

## Jungeun (Jenny) Won, Ph.D.

Assistant Professor of Research  
Department of Biomedical Engineering  
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### EDUCATION

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<b>University of Illinois Urbana-Champaign</b> Ph.D., Bioengineering	Aug 2021
<b>University of Illinois Urbana-Champaign</b> M.S., Bioengineering	Dec 2017
<b>University of Rochester</b> B.S., Biomedical Engineering with Optics minor	May 2015

### WORK EXPERIENCE

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**Assistant Professor of Research** Jan 2024 – current  
*University at Buffalo, The State University of New York, Department of Biomedical Engineering*

**Postdoctoral Associate** Aug 2021 – Dec 2023  
*Massachusetts Institute of Technology (MIT), Research Laboratory of Electronics (RLE)*  
**Advisor: James G. Fujimoto, Ph.D.**  
Clinical collaborator: Nadia K. Waheed, M.D. (New England Eye Center, Boston, MA)  
Project: Developing ultrahigh speed and ultrahigh resolution optical coherence tomography for ophthalmic applications

**Doctoral Candidate** Aug 2015 – Aug 2021  
*University of Illinois Urbana-Champaign (UIUC), Department of Bioengineering*  
**Advisor: Stephen A. Boppart, M.D., Ph.D.**  
Clinical collaborators: Michael Novak, M.D., Ryan Porter, M.D. (Carle Foundation Hospital, Urbana, IL) and Joseph Kerschner, M.D. (Medical College of Wisconsin, Milwaukee, WI)  
Dissertation: Translational optical coherence tomography for quantitative assessments of eardrum biomechanics, effusions, and biofilm response during otitis media

**Undergraduate Researcher** Jan 2013 – Aug 2015  
*University of Rochester, Institute of Optics*  
**Advisor: Jannick P. Rolland, Ph.D.**  
Project: Developing methods to assess edge-thickness of soft contact lens using Gabor-domain optical coherence microscopy

## GRANT WRITING & STRATEGIC PLANNING EXPERIENCE

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- [PI] NIH NIDCD Early Career Research (ECR) Award R21 in 2024, *pending*.
- [Co-I] Submitted DoE: Surface-Enhanced High Temperature Heat Pump for Industrial Boiler Decarbonization” in 2024, *pending*.
- [Co-I] Submitted NSF: RAISE proposal entitled “Dual Droplet Self-Propelling Vapor Chamber for Sustainable Data Center” in 2023, *pending*.
- Led the submission of the revised NIH R01 proposal entitled “Novel ultrahigh speed swept source OCT angiography methods in diabetic retinopathy” (PI: Fujimoto, an impact score of **18**, in the 2<sup>nd</sup> percentile), submitted in July 2022, funded in 2023.
- Drafted technical sections of NIH R44 SBIR proposal entitled “Swept source retinal visible optical coherence tomography using broadly tunable frequency doubling of near infrared MEMS-tunable vertical-cavity surface-emitting lasers (VCSELs)” (PIs: Jayaraman and Fujimoto, an impact score of **27**), submitted in Jan 2022, funded in 2022.
- Drafted technical sections of NIH R01 DC019412 “Otitis media diagnosis and treatment” (PIs: Kerschner and Boppart), resubmitted in 2021, funded in 2022.
- Drafted technical sections of NIH R01 EB028615 “Integration of Raman spectroscopy and optical coherence tomography for *in vivo* identification of bacterial otitis media” (PIs: Boppart and Mahadevan-Jansen, an impact score of **20**, in the 4<sup>th</sup> percentile), submitted in 2018, funded in 2019.

## FELLOWSHIPS AND AWARDS

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Strategic Preparation for Academic Resilience and Know-how (SPARK) Faculty Program	2021
Bob Bilger Graduate Student Award – <i>UIUC</i>	2020
Baxter Young Investigator Award – <i>Baxter International Inc.</i>	2019
Biannual Symposium Travel Scholarship Award – <i>International Society for Otitis Media</i>	2019
McGinnis Medical Innovation Graduate Fellowship – <i>UIUC</i>	2018 – 2020
Mavis Future Faculty Fellowship (MF3) – <i>UIUC</i>	2018 – 2019
Nadine Barrie Smith Memorial Fellowship – <i>UIUC</i>	2017
Department of Bioengineering Scholarship – <i>UIUC</i>	2015 – 2016
Walt and Bobbi Makous Prize for Vision Research – <i>Univ. of Rochester</i>	2015
Xerox Engineering Research Fellowship – <i>Univ. of Rochester</i>	2014
OSA Frontiers in Optics Conference Travel Award – <i>Optical Society of America</i>	2014
Annual Dean’s Scholarship – <i>Univ. of Rochester</i>	2011 – 2015

