

# RAYMOND DOUDLAH

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## EDUCATION

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- PhD** University of Wisconsin – Madison 2017 to Present  
*Physiology Graduate Training Program, LUCID Training Program, and Vision Research Training Program*  
Thesis: Hierarchical processing of 3D visual representations and sensorimotor associations in macaque V3A and CIP  
Advisor: Dr. Ari Rosenberg
- BS** Milwaukee School of Engineering May 2017  
*Biomedical Engineering*  
Thesis: Powered Multi-Axis Lower Limb Prosthetic  
Advisor: Dr. Olga Imas  
Awards: Thomas W. Davis Student Leadership Award, Vincent R. Canino Outstanding Biomedical Engineering Senior

## RESEARCH EXPERIENCE

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- Systems Neuroscience** 2017 to Present  
*University of Wisconsin – Madison*  
Research Areas: Neural computations underlying 3D vision, decision making, and sensorimotor transformations
- Performed single and multi-unit electrophysiology to investigate 3D visual representations in brain areas along the dorsal visual pathway
  - Analyzed neuronal responses to understand functional correlations
  - Developed computational models of neural computations
  - Analyzed neuroimaging data to investigate brain connectivity
  - Trained rhesus macaque monkeys to perform various behavioral tasks
  - Presented findings at conferences, research symposiums, and seminar series
  - Published multiple peer-reviewed manuscripts at various scientific journals
- Advisor: Dr. Ari Rosenberg

- Research Experience for Undergraduates** 2015 to 2017  
*Milwaukee School of Engineering*  
Research Areas: Neural correlates of multisensory integration during limb stabilization
- Implemented neuroimaging methods to investigate neural pathways elicited during limb stabilization
  - Developed analysis scripts to process and quantify neuroimaging data
  - Presented findings at conferences and undergraduate research symposiums
  - Published results at a peer-reviewed scientific journal
- Advisor: Dr. Aaron Suminski and Dr. Olga Imas

## PUBLICATIONS

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Kim, B., Kenchappa, S.C., Sunkara, A., Chang, T.Y., Thompson, L., **Doudlah, R.**, & Rosenberg, A. (2019). *Real-time experimental control using network-based parallel processing*. eLife, 8:e40231.

Chang, T.Y., Thompson, L., **Doudlah, R.**, Kim, B., Sunkara, A., & Rosenberg (2020). *Optimized but not maximized cue integration for 3D visual perception*. eNeuro. 7 (1) ENEURO.0411-19.2019.

Chang, T.Y.†, **Doudlah, R.**†, Kim, B., Sunkara, A., Thompson, L., Lowe, M., & Rosenberg, A. (2020). *Functional links between sensory representations, choice activity, and sensorimotor associations in parietal cortex*. eLife. 9:e57968. † = equal contributions

Baeg, E.†, **Doudlah, R.**†, Swader, R., Lee, H., Han, M., Kim, S.G., Rosenberg, A., & Kim, B. (2021) *MRI compatible, customizable, and 3D printable microdrive for neuroscience research*. eNeuro. 8(2), ENEURO.0495-20.2021, 1-13. † = equal contributions

Suminski, A.J., **Doudlah, R.**, Scheidt, R.A. (2022) *Neural correlates of multisensory integration for feedback stabilization of the wrist*. Front Integr Neurosci. 16:815750.

**Doudlah, R.**, Chang, T.Y., Kim, B., Sunkara, A., & Rosenberg, A. (2022) *Parallel processing, hierarchical transformations, and sensorimotor associations along the 'where' pathway*. eLife. 11:e78712.

Rosenberg, A., Thompson, L.W., **Doudlah, R.**, Chang, T.Y. *Neuronal representations support 3D vision in non-human primates*. Annual Review of Neuroscience (Sept 2023).

## SELECTED PRESENTATIONS

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Chang, T.Y., **Doudlah, R.**, Kambi, N., Kastar, E., Phillips, J., Saalman, Y.B., & Rosenberg, A. (2017) *Probabilistic mapping of 3D visual cortical circuits in the macaque monkey*. Society for Neuroscience, Washington, DC.

**Doudlah, R.**, Thompson, L., Chang, T.Y., Kim, B., & Rosenberg, A. (2021) *Using computational models as tools to understand how our brain represents objects in our environment*. 2021 Ophthalmology Learner's Day, Madison, WI.

**Doudlah, R.** (2021) *How sensorimotor associations are moderated by choice activity along the visual hierarchy*. 2021 Isthmus Physiology Symposium, Madison, WI.

**Doudlah, R.**, Chang, T.Y., Kim, B., Sunkara, A., & Rosenberg, A. (2021) *Choice activity moderates sensorimotor associations within the V3A to CIP hierarchy*. Society for Neuroscience, Chicago, IL.

**Doudlah, R.**, Chang, T.Y., Thompson, L.W., Kim, B., Sunkara, A., & Rosenberg, A. (2022) *Parallel processing, hierarchical transformations, and sensorimotor associations along the 'where' pathway*. 2022 Wisconsin Ophthalmology Research Day, Milwaukee, WI.

**Doudlah, R.**, Chang, T.Y., Thompson, L.W., Kim, B., Sunkara, A., & Rosenberg, A. (2022) *Parallel processing, hierarchical transformations, and sensorimotor associations along the macaque dorsal visual stream*. Society for Neuroscience, San Diego, CA.