Presented at: University of Pittsburgh's Pre PhD Summer Engineering Research Experience and SRI Award Luncheon; 2019, July 19; Pittsburgh, PA, USA.
4. **Wood, S.**, Opening Session. Presented at: NSBE End Zone Summit P.I.E.: Performance, Image, Exposure; 2018, October 13; Pittsburgh, PA, USA.
5. **Wood, S.**, Closing Banquet. Presented at: University of Pittsburgh's Pre PhD Summer Engineering Research Experience and SRI Award Luncheon; 2017, July 28; Pittsburgh, PA, USA.
6. **Wood, S.**, Failure: A Necessary Component to Success. Presented at: University of Pittsburgh's Honors College National Scholarship Reception; 2017, April 13; Pittsburgh, PA, USA.
7. **Wood, S.**, Fusing Research and Your Passion. Presented at: University of Pittsburgh's Honors College Brilliant Breakfast Series; 2016, October 25; Pittsburgh, PA, USA.
8. **Wood, S.**, Graduate School – Why Not Me?. Presented at: GEM Gradlab held at the Carnegie Mellon University; 2016, September 23; Pittsburgh, PA, USA.
9. **Wood, S.**, "Creating Your Self Portrait on a Canvas: Becoming a Transformative Women in Engineering." Presented at: Society of Women Engineers' SWEvening; 2016, April 15; Pittsburgh, PA, USA.
10. **Wood, S.**, Engineering a New Era in STEAM. Presented at: University of New Hampshire's National Society of Black Engineers Closing Banquet; 2016, April 17; Durham, NH, USA.
11. **Wood, S.**, Closing Banquet. Presented at: University of Pittsburgh's Pre PhD Summer Engineering Research Experience and SRI Award Luncheon; 2015, July 24; Pittsburgh, PA, USA.
12. **Wood, S.** and Reid, K. NSBE 2025 Vision. Presented at: 41st Annual NSBE National Convention; 2015, Mar 26-30; Anaheim, CA, USA.

13. **Wood, S.** and Mitchell, M., State of the Society. Presented at: 41st Annual NSBE National Convention; 2015, Mar 26-30; Anaheim, CA, USA.
14. **Wood, S.**, African American Women in STEM Awareness Program. Presented at: University of Maryland College Park NSBE Chapter Meeting; 2015, March; College Park, MD, USA.
15. **Wood, S.**, Closing Session. Presented at: BETA Camp; 2014 July; Nassau, Bahamas.
16. **Wood, S.**, State of the Society. Presented at: 40th Annual NSBE National Convention; 2014, Mar 26-30; Nashville, TN, USA.
17. **Wood, S.**, "Paving the Way" for Black Women in STEAM Luncheon. Presented at: Georgia Institute of Technology. Student Center Ballroom. 2014, Feb; Atlanta, GA, USA.
18. **Wood, S.**, 15 Years of Promoting STEM Education in Ghana. Presented at: Accra Polytechnic University; 2014, Jan; Accra, Ghana.
19. **Wood, S.**, Closing Reception. Presented at NSBE Fall Regional Conference 2013, Region III; 2013, Nov; Lexington, KY, USA.
20. **Wood, S.**, End of the Year Banquet. Presented at: University of Florida National Society of Black Engineers Chapter; 2013, April, Gainesville, FL, USA.
21. **Wood, S.**, State of the Region. Presented at: 38th Annual NSBE National Convention; 2012, Mar 28-Apr 1; Pittsburgh, PA, USA.
22. **Wood, S.**, State of the Region. Presented at: NSBE Fall Regional Conference 2011, Region II; 2011 Nov 11-13; Baltimore, MD, USA.

