Last Updated: October, 2023

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EDUCATION

2018 – 2023 (Expected)	**Stony Brook University**, New York, USA Ph.D. Cognitive Science Specialization: Vision, Attention Thesis Advisor: Gregory Zelinsky
2016 – 2018	**Seoul National University**, Seoul, Republic of Korea M.A. Cognitive Science Specialization: Language Thesis Advisor: Sungryong Koh
2011 – 2016	**Seoul National University**, Seoul, Republic of Korea B.A. Psychology Thesis Advisor: Sowon Hahn B.A. Russian Language and Literature Thesis Advisor: Eunji Song

GRANTS AND FELLOWSHIPS

2016 – 2018	Graduate Research Fellowship (2 yrs). Seoul National University
2011 – 2016	The Next Century Humanities Scholarship (4 yrs). Korean Student Aid Foundation

HONORS AND AWARDS

2023	APA Dissertation Research Award. American Psychological Association (APA)
2023	FoVea Travel and Networking Award. FoVea (Females of Vision, et al.)
2023	Distinguished Travel Award. Graduate Student Organization, Stony Brook University
2023	Endowed Award for Cognitive Science. Department of Psychology, Stony Brook University
2022	National Eye Institute Travel Award. Vision Sciences Society
2016	Undergraduate Best Student Paper. College of Social Sciences, Seoul National University

PEER-REVIEWED PUBLICATIONS

1. Prasse P, Reich DR, Makowski S, **Ahn S**, Scheffer T, Jäger LA. SP-EyeGAN: Generating Synthetic Eye Movement Data with Generative Adversarial Networks. *In Proceedings of the 2023 Symposium on Eye Tracking Research and Applications (ETRA)*. 2023
2. Adeli H, **Ahn S**, Zelinsky G. A brain-inspired object-based attention network for multi-object recognition and visual reasoning. *Journal of Vision*. 2023
3. Mondal S, Yang Z, **Ahn S**, Samaras D, Zelinsky G, & Hoai, M. Gazeformer: Scalable, Effective and Fast Prediction of Goal-Directed Human Attention. *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition (CVPR)*. 2023

4. **Ahn S**, Adeli H, Zelinsky G. Reconstruction-guided attention improves the robustness and shape processing of neural networks. *Advances in Neural Information Processing Systems Workshops (SVRHM at Neurips Workshops)*. 2022
5. Yang Z, Mondal S, **Ahn S**, Zelinsky G, Hoai M, Samaras D. Target-absent Human Attention. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (ECCV).* 2022
6. Chen Y, Yang Z, Chakraborty S, Mondal S, **Ahn S**, Samaras D. Hoai M, Zelinsky G. Characterizing Target-Absent Human Attention. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (ECCV Workshops).* 2022
7. Chakraborty S, Wei Z, Kelton C, **Ahn S**, Balasubramanian A, Zelinsky G, Samaras D. Predicting visual attention in graphic design documents. *IEEE Transactions on Multimedia*. 2022
8. **Ahn S**, Zelinsky G, Lupyan G. Use of superordinate labels yields more robust and human-like visual representations in convolutional neural networks. *Journal of vision*. 2021
9. Chen Y, Yang Z, **Ahn S**, Samaras D, Hoai M, Zelinsky G. COCO-Search18 fixation dataset for predicting goal-directed attention control. *Scientific reports*. 2021
10. Zelinsky G, Chen Y, **Ahn S**, Adeli H, Yang Z, Huang L, Samaras D, Hoai M. Predicting goal-directed attention control using inverse-reinforcement learning. *Neurons, behavior, data analysis and theory*. 2021
11. **Ahn S**, Kelton C, Balasubramanian A, Zelinsky G. Towards predicting reading comprehension from gaze behavior. *ACM Symposium on Eye Tracking Research and Applications (ETRA)*. 2020
12. Yang Z, Huang L, Chen Y, Wei Z, **Ahn S**, Zelinsky G, Samaras D, Hoai M. Predicting goal-directed human attention using inverse reinforcement learning. *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition (CVPR)*. 2020
13. Zelinsky G, Yang Z, Huang L, Chen Y, **Ahn S**, Wei Z, Adeli H, Samaras D, Hoai M. Benchmarking gaze prediction for categorical visual search. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPR Workshops*). 2019
14. Kelton C, Wei Z, **Ahn S**, Balasubramanian A, Das SR, Samaras D, Zelinsky G. Reading detection in real-time. *Proceedings of the 11th ACM Symposium on Eye Tracking Research & Applications (ETRA)*. 2019

