

# Jonghwan Lee, PhD

Assistant Professor of Biomedical Engineering  
Assistant Professor of Brain Science  
School of Engineering  
Carney Institute for Brain Science  
Center for Biomedical Engineering  
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## Highlight

Received 4 NIH grants during 6 years of pre-tenure, \$6.5M in total, all as a single PI.

- **NCI R01** PI: Lee \$1.7M Jul 2021 – Jun 2026  
Label-Free, Longitudinal, Multi-Metric Viability Imaging of 3D Tissue Spheroid Array
- **NIA R01** PI: Lee \$1.8M Sep 2020 – May 2025  
Long-Term Tracking of Cerebral Microvascular Structural and Functional Alterations between Normal and Alzheimer's Aging
- **NEI R01** PI: Lee \$2.1M Sep 2019 – Aug 2024  
Plasmonic Retinal Prosthesis
- **NIBIB R00** PI: Lee \$0.9M Dec 2015 – Nov 2018  
Microscopic Imaging of Neuro-Capillary Coupling in Brian Cortex

Published 11 first-authored papers and 11 last-authored papers (and more co-authored papers) in peer-reviewed journals, including (\* indicates corresponding authors):

- J Lee\*, W Wu, JY Jiang, B Zhu, DA Boas, "Dynamic light scattering optical coherence tomography", *Optics Express* 20, 22262-22277 (Sep 2012). 100+ cited
- J Lee\*, V Srinivasan, H Radhakrishnan, DA Boas, "Motion correction for phase-resolved dynamic optical coherence tomography imaging of rodent cerebral cortex", *Optics Express* 19 (22), 21258-21270 (Oct 2011). 100+ cited
- J Lee\*, W Wu, F Lesage, DA Boas, "Multiple-capillary measurement of RBC speed, flux, and density with optical coherence tomography", *Journal of Cerebral Blood Flow & Metabolism* 33, 1707-1710 (Nov 2013). Cover article

## Research interest

At the intersection of medical photonics, neural engineering, and artificial intelligence, my lab develops technical solutions to imperative medical problems, including Alzheimer's disease and related dementia, age-related macular degeneration, and personalized cancer medicine.

## Education and training

B.S.	Physics	<b>Seoul National University</b> (Seoul, South Korea)	2000
Ph.D.	Neural Engineering	<b>Seoul National University</b> (Seoul, South Korea)	2009
		Supervisor: Sung June Kim, PhD	
		Dissertation: Spectral measurement of fast optical neural signal in <i>ex vivo</i> brain tissue and its theoretical origin	
Postdoc.	Biomedical Optics	<b>Harvard Medical School</b> (Boston, MA)	2014
		Supervisor: David A. Boas, PhD	

## Positions

Software Engineer	Military service, <b>Republic of Korea Army</b> , South Korea	2000 – 2003
Instructor	Department of Radiology, Massachusetts General Hospital, <b>Harvard Medical School</b> , Boston MA	2014 – 2015
Assistant Professor	School of Engineering, Carney Institute for Brain Science, <b>Brown University</b> , Providence RI	2015 – present

## Awards

Best Paper Award, Korean Society of Medical Biological Engineering	2008
Samsung Humantech Thesis Prize	2009
Brain & Cognitive Science Research Award, Association of Korean Neuroscientists	2011
Poster of Distinction Award, Harvard Medical School MGH Scientific Advisory Council	2013
Young Investigator Travel Award, International Society of Cerebral Blood Flow & Metabolism	2013
Pathway to Independence Award, National Institute of Health	2013
Richard B. Salomon Faculty Research Award, Brown University	2016
Tau Beta Pi Excellence in Research Award, Rhode Island Alpha Chapter of Tau Beta Pi	2018

## Peer-reviewed grants

Received four NIH grants during six years of pre-tenure, \$6.5M in total, all as a single PI.

### Active

1. NIH/NEI, R01. "Plasmonic Retinal Prosthesis". \$2,147K. Sep 2019 – Aug 2024. Role: PI.
2. NIH/NIA, R01. "Long-Term Tracking of Cerebral Microvascular Structural and Functional Alterations between Normal and Alzheimer's Aging". \$1,837K. Sep 2020 – May 2025. Role: PI.
3. NIH/NCI, R01. "Label-Free, Longitudinal, Multi-Metric Viability Imaging of 3D Tissue Spheroid Array". \$1,750K. Jul 2021 – Jun 2026. Role: PI.

