ANELISE NEWMAN

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GitHub ⋄ Personal Website

EDUCATION

PhD Candidate, Stanford *September 2020 - Present*
Department of Computer Science

Master of Engineering, Massachusetts Institute of Technology *January 2019 - May 2020*
Department of Electrical Engineering and Computer Science
Thesis: "Human-Computer Perception: Modeling Visual Perceptual Attributes"
Advisor: Aude Oliva

Bachelor of Science, Massachusetts Institute of Technology *September 2015 - June 2019*
Major: Computer Science (Course 6-3) GPA: 5.0/5.0

RESEARCH EXPERIENCE

PhD Candidate *September 2020 - Present*
Stanford Computer Science, 1st year rotation student
- Fall: model interpretability via human interaction (advisors: Michael Bernstein and Fei-Fei Li)
- Winter: deriving a garment pattern from an image (advisor: Maneesh Agrawala)

Research Assistant, MIT Computational Perception & Cognition *January 2019 - June 2020*
MIT CSAIL, Advisor: Aude Oliva *Undergraduate Researcher September 2018-December 2018*
- Building cognitively-inspired computer vision models to predict human responses to visual stimuli.
- Led the Memento Project on video memorability. Built the first model to predict memory decay over time. Designed an online game to collect memorability scores for 10k videos [8, 4].
- Created the first multi-duration saliency model that predicts several distinct saliency maps for different viewing durations and collected a multi-duration saliency dataset [5, 2].
- Developed a toolbox of web-based user interfaces for crowdsourcing human attention data without an eye tracker [3].

Undergraduate Researcher, MIT Computer Graphics Group *September 2017 - May 2018*
MIT CSAIL, Advisor: Frédo Durand
- Led project exploring how title wording biases memory of trends in line graphs [7].

Undergraduate Researcher, MIT Computational Biology Group *September 2016 - May 2017*
MIT CSAIL, Advisor: Manolis Kellis

Undergraduate Researcher, MIT Haystack Group *February 2016 - May 2016*
MIT CSAIL, Advisor: David Karger

INDUSTRY EXPERIENCE

Software Engineering Intern, Applied Intuition *June 2019 - August 2019*
AV Simulation Startup in Sunnyvale, CA
- Applied state-of-the-art techniques in domain adaptation and image-to-image translation to measure and reduce the domain gap between real-world and simulated data.
- Used both traditional and ML computer vision techniques and integrated into production software.

Software Engineering Intern, Google *June 2018 - August 2018*
Kirkland, WA
- Implemented automatic message transcription for Duo, Google's video calling app (Android).
- Designed feature end-to-end including transcription API, data model, and processing pipeline.

Software Engineering Intern, GrokStyle *June 2017 - August 2017*
Computer Vision Startup in San Francisco, CA (acquired by Facebook)

- Lead developer to write a data ingestion SDK for clients, create a client-facing website to view uploaded data (Django), and set up an analytics pipeline to monitor website interactions.

Front-End Development Intern, PlayStation *June 2016 - August 2016*
San Francisco, CA

- Took on responsibilities of a full-time developer building a social toolbar for PlayStation.com.

PUBLICATIONS

1. **Newman, A.***, Fosco, C.*, Casser, V., McNamara, B., Lee, A., Oliva, A. "Multimodal Memorability: Modeling Effects of Semantics and Decay on Video Memorability." *ECCV*, 2020.
2. Fosco, C.*, **Newman, A.***, Sukhum, P., Zhang, Y.B., Zhao, N., Oliva, A., Bylinskii, Z. (2019) "How much time do you have? Modeling multi-duration saliency." *CVPR*, 2020.
3. **Newman, A.**, McNamara, B., Fosco, C., Zhang, Y.B., Sukhum, P., Tancik, M., Kim, N.W., Bylinskii, Z. "TurkEyes: A Web-Based Toolbox for Crowdsourcing Attention Data." In *ACM CHI Conference on Human Factors in Computing Systems (CHI)*, 2020.
4. **Newman, A.***, Fosco, C.*, Casser, V.*, McNamara, B., Oliva, A. "To Decay or not to Decay: Modeling Video Memorability Over Time." SVRHM Workshop at *NeurIPS*, 2019.
5. Fosco, C.*, **Newman, A.***, Sukhum, P., Zhang, Y.B., Zhao, N., Oliva, A., Bylinskii, Z. (2019) "How many glances? Modeling Multi-duration Saliency." SVRHM Workshop at *NeurIPS*, 2019.
6. Bylinskii, Z., **Newman, A.**, Tancik, M., Madan, S., Durand, F., Oliva, A. "ZoomMaps: Using Zoom to Capture Areas of Interest on Images." *Journal of Vision*, 19. 149. 10.1167/19.10.149, 2019.
7. **Newman, A.**, Bylinskii, Z., Haroz, S., Madan, S., Durand, F., Oliva, A. "Effects of title wording on memory of trends in line graphs." *Journal of Vision*, 18. 837. 10.1167/18.10.837, 2018.

THESES

8. **Newman, A.**, "Human-Computer Perception: Modeling Visual Perceptual Attributes". MIT MEng Thesis in Electrical Engineering and Computer Science. 2020.

HONORS AND AWARDS

NSF Graduate Research Fellowship *September 2020-May 2025*
Robert M. Fano UROP Award *May 2019*
For outstanding undergraduate research in EECS

RELEVANT COURSEWORK

Computer Vision, Machine Learning, Computational Cognitive Science, Multi-modal User Interfaces, Interactive Data Visualizations, Operating Systems, Compilers, Systems Security

SELECTED PROJECTS

- Computerized Detection of Trends in Line Graphs: Class project, Advances in Computer Vision
- Modeling Relative Importance of Text and Visuals in Multi-Modal Media: Class project, Computational Cognitive Science
- MTurk experiment framework: template for creating and deploying crowdsourced experiments
- Memento Visualizer: visualization tool for the Memento10k video memorability dataset

EXTRACURRICULARS

- I enjoy sewing, blogging, writing, and learning languages.