## INVITED TALKS

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- “Advancing translational optical imaging and analytical technologies: middle ear to retina”, Department of Biomedical Engineering, University of Rochester, NY, Feb 20<sup>th</sup>, 2024.
- “Advancing translational optical imaging and analytical technologies: middle ear to retina”, Department of Biomedical Engineering, University at Buffalo, NY, May 17<sup>th</sup>, 2023.
- “Advancing translational OCT to assess eardrum dynamics and middle ear infections”, *Virtual BioPhotonics Conference*, 2021.

## PUBLICATIONS (\* represents co-first author.)

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A total of 27 publications including 10 first authored publications

Google Scholar Profile: <https://scholar.google.com/citations?user=966omi8AAAAJ&hl=en>

1. Zhang C., Zaki F., **Won J.**, and Boppart S.A., “A multimodal nonlinear optical microscopy study of the responses of *Pseudomonas aeruginosa* to blue light and antibiotic treatment”, *Journal of Biophotonics*, e202300384 (2023). [\[link\]](#)
2. Huang C., Ginn T., Clark G., Zaki F., **Won J.**, Boppart S.A., and Nguyen H., “Phosphate-based corrosion inhibition in drinking water systems and effects on disinfectant decay and biofilm growth”, *Environmental Engineering Science*, **40**(11), 634-644 (2023). [\[link\]](#)
3. **Won J.**, Monroy G.L., Khampang P., Barkalifa R., Hong W., Chaney E., Aksamitiene E., Porter R.G., Novak M.A., Spillman D.R., Kerschner J.E., and Boppart S.A., “*In vivo* optical characterization of middle ear effusions and biofilms during otitis media”, *Journal of the Association for Research in Otolaryngology*, **24**, 325-337 (2023). [\[link\]](#)
4. Hwang Y., **Won J.**, Yaghy A., Takahashi H., Girgis J.M., Lam K., Chen S., Moulton E.M., Ploner S.B., Waheed N.K., and Fujimoto J.G., “Retinal blood flow speed quantification at the capillary level using temporal autocorrelation fitting [Invited]”, *30 Years of Optical Coherence Tomography feature issue of Biomedical Optics Express*, **14**(6), 2658-2677 (2023). **Editor’s Pick.** [\[link\]](#)
5. Huang C., Clark G., Zaki F., **Won J.**, Ning R., Boppart S.A., Elbanna A.E., and Nguyen T.H., “Effects of phosphate and silicate on stiffness and viscoelasticity of mature biofilms developed with simulated drinking water”, *Biofouling*, **39**(1), 36-46 (2023). [\[link\]](#)
6. Locke A.\*, Zaki F.R.\*, Fitzgerald S., Sudhir K., Monroy G.L., Choi H., **Won J.**, Mahadevan-Jansen A., and Boppart S.A., “Differentiation of otitis media-causing bacteria and biofilms via Raman spectroscopy and optical coherence tomography”, *Frontiers in Cellular and Infection Microbiology*, **12**, 869761 (2022). [\[link\]](#)
7. Monroy G.L.\*, Fitzgerald S.T.\*, Locke A., **Won J.**, Spillman D.R., Ho A., Zaki F., Choi H., Chaney E.J., Werkhaven J.A., Mason K., Mahadevan-Jansen A., and Boppart S.A., “Multimodal handheld probe for characterizing otitis media – integrating Raman spectroscopy and optical coherence tomography”, *Frontiers in Photonics*, **3**, 929574 (2022). [\[link\]](#)
8. Monroy G.L., **Won J.**, Shi J., Spillman D.R., and Boppart S.A., “Automated classification of otitis media with OCT: Augmenting pediatric image dataset with gold-standard animal model data”, *Biomedical Optics Express*, **13**(6), 3601-3614 (2022). [\[link\]](#)
9. Deng Y-H., Ricciardulli T., **Won J.**, Boppart S.A., Flaherty D.W., Kong H., “Self-locomotive, antimicrobial microrobot (SLAM) swarm for enhanced biofilm elimination”, *Biomaterials*, **287**, 121610 (2022). [\[link\]](#)
10. Choi H., Zaki F., Monroy G.L., **Won J.**, and Boppart S.A., “Imaging and characterization of transitions in biofilm morphology via anomalous diffusion following environmental perturbation”, *Biomedical Optics Express*, **13**(3), 1654-1670 (2022). [\[link\]](#)
11. Sun P.P.\*, **Won J.**\*, Choo-Kang G.\*, Li S., Chen W., Monroy G.L., Chaney E., Boppart S.A., Eden J.G., and Nguyen T.H., “Inactivation and sensitization of *Pseudomonas aeruginosa* by microplasma jet array for treating otitis media”, *npj Biofilms and Microbiomes*, **7**(48), 1 (2021). [NIH/NIBIB Science Highlight.](#) [\[link\]](#) [\[media coverage 1\]](#) [\[media coverage 2\]](#) [\[media coverage 3\]](#) [\[media coverage 4\]](#).