### Completed

1. NIH/NIBIB, Pathway to Independence Award, K99/R00. "Microscopic Imaging of Neuro-Capillary Coupling in Brian Cortex". \$922K. Aug 2013 – Nov 2018. Role: PI.
2. Rhode Island Foundation, Medical Research Fund, 20154265. "Microscopic In Vivo Imaging of Cerebral Dynamics in Ischemic Stroke". \$25K. Jun 2016 – May 2017. Role: PI.
3. Brown University, Richard B. Salomon Faculty Research Award. "Cellular Viability Imaging with Dynamic Light Scattering Optical Coherence Tomography". \$15K. Jul 2016 – Jun 2017. Role: PI.

4. Brown University, Research Seed Award. “Computational Modeling of Blood Flow to Understand Microvascular Dysfunction in Alzheimer’s Disease”. \$49K. Jan 2020 – Jun 2021. Role: PI.

Pending

1. NIH/NHLBI, R01. “Regenerating the heart with vascularized human engineered myocardium”. Role: Collaborator (PI: Coulombe).

## Peer-reviewed publications

Including 11 first-authored papers and 11 last-authored papers in peer-reviewed journals since 2008.

Marked are my author roles as [defined by the journal Science](#) and my direct advisees:

\* Corresponding author: to be responsible during review process as the point of contact for editors.

§ Last author (senior author): to conceive and supervise the research.

† Graduate students I directly supervised.

‡ Postdocs I directly supervised.

◊ Undergraduate students I directly supervised.

1. SA Kim, KM Byun, **J Lee**, JH Kim, DA Kim, H Baac, ML Shuler, SJ Kim, “Optical measurement of neural activity using surface plasmon resonance”, *Optics Letters* 33, 914-916 (May 2008).
2. **J Lee**, SJ Kim, “Finite-difference time-domain study on birefringence changes of the axon during neural activation”, *Journal of Optical Society Korea* 13, 272-278 (Jun 2009).
3. **J Lee\***, SJ Kim, “Spectrum measurement of fast optical signal of neural activity in brain tissue and its theoretical origin”, *Neuroimage* 51, 713-722 (Jun 2010).
4. **J Lee\***, DA Boas, SJ Kim, “Multiphysics neuron model for cellular volume dynamics”, *IEEE Transactions on Biomedical Engineering* 58, 3000-3003 (Oct 2011).
5. **J Lee\***, VJ Srinivasan, H Radhakrishnan, DA Boas, “Motion correction for phase-resolved dynamic optical coherence tomography imaging of rodent cerebral cortex”, *Optics Express* 19, 21258-21270 (Oct 2011). [100+ cited](#)
6. **J Lee\***, W Wu, JY Jiang, B Zhu, DA Boas, “Dynamic light scattering optical coherence tomography”, *Optics Express* 20, 22262-22277 (Sep 2012). [100+ cited](#)
7. **J Lee\***, H Radhakrishnan, W Wu, A Daneshmand, M Climov, C Ayata, DA Boas, “Quantitative imaging of cerebral blood flow velocity and intracellular motility using dynamic light scattering–optical coherence tomography”, *Journal of Cerebral Blood Flow & Metabolism* 33, 819-825 (Jun 2013).
8. **J Lee\***, W Wu, F Lesage, DA Boas, “Multiple-capillary measurement of RBC speed, flux, and density with optical coherence tomography”, *Journal of Cerebral Blood Flow & Metabolism* 33, 1707-1710 (Nov 2013). [Cover article](#)
9. **J Lee\***, JY Jiang, W Wu, F Lesage, DA Boas, “Statistical intensity variation analysis for rapid volumetric imaging of capillary network flow”, *Biomedical Optics Express* 5, 1160-1172 (Apr 2014).
10. S Sakadzic, **J Lee**, DA Boas, C Ayata, “High-resolution in vivo optical imaging of stroke injury and repair”, *Brain Research* 1623, 174-192 (Oct 2015).
11. **J Lee\***, W Wu, DA Boas, “Early capillary flux homogenization in response to neural activation”, *Journal of Cerebral Blood Flow & Metabolism* 36, 375-380 (Feb 2016).

