

ANELISE NEWMAN

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SUMMARY

I am a creative, driven computer scientist. In my four years of experience in industry and academic research, I have designed production-quality machine learning systems, applied academic research to real-world problems, and first-authored three papers. I am highly motivated by challenge and enjoy exercising my technical skill and leadership to build production systems with a positive impact.

EDUCATION

Stanford Computer Science, PhD Student	<i>September 2020 - March 2022</i>
MIT Computer Science, Master of Engineering	<i>January 2019 - May 2020</i>
MIT Computer Science, Bachelor of Science	<i>September 2015 - June 2019</i>

EXPERIENCE

Machine Learning Engineer, Stitch Fix	<i>April 2022 - Present</i>
<ul style="list-style-type: none">• Building a pipeline for training computer vision models to predict the success of new merchandise.• Implemented an evaluation strategy for backtesting my team's models against historical data. Quickly iterated to select a model that decreased average error by 5%.• Productionized the company's first internal tooling for image-based deep learning by adding automated testing, monitoring, and a cleaner API.• Led a push for robust software engineering standards within the ML and data science team. Wrote a style guide and a template for production repos that was adopted by my team.	

PhD Student, Stanford Computer Science	<i>September 2020 - March 2022</i>
Advisors: Nick Haber and Maneesh Agrawala	
<ul style="list-style-type: none">• Researched methods for improving human-agent collaboration by reducing the amount of human data required to train a collaborative agent.• Discovered that population training, a common technique for training robust competitive agents, does not improve coordination with humans.• Trained hundreds of reinforcement learning agents using Pytorch and the Tianshou reinforcement learning library and conducted a user study to evaluate results.• Led a team of researchers including professors, an upper-level graduate student and an undergrad mentee.	

Research Assistant, MIT CSAIL	<i>January 2019 - June 2020</i>
Advisor: Aude Oliva	
<i>Undergraduate Researcher September 2017-December 2018</i>	
<ul style="list-style-type: none">• Published in top venues in machine learning, computer vision, and human-computer interaction, including ECCV, CVPR, CHI, and NeurIPS workshops. Google Scholar Page• Led a team of PhD and Masters students to build a computational model of video memorability. Deployed an interactive website to collect a new dataset of 10 thousand memorability scores. Built the first machine learning model to predict memory decay over time. [8, 4]• Created the first multi-duration saliency dataset and a model that predicts saliency maps for different viewing durations. [5, 2]• Developed a toolbox of web interfaces for crowdsourcing human attention data without eye tracking. [3]	

Software Engineering Intern, Applied Intuition	<i>June 2019 - August 2019</i>
AV Simulation Startup in Sunnyvale, CA	
<ul style="list-style-type: none">• Measured and reduced the domain gap between real and simulated data using current techniques in domain adaptation and image-to-image translation.• Integrated neural networks and traditional computer vision techniques into production software.	

Software Engineering Intern, Google	<i>June 2018 - August 2018</i>
Kirkland, WA	
<ul style="list-style-type: none">• Implemented automatic message transcription for Duo, Google's video calling app (Android).	

Software Engineering Intern, GrokStyle

June 2017 - August 2017

Computer Vision Startup in San Francisco, CA (acquired by Facebook)

- Wrote a data ingestion SDK for clients, created a client-facing website to view uploaded data (Django), and built 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.

HONORS AND AWARDS

National Science Foundation Graduate Research Fellowship (NSF GRFP)

2020-2025

Prestigious research fellowship awarded to 15% of applicants

1st place MIT MEng Thesis Award in AI and Decision Making

July 2021

Top Masters of Engineering thesis in Artificial Intelligence and Decision Making

Robert M. Fano UROP (Undergraduate Research Opportunities) Award

May 2019

For outstanding undergraduate research in computer science

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.