12. **Won J.**, Monroy G.L., Dsouza R.I., Spillman D.R., McJunkin J., Porter R.G., Shi J., Aksamitiene E., Sherwood M., Stiger L., and Boppart S.A., “Handheld briefcase optical coherence tomography with real-time machine learning classifier for diagnosing middle ear infections [Invited]”, *Biosensors*, **11**(5), 143 (2021). **NIH/NIBIB Science Highlight.** [\[link\]](#)
13. **Won J.\***, Hong W.\*, Khampang P., Spillman D.R., Marshall S., Yan K., Porter R.G., Novak M.A., Kerschner J.E., and Boppart S.A., “Longitudinal optical coherence tomography of the antibiotic treatment response in otitis media”, *Scientific Reports*, **11**, 5176 (2021). [\[link\]](#)
14. **Won J.\***, Huang P-C.\*, Spillman D.R., Chaney E., Adam R., Klukowska M., Barkalifa R., and Boppart S.A., “Handheld optical coherence tomography for clinical assessment of dental plaque and gingiva”, *Journal of Biomedical Optics*, **25**(11), 116011 (2020). [\[link\]](#)
15. Huang C., Sun P.P., **Won J.**, Wang Y., Boppart S.A., and Nguyen T.H., “Effect of non-phosphorus corrosion inhibitors on biofilm pore structure and mechanical properties”, *Environmental Science & Technology*, **54**(22), 14716-14724 (2020). [\[link\]](#)
16. **Won J.**, Porter R.G., Novak M.A., Youakim J., Sum A., Barkalifa R., Aksamitiene E., Zhang A., Nolan R., Shelton R., and Boppart S.A., “*In vivo* dynamic characterization of the human tympanic membrane using pneumatic optical coherence tomography”, *Journal of Biophotonics*, **13**(11), e202070033 (2020). **Featured on cover page.** [\[link\]](#)
17. **Won J.**, Huang P-C., and Boppart S.A. “Phase-based Eulerian motion magnification reveals eardrum mobility from pneumatic otoscopy without sealing of the ear canal [Invited]”, *Journal of Physics: Photonics*, **2**, 034004 (2020). [\[link\]](#)
18. **Won J.**, Monroy G.L., Huang P-C., Hill M.C., Novak M.A., Porter R.G., Spillman D.R., Chaney E., Barkalifa R., and Boppart S.A. “Assessing effect of middle ear effusions on wideband acoustic immittance using optical coherence tomography”, *Ear and Hearing*, **41**(4), 811-824 (2020). [\[link\]](#)
19. Monroy G.L., **Won J.**, Dsouza R.I., Pande P., Hill M.C., Porter R.G., Novak M.A., Spillman D.R., and Boppart S.A. “Automated classification platform for the identification of otitis media using optical coherence tomography”, *npj Digital Medicine*, **2**(22), 1-11 (2019). [\[link\]](#)
20. Dsouza R.I., **Won J.**, Monroy G.L., Spillman D.R., and Boppart S.A. “Economical and compact briefcase spectral domain optical coherence tomography system for primary care and point-of-care applications”, *Journal of Biomedical Optics*, **23**(9), 096003 (2018). [\[link\]](#)
21. Dsouza R.I., **Won J.**, Monroy G.L., Hill M.C., Porter R.G., Novak M.A., and Boppart S.A. “*In vivo* detection of nanometer-scale structural changes of the human tympanic membrane using nano-sensitive optical coherence tomography”, *Scientific Reports*, **8**, 8777 (2018). [\[link\]](#)
22. **Won J.**, Monroy G.L., Huang P-C., Dsouza R.I., Hill M.C., Novak M.A., Porter R.G., Chaney E., Barkalifa R., and Boppart S.A. “Pneumatic low-coherence interferometry otoscope to quantify tympanic membrane mobility and middle ear pressure”, *Biomedical Optics Express*, **9**(2), 397-409 (2018). **Editor’s Pick.** [\[link\]](#)
23. Monroy G.L., **Won J.**, Spillman D.R., Dsouza R.I., and Boppart S.A. “Clinical translation of handheld optical coherence tomography: Practical considerations and recent advancements”, *Journal of Biomedical Optics*, **22**(12), 121715 (2017). [\[link\]](#)
24. Tankam P. \*, **Won J.\***, Canavesi C., Cox I. and Rolland J.P. “Assessing the edge-thickness of soft contact lenses using Gabor-domain optical coherence microscopy”, *Optometry and Vision Science*, **93**(8), 987-996 (2016). [\[link\]](#)
25. Duma V.F., Tankam P., Huang J., **Won J.** and Rolland J.P. “Optimization of galvanometer scanning for optical coherence tomography”, *Applied Optics*, **54**(17), 5495-5507 (2015). [\[link\]](#)