12. B Li, **J Lee**, DA Boas, F Lesage, "Contribution of low and high flux capillaries to slow hemodynamic fluctuations in the cerebral cortex of mice", *Journal of Cerebral Blood Flow & Metabolism* 36, 1351-1356 (Aug 2016).
13. EJ Gutiérrez, C Cai, I Mikkelsen, P Rasmussen, H Angleys, M Merrild, K Mouridsen, S Jespersenn, **J Lee**, S Sakadzic, N Iversen, L Østergaard, "Effect of electrical forepaw stimulation on capillary transit time heterogeneity (CTH)", *Journal of Cerebral Blood Flow & Metabolism* 36, 2072-2086 (Dec 2016).
14. **J Lee\***, Y Gursoy-Ozdemir, B Fu, DA Boas, T Dalkara, "Optical coherence tomography imaging of capillary reperfusion after ischemic stroke", *Applied Optics* 55, 9526-9531 (Nov 2016).
15. J Tang, SE Erdener, B Li, B Fu, S Sakadzic, SA Carp, **J Lee**, DA Boas, "Shear-induced diffusion of red blood cells measured with dynamic light scattering-optical coherence tomography", *Journal of Biophotonics* 11, e201700070 (Feb 2018).
16. S Stefan<sup>†</sup>, KS Jeong<sup>†</sup>, C Polucha, N Tapinos, SA Toms, **J Lee\*§**, "Determination of confocal profile and curved focal plane for OCT mapping of the attenuation coefficient", *Biomedical Optics Express* 9(10), 5084-5099 (Oct 2018).
17. K Eom<sup>‡</sup>, KM Byun, SB Jun, SJ Kim, **J Lee\*§**, "Theoretical study on gold nanorod-enhanced near-infrared neural stimulation", *Biophysical Journal* 115(8), 1481-1497 (Oct 2018).
18. JS Lee<sup>†</sup>, K Eom<sup>‡</sup>, C Polucha, **J Lee\*§**, "Standard-unit measurement of cellular viability using dynamic light scattering optical coherence microscopy", *Biomedical Optics Express* 9(11), 5227-5239 (Nov 2018).
19. A Akif<sup>°</sup>, K Walek<sup>°</sup>, C Polucha, **J Lee\*§**, "Doppler OCT clutter rejection using variance minimization and offset extrapolation", *Biomedical Optics Express* 9(11), 5340-5352 (Nov 2018).
20. TD Yang<sup>‡</sup>, K Park, J-S Park, J-H Lee<sup>†</sup>, E Choi, **J Lee**, W Choi, Y Choi, KJ Lee, "Two distinct actin waves correlated with turns-and-runs of crawling microglia", *PLoS ONE* 14(9), e0222692 (Aug 2019).
21. F Xing<sup>‡</sup>, J-H Lee<sup>†</sup>, C Polucha, **J Lee§**, "Three-dimensional imaging of spatio-temporal dynamics of small blood capillary network in the cortex based on optical coherence tomography: A review", *Journal of Innovative Optical Health Sciences* 13(1), 2030002 (Jan 2020).
22. K Park, JH Kim, T Kong, W Sun, **J Lee**, TD Yang<sup>‡</sup>, Y Choi, "Label-free microendoscopy using a micro-needle imaging probe for in vivo deep tissue imaging", *Biomedical Optics Express* 11(9), 4976-4988 (Sep 2020).
23. S Stefan<sup>†</sup>, **J Lee\*§**, "Deep learning toolbox for automated enhancement, segmentation, and graphing of cortical optical coherence tomography microangiograms", *Biomedical Optics Express* 11 (12), 7325 (Dec 2020).
24. F Xing<sup>‡</sup>, J-H Lee<sup>†</sup>, C Polucha, **J Lee\*§**, "Design and optimization of line-field optical coherence tomography at visible wavebands", *Biomedical Optics Express* 12 (3), 1351 (Mar 2021).
25. J Tang, X Cheng, K Kilic, A Devor, **J Lee**, DA Boas, "Imaging localized fast optical signals of neural activation with optical coherence tomography in awake mice", *Optics Letters* 46 (7), 1744 (Apr 2021).
26. N-R Im, TD Yang<sup>‡</sup>, K Park, J-H Lee<sup>†</sup>, **J Lee**, YH Kim, J-S Lee, B Kim, K-Y Jung, Y Choi, S-K Baek, "Application of M1 macrophage as a live vector in delivering nanoparticles for in vivo photothermal treatment", *Journal of Advanced Research* 31, 155 (Jul 2021).
27. S Stefan<sup>†</sup>, A Kim<sup>°</sup>, PJ Marchand, F Lesage, **J Lee\*§**, "Deep learning and simulation for the estimation of red blood cell flux with optical coherence tomography", *Frontiers in Neuroscience* 16, 835773 (Feb 2022).