BOOK CHAPTERS

1. Zelinsky G, Chen Y, **Ahn S**, and Adeli H, Changing perspectives on goal-directed attention control: The past, present, and future of modeling fixations during visual search. *In Psychology of learning and motivation.* 2020

PREPRINTS OR IN REVIEW

1. **Ahn S**, Yang Z, Mondal S, Hoai M, Samaras D, Zelinsky G. Expected reward predicts goal-directed attention. bioRxiv. 2023
2. **Ahn S**, Adeli H, Zelinsky G. Generating object-based attention through reconstruction. bioRxiv. 2023
3. Adeli H, **Ahn S**, Kriegeskorte N, Zelinsky G. Affinity-based Attention in Self-supervised Transformers Predicts Dynamics of Object Grouping in Humans. arXiv preprint arXiv:2306.00294. 2023
4. Yang Z, Mondal S, **Ahn S**, Zelinsky G, Hoai M, Samaras D. Predicting Human Attention using Computational Attention. arXiv preprint arXiv:2303.09383. 2023

5. **Ahn S**, Lee D, Hinojosa A, Koh S. Task Effects on Perceptual Span during Reading: Evidence from Eye Movements in Scanning, Proofreading, and Reading for Comprehension. 2023

PRESENTATIONS

Conference Talks

1. **Ahn, S**, Adeli, H, & Zelinsky, G. Reconstruction-guided attention improves object recognition robustness of neural networks. *Annual Meeting of Vision Science Society (VSS)*. 2023
2. **Ahn S**, Adeli H, Zelinsky G. Reconstruction-as-Feedback Serves as an Effective Attention Mechanism for Object Recognition and Grouping. *Computational and Mathematical Models in Vision (MODVIS)*. 2022
3. Adeli H, **Ahn S**, Zelinsky G. A brain-inspired object-based attention network for multi-object recognition and visual reasoning. *Annual Meeting of Vision Science Society (VSS)*. 2022
4. **Ahn S**, Adeli H, Zelinsky G. Reconstruction-as-feedback serves as an effective attention mechanism to increase recognition robustness. *From Neuroscience to Artificially Intelligent Systems (NAISys)*. 2022
5. Adeli H, **Ahn S**, Zelinsky G. A brain-inspired object-based attention network for multi-object recognition and visual reasoning. *From Neuroscience to Artificially Intelligent Systems (NAISys)*. 2022
6. **Ahn S**, Zelinsky G, Lupyan G. Exploring the effects of linguistic labels on learned visual representations using convolutional neural networks. *Annual Meeting of Vision Science Society (VSS)*. 2020

Invited Talks

1. **Ahn S**, Generating object-based attention through reconstruction. Center for Neuroscience Imaging Research (CNIR) Seminar, Sungkyunkwan University. Seoul, Republic of Korea. 2023 August
2. **Ahn S**. Generating object-based attention through reconstruction. Doris Tsao Lab Seminar, University of California, Berkeley. CA, USA. 2023 July
3. **Ahn S**. Generating object-based attention through reconstruction. Visual Inference Lab Seminar, Columbia University. NY, USA. 2023 June

Selected Posters

1. Adeli, H, **Ahn, S**, Kriegeskorte, N, & Zelinsky, G. Self-supervised transformers predict dynamics of object-based attention in humans. *Conference on Cognitive Computational Neuroscience (CCN)*. 2023
2. **Ahn, S**, Adeli, H, & Zelinsky, G. Using generated object reconstructions to study object-based attention. *Conference on Cognitive Computational Neuroscience (CCN)*. 2023
3. Adeli, H, **Ahn, S**, Kriegeskorte, N, & Zelinsky, G. Modeling the dynamics of spreading attention in objects: Do transformers behave like humans? *Annual Meeting of Vision Science Society (VSS)*. 2023
4. Zelinsky, G, **Ahn, S**, Yang, Z, Chen, Y, Mondal, S, Hoai, M, & Samaras, D. Reward maps predict target-present and target-absent visual search. *Annual Meeting of Vision Science Society (VSS)*. 2023
5. **Ahn, S**, Mondal, S, Yang, Z, Samaras, D, Zelinsky, G, & Hoai, M. RefCOCO-Gaze: A Large-Scale Gaze Dataset for an Object Referral Task. *Workshop on Natural Environments Tasks and Intelligence*. Center for perceptual Systems. University of Texas at Austin. 2023
6. Adeli H, **Ahn S**, Zelinsky G. Sequential object-based attention for robust visual reasoning. *Conference on Cognitive Computational Neuroscience (CCN)*. 2022