26. Tankam P., He Z., Chu Y.J., **Won J.**, Canavesi C., Lepine T., Hindman H., Topham D., Gain P., Thuret G. and Rolland J.P. "Assessing microstructures of the cornea with Gabor-domain optical coherence microscopy: pathway for corneal physiology and diseases", *Optics Letters*, **40**(6), 1113-1116 (2015). [\[link\]](#)
27. Tankam P., Santhanam A.P., Lee K.S., **Won J.**, Canavesi C. and Rolland J.P. "Parallelized multi-graphics processing unit framework for high-speed Gabor-domain optical coherence microscopy", *Journal of Biomedical Optics*, **19**(7), 071410 (2014). [\[link\]](#)

#### UNDER REVIEW and IN PREPARATION

28. **Won J.**, Takahashi H., Ploner S., Karbole W., Abu-Qamar O., Yaghy A., Marmalidou A., Kaiser S., Hwang Y., Lin J., Witkin A., Desai S., Baumal C.R., Maier A., Curcio C., Waheed N., and Fujimoto J.G., "Topographic measurement of the sub-retinal pigment epithelium space in normal aging and age-related macular degeneration using high-resolution OCT" (2024).
29. Hwang Y., Takahashi H., **Won J.**, Yaghy A., Marmalidou A., Kaiser S., Jamil M.U., Baumal C.R., Waheed N., and Fujimoto J.G., "Quantification of capillary blood flow speeds in diabetic retinopathy using variable interscan time analysis (VISTA) OCTA" (2024).
30. Takahashi H., Hwang Y., **Won J.**, Jamil M.U., Yaghy A., Liang M., Baumal C.R., Witkin A.J., Ohno-Matsui K., Duker J.S., Fujimoto J.G., and Waheed N.K., "Blood flow speed of retinal microaneurysms in eyes with diabetic retinopathy quantified by high-speed OCTA using variable interscan time analysis" (2024).
31. Jamil U.M.\*, **Won J.\***, Marmalidou A., Ploner S., Takahashi H., Kaiser S., Hwang Y., Abu-Qamar O., Yaghy A., Witkin A.J., Zhao P.Y., Desai S., Duker J.S., Maier A., Fujimoto J.G., and Waheed N., "High-resolution OCT reveals age-associated variation in the region posterior to ELM" (2024).
32. Hwang Y., **Won J.**, Chen S., Moulton E.M., Ploner S.B., and Fujimoto J.G., "Application of optimally oriented flux on OCTA for 3D retinal vasculature characterization" (2024).