FEATURED PANELIST

1. Dzuricky, A., Ostrowski, N., Popovski, C., and **Wood, S.**, BIOE/CHE/MSE Alumni Panel for ENGR 0081. Presented at: University of Pittsburgh Freshman Engineering Program; 2019, 17 October; Pittsburgh, PA, USA.
2. Casson, L., Mercader, A., and **Wood, S.**, Midyear Motivation Mini-Conference: It's A Family Affair-Refocusing on What Matters. Presented at: University of Pittsburgh Pitt EXCEL Program; 2018, 13 January; Pittsburgh, PA, USA.
3. Levine, E., Quider, A., and **Wood, S.**, Succeed in STEM: Leveraging Your Potential for a Successful Career. Presented at: University of Pittsburgh Honors College; 2017, 27 March; Pittsburgh, PA, USA.
4. May, G., Hernández, S., X., Watford, B., and **Wood, S.**, Challenges in Recruiting Diverse STEM Talent from a University Perspective. Presented at: Annual GEM Conference; 2014, Aug; San Diego, CA, USA.
5. Pierre, L. and **Wood, S.**, African American Women in STEM. General Session Sponsored by Johnson Controls. Presented at: 40th Annual NSBE National Convention; 2014, Mar 26-30; Nashville, TN, USA.
6. Baker, C. and **Wood, S.**, National GEM Consortium: Voices from the Field. Presented at: 40th Annual NSBE National Convention; 2014, Mar 26-30; Nashville, TN, USA.
7. Cooper, M., Murray, K., Liptrot, K. Latimer, R., Johnson, J. Strawbridge, J. Wright, L. and **Wood, S.**, Opening Session. Presented at: University of Pittsburgh African American Student Retention Symposium; 2013, Sept 11; Pittsburgh, PA, USA.
8. Hue, E and **Wood, S.**, Voices from the Field. Presented at: 2012 GEM Annual Board Meeting and Conference; 2012, Aug 1-3; San Francisco, CA, USA.
9. **Wood, S.**, et al, DOD Open Plenary Session. Presented at: Blacks in Government National Training Conference 2012, Region II; 2012, August 12-16; Detroit, MI, USA.

BOOKS AND BOOK SECTION

1. Burley, B., "Sossena Wood, the bio neural engineer," *YNGBLKPGH Rewriting Our Future. One Letter at a Time*. Pittsburgh, PA, 2017.

PRESS COVERAGE

1. Researcher, advocate: Sossena Wood promotes diversity in engineering. Featured in Pitt News. 2019, March 6. https://pittnews.com/article/145494/news/researcher-advocate-sossena-wood-promotes-diversity-in-engineering/
2. Discover You Engineering Your World. Discover You: Sossena Wood. Featured in NBC News Learn. Air Date: 2019, February 8. https://www.nbclearn.com/engineering/cuecard/117003
3. Gender gap closing in science, engineering in W.Pa., survey shows. Featured in Trib Live. 2014, December 23. https://archive.triblive.com/news/pittsburgh-allegheny/gender-gap-closing-in-science-engineering-in-w-pa-survey-shows/
4. Pitt student Sossena Wood heads National Society of Black Engineers. Featured in Pittsburgh Post-Gazette. 2013, April 17. https://www.post-gazette.com/business/businessnews/2013/04/17/Pitt-student-Sossena-Wood-heads-National-Society-of-Black-Engineers/stories/201304170249

Sossena Wood, Ph.D.

scwood@andrew.cmu.edu || 412-613-3624 (c)
LinkedIn: www.linkedin.com/in/sossena-wood-profile

BLOG

1. **Wood, S.**, Advice to the Graduating High School Scholar-Athlete: Lessons Learned by Pursuing the Dream. Featured on: NSBE Blog and LinkedIn; 2014, November 3.

PODCAST GUESTS

1. Pearson, PhD., Yvette. (Producer). (2020, June 3). Episode 2: Making Community with Dr. Sossena Wood. Engineering Change Podcast. [Audio Podcast]. https://open.spotify.com/episode/7gpOubIRmW68x8ZQ5FHhIV
2. Mitchell, Mel. (Producer). (2020, February 6). How to Unveil Your Potential as a Leader through Self-Discovery. The Color of Wisdom. [Audio podcast]. http://thecolorofwisdom.libsyn.com/how-to-unveil-your-potential-as-a-leader-through-self-discovery
3. Barnes, Monica. (Executive Producer). (2014, June 13). Steve is LIVE from Mentoring Camp for Young Men Featuring Sossena Wood, National Society of Black Engineers Chairperson. Steve Harvey Morning Show. Dallas, Texas:
4. Channel. https://youtu.be/swbsC2CcwpY
   Thompson, Vincent. (Producer). (2014, February 14). Tone &Tenor Show #36 2-14-14 Blacks and Science, Black History Month Featuring Tyraine Ragsdale, **Sossena Wood,** and Derrick Pitts [Audio podcast]. https://soundcloud.com/tone-and-tenor/tone-and-tenor-show-36-airdate (Starting at 5:50)

COMMITTEES

Broader Participation

2016 & 2017 Harry S. Truman Scholar Campus Nomination Committee, University of Pittsburgh; 2010 Pitt Make a Difference Day, University of Pittsburgh