28. **J Lee\***, “Near-lifespan tracking of cerebral microvascular degeneration in aging to Alzheimer’s continuum”, *Advances in Geriatric Medicine and Research* 4(1), e220003 (Mar 2022).
29. N Sun, F Xing<sup>‡</sup>, J Nie<sup>†</sup>, Y Di, C Liu, Z Gan, **J Lee<sup>§</sup>**, “Micron-resolution high-performance line field optical coherence tomography and its application”, *Optical Engineering* 61(3), 033102 (Mar 2022).
30. F Xing<sup>‡</sup>, S Ge, Y Wang, J Nie<sup>†</sup>, Y Di, Z Gan, C Liu, **J Lee<sup>§</sup>**, “Simultaneously reconfigurable multispectral microscopic imaging based on a digital micromirror device”, *IEEE Photonics Technology Letters* 34(8), 417 (Apr 2022).
31. Y Chen, F Xing<sup>‡</sup>, S Ge, J Nie<sup>†</sup>, N Sun, Z Ma, **J Lee<sup>§</sup>**, “Design and demonstration of ultrafast holographic microscopic system based on time stretching”, *Optics Communications* 514, 128153 (Jul 2022).

## Patents

1. **J Lee**, SJ Kim, “Methods and device for neural user interface and brain activity measuring device for the same”, *Korea Patent* 10-1028949 (2010).
2. **J Lee**, SJ Kim, “Device and method for measuring neural signal using optical fiber”, *Korea Patent* 10-1045866 (2010).
3. **J Lee**, CJ Lee, SJ Kim, “Optical brain response monitoring device for closed-loop deep brain stimulation”, *Korea Patent* 10-1069153 (2011).

## Book chapters

1. **J Lee**, DA Boas, “OCT and coherence imaging for the neurosciences”, *OCT: Technology and Applications 2nd Edition*, edited by W Drexler and JG Fujimoto, Springer (2015).
2. K Kilic, H Uhlirova, P Tian, PA Saisan, MA Yaseen, **J Lee**, SA Vinogradov, DA Boas, S Sakadzic, A Devor, “Tools for high-resolution in vivo imaging of cellular and molecular mechanisms in cortical spreading depression and spreading depolarization”, *Neurobiological Basis of Migraine*, edited by T Dalkara and MA Moskowitz, Wiley (2017).

## Invited talks

1. International Symposium on Optical Neural Recording, *Seoul National University*, South Korea (2009).
2. International Workshop on Nano-Photonics, *Gwangju Institute of Science and Technology*, South Korea (2009).
3. International Conference on Functional Optical Imaging, *University of Nottingham Ningbo*, China (2011).
4. Brain 2013 Conference, *International Society of Cerebral Blood Flow & Metabolism*, China (2013).
5. Department of Bio and Brain Engineering, *Korea Advanced Institute of Science and Technology*, South Korea (2013).
6. Samsung Advanced Institute of Technology, *Samsung*, South Korea (2013).
7. Department of Biomedical Engineering, *Seoul National University Hospital*, South Korea (2013).
8. Department of Physics and Photon Science, *Gwangju Institute of Science and Technology*, South Korea (2013).
9. Photonics West 2014 Conference, *SPIE – International Society for Optics and Photonics*, USA (2014).
10. New England Symposium on Biomedical Optics, *Harvard Medical School*, USA (2014).
11. Aarhus CTH Meeting 2014, *Aarhus University*, Denmark (2014).