#### CONFERENCE PRESENTATIONS AND PROCEEDINGS

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1. **Won J.**, Karbole W., Marmalidou A., Ploner S., Takahashi H., Yaghy A., Hwang Y., Lin J., Maier A., Waheed N.K., Curcio C.A., and Fujimoto J.G., Topographic assessment of sub-retinal pigment epithelium deposits in normal aging and age-related macular degeneration using volumetric high-resolution OCT, *Association for Research in Vision and Ophthalmology (ARVO) Imaging in the Eye* (2024).
2. Ploner S., **Won J.**, Schottenhamml J., Takahashi H., Yaghy A., Waheed N.K., Fujimoto J.G., and Maier A., An advanced, automatic volume fusion pipeline enables subband quantifications and 3D hyperreflective foci analysis in high-resolution OCT, *ARVO* (2024).
3. Kaiser S.\*, **Won J.\***, Yaghy A., Jamil M.U., Marmalidou A., Takahashi H., Hwang Y., Fujimoto J.G., and Waheed N.K., Longitudinal visualization of subretinal drusenoid deposits in intermediate dry age-related macular degeneration with ultra-high resolution optical coherence tomography, *ARVO* (2024).
4. Jamil M.U.\*, **Won J.\***, Ploner S., Marmalidou A., Kaiser S., Takahashi H., Maier A., Fujimoto J.G., Waheed N.K., Age-related variations in the sub-band between outer retinal bands 1 and 2 in the macula, *ARVO* (2024).
5. Karbole W., Ploner S.B., **Won J.**, Marmalidou A., Takahashi H., Waheed N., Fujimoto J.G., and Maier A., "3D deep learning-based boundary regression of an age-related retinal biomarker in high-

- resolution OCT”, *BVM Workshop* (2024).
6. Hwang Y., **Won J.**, Takahashi H., Yaghy A., Waheed N.K., and Fujimoto J.G., Inter-plexus connection visualization and graph representation of retinal vasculature using Optimally Oriented Flux OCTA, *International professional society for optics and photonics technology (SPIE) Photonics West* (2024).
  7. Reimann M., **Won J.**, Takahashi H., Yaghy A., Lin J., Hwang Y., Ploner S., Chen S., Maier A., Waheed N., and Fujimoto J.G., “Unsupervised detection of small hyperreflective features in ultrahigh resolution OCT”, *BVM Workshop*, 232-237 (2023). [\[link\]](#)
  8. Ploner S., **Won J.**, Schottenhamml J., Girgis J, Lam K, Waheed N, Fujimoto J.G., and Maier A., A spatiotemporal illumination model for 3D image fusion in optical coherence tomography, *IEEE International Symposium on Biomedical Imaging (ISBI) pp. 1-5*, (2023). [\[link\]](#)
  9. **Won J.**, Yaghy A., Ploner S., Takahashi H., Reimann M., Girgis J.M., Lam K., Hwang Y., Chen S., Meier A., Waheed N., and Fujimoto J.G., Motion correction and volume merging of ultrahigh resolution OCT enable 3D visualization and longitudinal tracking of hyperreflective foci, *ARVO Imaging in the Eye Conference* (2023).
  10. Hwang Y., **Won J.**, Chen S., Yaghy A., Girgis J.M., Lam K., Waheed N.K., and Fujimoto J.G., Retinal blood flow speed quantification at the capillary level using a temporal autocorrelation model: Variable Interscan Time Analysis (VISTA), *ARVO Imaging in the Eye Conference* (2023).
  11. Ploner S., **Won J.**, Schottenhamml J., Girgis J, Lam K, Waheed N, Fujimoto J.G., and Maier A., Advanced volume rebuilding overcomes quilting, stretching, and banding image artifacts in orthogonally scanned OCT, *ARVO* (2023).
  12. Ploner S., Chen S., **Won J.**, Husvogt L., Breininger K., Schottenhamml J., Fujimoto J.G., and Maier A., A spatiotemporal model for precise and efficient fully-automatic 3D motion correction in OCT, *The Medical Image Computing and Computer Assisted Intervention Society (MICCAI)* (2022), Part II, 517-527. [\[link\]](#)
  13. Monroy G.L., Fitzgerald S.T., Locke A., **Won J.**, Spillman D.R., Ho A., Zaki F.R., Choi H., Chaney E.J., Werkhaven J.A., Mason K.M., Mahadevan-Jansen A., and Boppart S.A., Integrated Raman spectroscopy and optical coherence system for characterizing otitis media, *SPIE Photonics West*, Paper 12354-3 (2023).
  14. Monroy G.L., Kim J., Ho A., Mironov A., Zaki F.R., Spillman D.R., Choo-Kang G., **Won J.**, Sun P.P., Aksamitiene E., Marjanovic M., Chaney E.J., Nguyen T.H., Eden J.G., and Boppart S.A., Microplasma exposure as a novel therapeutic treatment for otitis media demonstrated in a pre-clinical chinchilla model, *SPIE Photonics West*, Paper 12358-14 (2023).
  15. Hwang Y., **Won J.**, Chen S., Yaghy A., Girgis J.M., Lam K., Waheed N.K., and Fujimoto J.G., 600 kHz A-scan rate enables OCTA-based retinal blood flow speeds quantification at capillary segment level using variable interscan time analysis (VISTA), *SPIE Photonics West*, Paper 12367-21 (2023).
  16. **Won J.**, Reimann M., Takahashi H., Lin J., Yaghy A., Girgis J.M., Lam K., Hwang Y., Chen S., Waheed N., and Fujimoto J.G., Automated detection and visualization of small hyperreflective specks/flecks in nonneovascular age-related macular degeneration using ultrahigh resolution optical coherence tomography, *FLORETINA International Congress on OCT and OCT angiography in Rome* (2022).
  17. Zaki F.R., Locke A., Sudhir K., Monroy G.L., Fitzgerald S., Choi H., **Won J.**, Mahadevan-Jansen A., and Boppart S.A., Non-invasive detection and characterization of otitis media causing bacteria and bacterial biofilms through Raman spectroscopy and OCT, *SPIE Photonics West*, PC1193502 (2022).
  18. Choi H., Zaki F., Monroy G.L., **Won J.**, and Boppart S.A., “Anomalous Doppler shift induced by dynamic light scattering of biofilm morphology transition”, *SPIE Photonics West*, PC1195905 (2022).



