

# Robert Lindsey, PhD

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Oklahoma City, OK  
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**SUMMARY** Experienced mission-oriented scientist, entrepreneur, and leader specializing in machine learning and medical imaging

**PROFESSIONAL EXPERIENCE** *Chief Technology Officer (CTO), Co-Founder* 2022 - Present  
*Chief Science Officer (CSO), Co-Founder* 2015 - 2022  
[Imagen Technologies](#), New York, NY

- The technical and scientific founder of Imagen Technologies, a vertically integrated AI company providing diagnostic testing and interpretation services
- Co-led Imagen's creation and growth into a Series C-stage health tech company with \$135mm raised from leading investors
- Led the end-to-end research, development, testing, regulatory, deployment, and post-market surveillance process for four novel AI-based software medical devices in radiology. All products are cleared by the U.S. Food and Drug Administration (FDA).
  - *Aorta-CAD* (FDA-cleared in 2022): The first FDA-cleared AI software to help physicians more accurately identify chronic conditions on X-rays
  - *Chest-CAD* (FDA-cleared in 2021): The first *comprehensive* FDA-cleared AI software to help physicians more accurately interpret X-rays
  - *FractureDetect* (FDA-cleared in 2020): The first FDA-cleared AI software to help physicians more accurately diagnose fractures throughout the musculoskeletal system
  - *OsteoDetect* (FDA-cleared in 2018): A *de novo* product that was the first FDA-cleared Computer Assisted Detection and Diagnosis software

*Principal Scientist, Founder* 2014 - 2015  
[Boulder Analytics](#), Boulder, CO

- Provided deep learning and statistical machine learning consulting for satellite imagery analysis and black-box Bayesian optimization methods

*Computer Vision Research Scientist* 2014 - 2015  
[Sensory](#), Boulder, CO

- Developed novel computer vision and deep learning models for face verification

*Graduate Research Assistant* 2008 - 2014  
[University of Colorado](#) (CU), Boulder, CO

- Authored top-tier publications during Ph.D. research under Prof. Michael Mozer as an NSF Graduate Research Fellow, focusing on statistical machine learning and computational cognitive science

**EDUCATION** *Ph.D. Computer Science* 2014  
[University of Colorado](#) (CU), Boulder, CO

*B.S. Computer Science, Philosophy* 2008  
[Rensselaer Polytechnic Institute](#) (RPI), Troy, NY

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22. Mozer, M. C., Kazakov, D., & Lindsey, R. V. (2018). Discrete-event continuous-time recurrent networks. arXiv:1710.04110 [cs.NE]
21. Mozer, M. C., & Lindsey, R. V. (2017). Predicting and improving memory retention: Psychological theory matters in the big data era. In M. Jones (Ed.), *Big Data in Cognitive Science* (pp. 34-64). New York: Routledge
20. Khajah, M., Lindsey, R., & Mozer, M. (2016). How deep is knowledge tracing? In T. Barnes, M. Chi, & M. Feng (Eds.), *Proceedings of the Ninth International Conference on Educational Data Mining* (pp. 94-101). *Educational Data Mining Society Press*
19. Khajah, M., Roads, B., Lindsey, R., Liu, Y., & Mozer, M. (2016). Designing engaging games using Bayesian optimization. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (pp. 5571-5582). New York: ACM
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17. Lindsey, R., Khajah, M., & Mozer, M. (2014). Automatic discovery of cognitive skills to improve the prediction of student learning. In Z. Ghahramani, M. Welling, C. Cortes, N. D. Lawrence, & K. Q. Weinberge (Eds.), *Advances in Neural Information Processing Systems* 27 (pp. 1386-1394). La Jolla, CA: Curran Associates Inc.
16. Probabilistic Models of Student Learning and Forgetting (2014). PhD Thesis, University of Colorado
15. Khajah, M., Wing, R., Lindsey, R., & Mozer, M. (2014). Incorporating latent factors into knowledge tracing to predict individual differences in learning. In J. Stamper, Z. Pardos, M. Mavrikis, & B. M. McLaren (Eds), *Proceedings of the 7th International Conference on Educational Data Mining* (pp. 99-106). *Educational Data Mining Society Press*