12. Neurotalk 2015, *BIT Congress*, China (2015).
13. "Optical Coherence Tomography as a Novel Tool for Neuroscience", Carney Institute for Brain Science, *Brown University*, USA (2015).
14. "Optical Coherence Tomography: Potential Application for Orthopedic", Department of Orthopedics, *Rhode Island Hospital*, USA (2015).
15. "Label-free Microscopic Imaging of Biodynamics with Optical Coherence Tomography", Biomedical Engineering Seminar, *Brown University*, USA (2015).
16. "Optical Coherence Tomography: An Emerging Tool for Microscopic in vivo Imaging of Tissue Dynamics ", Advanced Microscopy Techniques in Biomedical Research Symposium, *Brown University*, USA (2015).
17. "Optical Coherence Tomography: Potential for Pathology", Department of Pathology, *Rhode Island Hospital*, USA (2016).
18. "Label-Free In Vivo Imaging of Vascular and Cellular Dynamics with Optical Coherence Tomography", Department of Surgery, *Rhode Island Hospital*, USA (2016).
19. "Label-Free Imaging and Genetics-Free Modulation of Brain", *Northeast Symposium on Biomedical Optics*, Cambridge, USA (2018).
20. "Label-Free Imaging and Genetics-Free Modulation of Brain", *Boston University*, Boston, USA (2019).
21. "Label-Free Imaging and Genetics-Free Modulation of Brain", *Biomedical Engineering Society Annual Meeting*, Philadelphia, USA (2019).

## Press release

1. National TV Interview. "Future of brain-computer interfaces", *Korean Broadcasting System* (11/21/2009). <http://office.kbs.co.kr/mylovekbs/archives/74050> (Korean)
2. National TV Interview. "Brain communication", *Munhwa Broadcasting Corporation* (2009).
3. Featured Research. "Assistant Professor Jonghwan Lee receives an early-career grant from NIH", *Brown University Center for Biomedical Engineering* (2015).
4. News Article. Alumni News, *Seoul National University* (2/5/2016). <http://ee.snu.ac.kr/community/news?bm=v&bbsidx=43826> (Korean)
5. Featured Research. "Researchers seek to catch Alzheimer's early by peeking into the eyes", *Brown University* (8/28/2017). <https://news.brown.edu/articles/2017/08/alzheimers>
6. Local Podcast Interview. "Episode 18 – Medtech Monday", *The Rhode Pod* (3/30/2020). <https://therhodepod.com/index.php/episodes/>
7. Featured Research. "Brown researchers awarded five-year, \$1.8M grant from National Cancer Institute," *Brown University School of Engineering* (9/7/2021). <https://engineering.brown.edu/news/2021-09-07/jonghwan-lee-nci-grant>

## Conference presentations (selected)

1. J Lee, SJ Kim, *International Commission for Optics 2008 Congress*, Sydney, Australia (2008).
2. J Lee, SJ Kim, *The 38th Conference of the Korean Society of Medical and Biological Engineering*, Seoul, South Korea (2008).
3. J Lee, SJ Kim, *The 11th Conference of the Korean Society of Brain and Neural Science*, Seoul, South Korea (2008).
4. J Lee, J Kim, SJ Kim, *SPIE Photonics West 2009*, San Jose, CA, USA (2009).
5. J Lee, SJ Kim, *SPIE Photonics West 2009*, San Jose, CA, USA (2009).

6. J Lee, SJ Kim, *The 20th Annual Meeting of the Optical Society of Korea*, Seoul, South Korea (2009).
7. J Lee, SJ Kim, *The 4th Asian and Pacific Rim Symposium on Biophotonics*, Jeju, South Korea (2009).
8. J Lee, SJ Kim, *The 8th Annual IEEE Conference on Sensors*, Christchurch, New Zealand (2009).
9. J Lee, VJ Srinivasan, H Radhakrishnan, W Wu, DA Boas, *UKC 2010 Conference*, Seattle, WA, USA (2010).
10. J Lee, DA Boas, *The 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, San Diego, CA, USA (2012).
11. J Lee, DA Boas, *The 2014 IEEE International Symposium on Biomedical Imaging*, Beijing, China (2014).
12. JS Lee, C Polucha, J Lee, *The OSA Biophotonics Congress*, Miami, FL, USA (2018).
13. K Eom, H Alghosain, K Ma, GM Gerbaka, C Polucha, H Kim, V Colvin, J Lee, *SPIE Photonics West 2019*, San Francisco, CA, USA (2019).
14. A Zein-Sabatto, JS Lee, M Kuhn, I Aponte, B Felalaga, J Sevetson, B Ip, D Hoffman-Kim, J Morgan, J Lee, *SPIE Photonics West 2019*, San Francisco, CA, USA (2019).
15. K Walek, JH Lee, K Min, C Polucha, J Lee, *SPIE Photonics West 2019*, San Francisco, CA, USA (2019).

## Advising

Mentored 3 postdocs, 7 PhD students, 16 ScM students, and 19 undergraduate students.