7. **Ahn S**, Adeli H, Zelinsky G. Using object reconstruction as top-down attentional feedback yields a shape bias and robustness in object recognition. *Conference on Cognitive Computational Neuroscience (CCN)*. 2022
8. **Ahn S**, Adeli H, Zelinsky G. Using Object Reconstruction as a Dynamic Attention Window to Improve Recognition Robustness. *Annual Meeting of Vision Science Society (VSS)*. 2022
9. **Ahn S**, Zelinsky G. Predicting Mental States from Eye Movements During Reading. *Annual Meeting of Vision Science Society (VSS)*. 2019

TEACHING AND MENTORING EXPERIENCE

2020 Fall	Lab Instructor, Statistics, Stony Brook University
2020 Summer	Lab Instructor, Research and Writing, Stony Brook University
2020 Spring	Instructor, Research and Writing, Stony Brook University

Research Assistants Supervised

	Name and Institution	Current Position
2023 – present	Yining Xue, Stony Brook University	*Continuing undergraduate studies*
2023 – present	Jiaxin Xie, Stony Brook University	*Continuing undergraduate studies*
2023 – present	Zeynep Tasoglu, Stony Brook University	*Continuing undergraduate studies*
2023 – present	Ezzah Asad, Stony Brook University	*Continuing undergraduate studies*
2023 – present	Garrett Norris, Stony Brook University	*Continuing undergraduate studies*
2023	Dominick Fiumano, Stony Brook University	Research Intern, Suffolk County Department of Health
2023	Cherry Jiang , Stony Brook University	*Continuing undergraduate studies*
2022 – 2023	Lillian Macguire, Stony Brook University	M.S. student in Information Experience Design at Pratt Institute
2022 – 2023	Allison Liu, Stony Brook University	*Continuing undergraduate studies*
2022 – 2023	Sandy Xia, Stony Brook University	*Continuing undergraduate studies*
2022	Karla Orellana, Stony Brook University	M.A. student in Counseling, Stony Brook University
2022	Alena Koshy, Stony Brook University	*Continuing undergraduate studies*
2020 – 2021	Hannah Leibowitz, Stony Brook University	*Continuing undergraduate studies*
2020 – 2021	Sidrah Durrani, Stony Brook University	M.A. student in Developmental Psychology program, Teachers College, Columbia University
2020 – 2021	Joshua Kartzman, Stony Brook University	M.S. student in Applied Mathematics and Statistics program, Stony Brook University
2019 – 2020	Jacqueline Ho, Stony Brook University	M.S. student in Human-Computer Interaction (HCI) program, University of Maryland
2019 – 2020	Zifan Qiu, Stony Brook University	Peer Health Educator, Stony Brook University

2019 – 2020	Anna Kepley, Stony Brook University	M.A. student in Psychology, Queens College
2019	Katie Law, Stony Brook University	M.S. student, SUNY College of Optometry

PROFESSIONAL AND DEPARTMENTAL SERVICE

Program Committee Member

1. Workshop on Eye Tracking in Learning and Education at ETRA, 2023
2. Workshop on All Things Attention: Bridging Different Perspectives on Attention at Neurips, 2022
3. Workshop on Gaze Estimation and Prediction in the Wild at CVPR, 2022
4. Workshop on Eye Tracking in Learning and Education at ETRA, 2022

Reviewer

1. International Conference on Computer Vision, ICCV, 2023
2. Workshop on Mutual Benefits of Cognitive and Computer Vision at CVPR, 2019

Stony Brook University

1. Organizer, Workshop on programming workshop for data analysis and visualization at GWISE (Graduate Women in Science and Engineering at Stony Brook University), 2022
2. Organizer, Workshop on eyetracking and data analysis for undergraduate students, 2021

Seoul National University

1. Director, Russian Theater Club, 2013
2. Contents Writer, Human Rights Center, 2012 – 2014
3. Leader, Women Society Club, 2012 – 2014

SKILLS

Deep Learning	Pytorch, Tensorflow, Keras
Programming	Proficient in Python, MATLAB; Familiar with Java, HTML
Eye Tracking	Eyelink, Webgazer.js
Psychophysics	E-Prime, Psychopy, Psychojs
Statistics	R (lme4), SPSS, Mplus
Other	Proficient in Russian; Trained in classical ballet