19. Deng Y-H., Ricciardulli T., **Won J.**, Boppart S.A., Flaherty D.W., and Kong H., Self-locomotive antimicrobial microparticles for enhanced biofilm removal, *American Institute of Chemical Engineers (AIChE) Annual Meeting* (2021).
20. Zaki F. R., Sudhir K., **Won J.**, Monroy G. L., Choi H., Chaney E. J., Spillman D.R., and Boppart S.A., 3D OCT characterization and quantification of refractive indices of bacteria and biofilms with antibiotic interventions, *Optical Society of America (OSA) Biophotonics Congress: Optics in the Life Sciences* (2021).
21. Choi H., Zaki F. R., **Won J.**, Monroy G. L., and Boppart S.A., Phase-sensitive characterization of dynamics in biofilms in response to chemical cues, *OSA Biophotonics Congress: Optics in the Life Sciences* (2021).
22. Monroy G. L., **Won J.**, Spillman D.R., and Boppart S.A., Automated classification of otitis media in pediatric OCT images: Augmenting with gold-standard animal model data, *OSA Biophotonics Congress: Optics in the Life Sciences* (2021).
23. **Won J.**, Sun P.P., Choo-Kang G., Li S., Chen W., Monroy G.L., Chaney E.J., Eden J.G., Nguyen T.H., and Boppart S.A., Disinfection and sensitization of middle ear infection related bacteria and biofilm by microplasma jet array, *SPIE Photonics West*, paper 11626-17 (2021).
24. **Won J.**, Monroy G.L., Barkalifa R., Porter R.G., Novak M.A., Spillman D.R., Aksamitiene E., Chaney E.J., and Boppart S.A., *In vivo* optical characterization of middle ear effusions associated with otitis media, *SPIE Photonics West*, paper 11627-7 (2021).
25. **Won J.**, Hong W., Khampang P., Spillman D.R., Marshall S., Yan K., Porter R.G., Novak M.A., Kerschner J.E., and Boppart S.A., Longitudinal OCT tracking of antibiotic treatment response on experimentally induced otitis media, *SPIE Photonics West*, paper 11627-6 (2021).
26. Huang C., Sun P.P., **Won J.**, Wang Y., Boppart S.A., Nguyen T.H., Effect of non-phosphorus corrosion inhibitors on biofilm pore structure and mechanical properties, *The International Water Association (IWA) Biofilms Conference: Emerging Trends and Developments* (2020).
27. Huang C., Cai J, **Won J.**, Zaki F.R., Boppart S.A., and Nguyen T.H., The effects of corrosion inhibitors on drinking water biofilms and its reactivity with free chlorine and monochloramine, *Water Quality and Technology Conference*, accepted but cancelled due to COVID-19 (2020).
28. Sun P.P., **Won J.**, Choo-Kang G., Li S., Chen W., Song X., Boppart S.A., Nguyen T.H., and Eden J.G., Plasma otoscope: *Ex vivo* study of disinfection rat eardrum by microplasma jet array, *International Conference on Plasma Science* (2020).
29. **Won J.**, Monroy G., Barkalifa R., Aksamitiene E., Porter R.G., Novak M.A., Spillman D.R., Chaney E.J., and Boppart S.A., *In vivo* characterization of middle ear effusions associated with ear infections, *Gordon Research Conference: Optics and Photonics in Medicine and Biology*, accepted but cancelled due to COVID-19 (2020).
30. Zhang C., **Won J.**, and Boppart S.A., Rapid detection of antibiotic resistant bacteria at the single cell level using two-photon excitation fluorescence and coherent anti-Stokes Raman scattering microscopy, *SPIE Photonics West, Proc. SPIE 11223*, 112230B (2020).
31. Huang C., Sun P.P., Monroy G., **Won J.**, Boppart S.A., and Nguyen T.H., Effect of corrosion inhibitors on mechanical and structural properties of simulated drinking water biofilms, *Water Quality and Technology Conference* (2019).
32. **Won J.**, Monroy G.L., Huang P-C., Spillman D.R., Barkalifa R., Chaney E.J., Hill M.C., Novak M.A., Porter R.G., and Boppart S.A., Non-invasive, cross-sectional optical middle ear imaging compared with acoustic measurements during otitis media, *International Symposium on Recent Advances in Otitis*