### Postdoctoral fellow advisor

- |                      |                    |                     |
|----------------------|--------------------|---------------------|
| • Fangjian Xing, PhD | Biomedical Optics  | Oct 2016 – Sep 2018 |
| • Kyungsik Eom, PhD  | Neural Engineering | Nov 2016 – Aug 2019 |
| • Taeseok Yang, PhD  | Biomedical Optics  | Sep 2018 – Feb 2022 |

### PhD thesis advisor

- |                      |                        |                     |
|----------------------|------------------------|---------------------|
| • Julia Lee          | Biomedical Engineering | Feb 2016 – May 2018 |
| • Sabina Stefan      | Biomedical Engineering | Sep 2016 – May 2022 |
| • Jang-Hoon Lee      | Biomedical Engineering | Sep 2016 – present  |
| • Jiarui Nie         | Biomedical Engineering | Jan 2019 – present  |
| • Hafithe Alghosain  | Biomedical Engineering | Sep 2019 – present  |
| • Ahbid Zein-Sabatto | Biomedical Engineering | Sep 2019 – present  |
| • Robyn Logan        | Biomedical Engineering | Sep 2021 – present  |
| • Kuan-Min Lee       | Electrical Engineering | Sep 2022 – present  |

### ScM thesis advisor

- |                      |                        |                     |
|----------------------|------------------------|---------------------|
| • Ki-Soo Jeong       | Biotechnology          | Sep 2016 – May 2018 |
| • Shannon Crowley    | Biomedical Engineering | Sep 2017 – May 2018 |
| • Kristine Ma        | Biomedical Engineering | Sep 2017 – May 2019 |
| • Ahbid Zein-Sabatto | Biomedical Engineering | Sep 2017 – May 2019 |
| • Hafithe Alghosain  | Biomedical Engineering | Sep 2017 – May 2019 |
| • Adrian Bico        | Biomedical Engineering | Sep 2018 – May 2020 |
| • Kenzie Magnan      | Biomedical Engineering | Sep 2018 – May 2020 |
| • Ramisa Fariha      | Biomedical Engineering | Sep 2018 – May 2020 |

• Julian Montagut	Biomedical Engineering	Sep 2018 – May 2020
• Kareem Hussein	Biomedical Engineering	Sep 2018 – May 2020
• Aaron Cherian	Biomedical Engineering	Sep 2018 – May 2020
• Swathi Pisupati	Biomedical Engineering	Mar 2019 – May 2020
• Madison Woo	Biomedical Engineering	Sep 2019 – May 2020
• Paula Choconta	Biomedical Engineering	Sep 2019 – May 2020
• Alexandar Neifert	Biotechnology	Sep 2019 – May 2020
• Anoop Reddi	Biotechnology	Jan 2021 – Dec 2022

#### BS thesis advisor

• Madison Woo	'17 Biomedical Engineering	Sep 2016 – May 2017
• Konrad Walek*†	'18 Neuroscience (PLME)	Sep 2016 – May 2018
• Mikayla Tinus*	'18 Biomedical Engineering	Sep 2016 – May 2018
• Adil Akif	'18 Biomedical Engineering	Feb 2017 – May 2018
• Madison Kuhn†	'18 Biomedical Engineering	Sep 2017 – May 2018
• Zachary Ricca	'18 Biomedical Engineering	Sep 2017 – May 2018
• Joshua C. Greene	'18 Engineering Physics	Sep 2017 – May 2018
• Jose Reyes†	'19 Neurobiology	Jun 2018 – May 2019
• Gaia-Marie Gerbaka*	'21 Biomedical Engineering	Nov 2017 – Apr 2021
• Esmeralda Montas*	'21 Electrical Engineering	Oct 2018 – Apr 2021
• Paul Secchia*	'21 in Biomedical Engineering	Nov 2018 – Apr 2021
• Carli Langevin*	'21 in Biomedical Engineering	Feb 2019 – Apr 2021
• Priya Bhanot†	'23 in Neuroscience	Feb 2020 – present
• Anna Kim*†	'23 in Neuroscience	Mar 2020 – present
• Joseph Namkung†	'23 in Neuroscience	Jan 2021 – present
• Noah Vaughan*	'23 in Biomedical Engineering	Jan 2021 – present
• Justin Rhee*	'23 in Electrical Engineering (PLME)	Jan 2021 – present
• Joshua Assi†	'24 in Neuroscience	May 2021 – present
• Ana Perez*	'24 in Electrical Engineering	Sep 2022 – present