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13. Lindsey, R., Shroyer, J. D., Pashler, H., & Mozer, M. C. (2014). Improving students' long-term knowledge retention with personalized review. *Psychological Science*, 25(3), 639-647
12. Khajah, M., Lindsey, R., & Mozer, M. C. (2014). Maximizing students' retention via spaced review: Practical guidance from computational models of memory. *Topics in Cognitive Science*, 6, 157-169
11. Lindsey, R., Mozer, M. C., Huggins, W. J., & Pashler, H. (2013). Optimizing instructional policies. In C.J.C. Burges et al. (Eds.), *Advances in Neural Information Processing Systems* 26 (pp. 2778-2786). La Jolla, CA: Curran Associates, Inc.
10. Khajah, M., Lindsey, R., & Mozer, M. C. (2013). Maximizing students' retention via spaced review: Practical guidance from computational models of memory. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 758-763). Austin, TX: Cognitive Science Society
9. Lindsey, R., Headden, W. P., Stipicevic, M. J. (2012). A Phrase-Discovering Topic Model Using Pitman-Yor Processes. *Empirical Methods in Natural Language Processing*, 2012
8. Mozer, M. C., Pashler, H., Wilder, M., Lindsey, R., Jones, M. C., & Jones, M. N. (2010). Decontaminating human judgments to remove sequential dependencies. In J. Lafferty, C. K. I. Williams, J. Shawe-Taylor, R. S. Zemel, & A. Culota (Eds.), *Advances in Neural Information Processing Systems* 23 (pp. 1705-1713). La Jolla, CA: NIPS Foundation
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6. Mozer, M. C., Pashler, H., Cepeda, N., Lindsey, R., & Vul, E. (2009). Predicting the optimal spacing of study: A multiscale context model of memory. In Y. Bengio, D. Schuurmans, J. Lafferty, C.K.I. Williams, & A. Culotta (Eds.), *Advances in Neural Information Processing Systems* 22 (pp. 1321-1329). La Jolla, CA: NIPS Foundation
5. Lindsey, R., Mozer, M., Cepeda, N. J., & Pashler, H. (2009). Optimizing Memory Retention with Cognitive Models. In A. Howes, D. Peebles, R. Cooper (Eds.), *Proceedings of the 9th International Conference on Cognitive Modeling*, Manchester, UK
4. Lindsey, R., Stipicevic, M., Veksler, V. D., & Gray, W. D. (2008). Best Path Length on a Semantic Self-Organizing Map. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society* (pp. 481-487). Austin, TX: Cognitive Science Society
3. Lindsey, R., Veksler, V. D., Grintsveyg, A., & Gray, W. D. (2007). Effects of Corpus Selection on Measuring Semantic Relatedness. *Proceedings of the 8th International Conference on Cognitive Modeling* (pp. 279-284), Ann Arbor, MI
2. Grintsveyg, A., Veksler, V. D., Lindsey, R., & Gray, W. D. (2007). Vector Generation from an Explicitly-defined Multidimensional Space. *Proceedings of the 8th International Conference on Cognitive Modeling* (pp. 231-232), Ann Arbor, MI

1. Veksler, V. D., Grintsveyg, A., Lindsey, R., & Gray, W. D. (2007). A proxy for all your semantic needs. *Proceedings of the 29th Annual Cognitive Science Society* (pp. 1878). Austin, TX: Cognitive Science Society

## ACADEMIC AWARDS

### *Invited Lectures (recent selection)*

- Torsten N. Wiesel, MD, Distinguished Lecture, Hospital for Special Surgery, 2022. *A Reproducibility Crisis in AI and Medicine*
- 21st Annual Robert H. Freiburger, MD, Distinguished Lecture, Department of Radiology and Imaging, Hospital for Special Surgery, 2021. *Deep Learning in Radiology*
- FDA public workshop on the Evolving Role of Artificial Intelligence in Radiological Imaging (2020). *Post-market surveillance methods for AI in radiology*
- FDA Division of Biostatistics (2019). *A tutorial on deep learning and radiology*
- ASA Biopharmaceutical Section Statistics Workshop (2019). *Evaluating Deep Learning Medical Devices*

### *Academic Honors*

- Chief Science Officer Pro-tempore, Hospital for Special Surgery, 2022
- Award for best overall paper at the Educational Data Mining conference, 2016
- Award for best overall paper at the Educational Data Mining conference, 2014
- Recipient of the NSF Graduate Research Fellowship, 2010–2013
- Cognitive Science Society Computational Modeling Prize, 2013
- Ralph J. Slutz Student Excellence Award, University of Colorado, 2013
- Neural Information Processing Systems travel award, 2013
- Neural Information Processing Systems travel award, 2014
- Co-organizer of the Neural Information Processing Systems workshop on Personalizing Education with Machine Learning, 2013
- Temporal Dynamics of Learning Center, Trainee Fellowship Award, 2010, 2011, 2013
- Engineering Excellence Fund award, University of Colorado, 2010
- Dean's Graduate Assistantship, University of Colorado, 2008–2009
- Dean's Outstanding Merit Scholarship, University of Colorado, 2008–2009
- University Fellowship, University of Colorado, 2008–2009
- Graduate Student Research and Community Development Award, University of Colorado, 2009
- Graduated Summa Cum Laude from RPI, 2008
- Academic citation for excellence in Capstone Experience in Philosophy, Rensselaer Polytechnic Institute, 2008
- Undergraduate Research Award in Cognitive Science, Rensselaer Polytechnic Institute, 2008
- Dean's List, Rensselaer Polytechnic Institute, 2005–2008
- NSF Research Experiences for Undergraduates, University of Oklahoma, 2007
- Leadership Award, Rensselaer Polytechnic Institute, 2005–2008
- President's Award, Rensselaer Polytechnic Institute, 2005
- President of the New York Eta Chapter of Upsilon Pi Epsilon, 2007–2008