*Media (ISOM)* (2019).

33. Sun P.P., **Won J.**, Choo-Kang G., Chen W., Boppart S.A., Nguyen T.H., and Eden J. G., Disinfection and sensitization of ear infection related bacterial biofilms by microplasma jet array, *Institute of Electrical and Electronics Engineers (IEEE) Pulsed Power and Plasma Science* (2019).
34. **Won J.**, Monroy G.L., Dsouza R.I., Porter R.G., Novak M.A., Hill M.C., Chaney E., Barkalifa R., Zhang A., Nolan R., Shelton R., and Boppart S.A., Quantitative assessment of tympanic membrane mobility during otitis media using pneumatic OCT, *SPIE Photonics West* (2019).
35. Dsouza R.I., **Won J.**, Monroy G.L., Spillman Jr. D.R., and Boppart S.A., Compact low-cost briefcase OCT system with automated classification for point-of-care diagnosis of otitis media, *SPIE Photonics West, Proc. SPIE 10869, 10869-08* (2019).
36. **Won J.**, Monroy G.L., Huang P-C., Hill M.C., Novak M.A., Porter R.G., Chaney E., Barkalifa R., and Boppart S.A., Structural OCT middle ear imaging correlated with functional wideband acoustic immittance measurements, *Optical Society of America (OSA) Biophotonics Congress: Biomedical Optics, CF4B.3* (2018).
37. Dsouza R.I., **Won J.**, Monroy G.L., Spillman Jr. D.R., and Boppart S.A., Briefcase sized low-cost, portable spectral domain low-coherence interferometry system for primary care applications, *SPIE Photonics West, Proc. SPIE 10485, 10485-16* (2018).
38. **Won J.**, Monroy G.L., Huang P-C., Shelton R.L., Hill M.C., and Boppart S.A., Quantitative optical ranging pneumatic otoscopy, *American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-NHSF) Annual Meeting* (2017).
39. Dsouza R.I., **Won J.**, Monroy G.L., Porter R.G., Novak M.A., Hill M.C., and Boppart S.A., Depth-resolved characterization of the *in vivo* tympanic membrane using nano-sensitive optical coherence tomography, *Conference on Lasers and Electro-Optics of OSA Tech. Digest, SM3C.3* (2017).
40. **Won J.**, Monroy G.L., Huang P-C., Pande P., Shelton R.L., and Boppart S.A., Assessing pneumatic response of tympanic membrane *in vivo* using low coherence interferometry, *Biomedical Engineering Society (BMES) Midwest Regional Conference* (2016, poster).
41. Duma V.F., Tankam P., Huang J., **Won J.**, Rolland J.P., Galvanometer scanning for optical coherence tomography, *Laser Science of OSA Tech. Digest, JTh2A 129* (2016).
42. **Won J.**, Monroy G.L., Pande P., Huang P-C., Shelton R.L., and Boppart S.A., Quantitative analysis of tympanic membrane mobility using pneumatic low coherence interferometry, *BMES Annual Meeting* (2016).
43. Tankam P., Huang J., Santhanam A.P., **Won J.**, Canavesi C., Rolland J.P., Development of cellular resolution Gabor-domain optical coherence microscopy for biomedical applications, *SPIE Photonics West, Proc. SPIE 9330, 933004* (2015).
44. Duma V.F., Tankam P., Huang J., **Won J.**, Rolland J.P., Effective duty cycle of galvanometer-based scanners: impact on OCT imaging, *SPIE Photonics West, Proc. SPIE 9315, 93150J* (2015).
45. **Won J.**, Tankam P., Cox I., and Rolland J.P., Assessing Edge-Thickness of Soft Contact Lenses Using Gabor-Domain Optical Coherence Microscopy, *BMES Annual Meeting* (2014).
46. Tankam P., **Won J.**, Santhanam A.P., He Z., Pataia G., Gain P., Thuret G., Lepine T., Hindman B.H., Rolland J.P., Investigating microstructures of human corneal endothelial cell microenvironment using high resolution imaging Gabor-domain optical coherence microscopy, the *Association for Research in Vision and Ophthalmology (ARVO), IOVS 55(5), 2071* (2014).
47. **Won J.**, Tankam P., Cox I., and Rolland J.P., Assessing Edge-Thickness of Soft Contact Lenses Using Gabor-Domain Optical Coherence Microscopy, *Frontiers in Optics of OSA* (2014).