\* Awardees of the UTRA Fund

† Advisees of Independent Study

#### Other advising activity

• Sameer Sajid	Postgraduate intern	Apr 2016 – Aug 2016
• Sun Uk Kim	Postgraduate intern	May 2016 – Jul 2016
• Elizabeth Eichorn	Undergraduate intern	Jul 2016 – Aug 2016
• Kyounghee Min	International undergraduate intern	Jun 2017 – Aug 2017
• Yesong Kweon	International undergraduate intern	Jun 2017 – Aug 2017
• Justin Korn	Undergraduate intern	Jun 2017 – Aug 2017
• Rye Young Kim	International undergraduate intern	Jun 2018 – Aug 2018
• James Watts	Undergraduate intern	Jul 2018 – Aug 2018
• Anvitha Addanki	High school student	Jul 2018 – Aug 2018



• Erick Jara	Postgraduate intern	Jun 2018 – May 2019
• Noah Korotzer	Undergraduate intern	Jun 2018 – May 2019
• Christina Nguyen	Undergraduate intern	Jun 2018 – May 2019
• Dana Leichter	Postgraduate intern	Jul 2018 – May 2019
• Juyoung Lee	International undergraduate intern	Jun 2019 – Aug 2019
• Jungin Kong	International undergraduate intern	Jun 2019 – Aug 2019
• Julia Howarth	High school student	Jul 2019 – Aug 2019
• Sasha Westrick	High school student	Nov 2019 – Feb 2021

## Teaching

### Courses

• Spring 2016	ENGN 1930B Photonics and Biophotonics	(Enrollment: 8)
• Spring 2017	ENGN 1930B Biomedical Optics	(7)
• Fall 2017	ENGN 0510 Electricity and Magnetism (with Prof. Beresford)	(104)
• Spring 2018	ENGN 1930B Biomedical Optics	(10)
• Fall 2018	ENGN 0510 Electricity and Magnetism (with Prof. Mittleman)	(90)
• Spring 2019	ENGN 1930B Biomedical Optics	(3)
• Spring 2020	ENGN 1930B Biomedical Optics	(3)
• Fall 2020	ENGN 0510 Electricity and Magnetism (with Prof. Mittleman)	(101)
• Spring 2021	ENGN 1930B Biomedical Optics	(9)
• Fall 2021	ENGN 0510 Electricity and Magnetism (with Prof. Zaslavsky)	(65)
• Spring 2023	ENGN 1930B Biomedical Optics	(9)

### Guest lecture

• Spring 2016	ENGN 1220 Neuroengineering, Brown University	03/22/2016
• Spring 2017	ENGN 1220 Neuroengineering, Brown University	03/21/2017
• Spring 2022	ENGN 1220 Neuroengineering, Brown University	04/21/2022

## Service

### Invited grant review

- NIH/NEI ZEY1 VSN (2020)
- NIH ZRG1 BIVT (2021)
- NIH ZRG1 BIVT (2023)

### Invited paper review

- Light: Science & Applications
- Neuroimage
- Journal of Cerebral Blood Flow and Metabolism
- IEEE Transactions on Biomedical Engineering
- Optics Letters
- Optics Express

- Biomedical Optics Express
- Neurophotonics
- Journal of Biomedical Optics
- Investigative Ophthalmology & Visual Science
- Microscopy and Microanalysis
- Journal of Neuroscience Methods
- CNS & Neurological Disorders-Drug Targets

#### Professional society

- Technical Program Committee Member, IEEE International Symposium on Biomedical Imaging (2015-present)

#### Brown university

- Co-director, Undergraduate Program for Biomedical Engineering 2016 – 2018
- First-Year & Sophomore Advisor, School of Engineering 2016 – present
- Organizer, Biomedical Engineering Seminar Series 2018 – present
- Honors Program Advisor 2021 – 2022
- Affirmative Action Representatives 2022 – present
- SPIE faculty advisor of Brown University Optics Society (BRUNOS) 2022 – present

#### Community

- Brown Korean Biomed Scientists (BKBS) Jan 2016 – Sep 2018  
Served as one of the founding members for monthly scientific meetings.
- Korean Brown Engineers Meeting Jul 2018 – May 2019  
Served as the founder of the monthly technical meeting.
- International Summer Research Internship Jun 2017 – Aug 2019  
Established a 12-week program with the Ewha Womans University of South Korea.