## TEACHING AND LEADERSHIP EXPERIENCE

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### University at Buffalo

Department of Biomedical Engineering Spring 2024

- BME Faculty Mentor for Engineering Impact on Society (EAS 202)

### University of Illinois Urbana-Champaign

*Department of Bioengineering*

- Lectured on Biomedical Imaging for Introduction to Bioengineering (BioE 120) Spring 2021  
'Bioengineering for Global Health: Diagnostics and Monitoring with Imaging Technologies'
- Guest Lecturer for Advanced Bioinstrumentation (BioE 507) Spring 2019 and 2020  
'Optical Coherence Tomography: Technologies and Applications'

*Department of Electrical and Computer Engineering*

- Graduate Teaching Assistant for Biophotonics (ECE 467) Spring 2019
- Substitute Lecturer on Computational Tomography for Biomedical Imaging (ECE 380) Fall 2018
- Graduate Teaching Assistant for Biomedical Imaging (ECE 380) Fall 2016 and 2017

*Research Team Leader for NSF REU Program*

Summer 2018

- Responsible for directing and mentoring a research team consisting of ten undergraduate participants in NSF Research Experience for Undergraduates (REU) Frontiers in Biomedical Imaging.

### University of Rochester

*Department of Biomedical Engineering*

- Teaching Assistant for Biomedical Engineering Statistics (BME 221) Spring 2015
- Lab Report Grader for Biomaterials (BME 245) Spring 2015
- Teaching Assistant for Bio-systems and Circuits (BME 210) Spring 2014 and 2015
- Teaching Assistant for Signals, Systems and Imaging (BME 230) Fall 2014
- Teaching Assistant for Biomechanics (BME 201) Fall 2014
- Tutor for General Chemistry (CHM 101) Fall 2013

## PATENT

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- Eden J.G., Sun P.P., Chen W., Nguyen T.H., Monroy G.L., **Won J.**, and Boppart S.A., Microplasma integrated array otoscope speculum and ear treatment methods, PCT/US2020/039250 (2020).

## OUTREACH AND SERVICE

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*Illinois Summer Research Symposium (ISRS) for undergraduates* Summer 2018

- Conference Organizing Committee and Staff

*Exhibitions for Outreach Programs and Summer Camps* 2016 to 2019

- Girls Learning Electrical Engineering (GLEE) camp for 9<sup>th</sup> – 12<sup>th</sup> grade students
- Illinois Summer Academy (ISA) program for 9<sup>th</sup> – 12<sup>th</sup> grade students
- ResearchStart Cancer Center program for 12<sup>th</sup> grade students
- Catalyzing Inclusive STEM Experience All Year Round (CISTEME365) program for teachers
- Annual Engineering Open House for the Urbana-Champaign community

*Academic Peer Reviewer*

- Active reviewer for Retina, Applied Optics, Biomedical Optics Express, Biocybernetics and Biomedical Engineering, and Journal of Clinical Medicine

## PROFESSIONAL MEMBERSHIPS

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- Association for Research in Vision and Ophthalmology (ARVO) 2023 – Present
- International Professional Society for Optics and Photonics Technology (SPIE) 2017 – Present
- Optica, previously Optical Society of America (OSA) 2014 – Present
- Biomedical Engineering Society (BMES) 2014 – Present