Stefan Stojanov

Education

2017–2023 **PhD in Computer Science**, *Georgia Institute of Technology*, Atlanta, GA
Advisor: James Rehg
Committee: James Hays, Judy Hoffman, Subhransu Maji, Chen Yu
Thesis: Shape-Biased Representations for Object Category Recognition

2013–2017 **B.A. in Computer Science, Mathematics**, *Bard College*, Annandale, NY

Research and Work Experience

2025–present **Amazon**, *Applied Scientist*
Leading applied science research in multi-modal video understanding.

2024–2025 **Stanford University**, *Postdoctoral Scholar, Department of Computer Science*
Working with Prof. Jiajun Wu and Prof. Dan Yamins.
Led cross-lab research projects, mentoring five students, resulting in six paper submissions.
Self-supervised Learning to Extract Motion from Video Foundation Models
- Developed a learnable visual prompting technique that advanced counterfactual world models from proof of concept to state-of-the-art in motion estimation.

Distilling Object Shape and Function Knowledge from Vision Language Models
- Developed a self-supervised method to discover dense functional object correspondence.

Summer 2021 **Meta Reality Labs**, *Research Scientist Intern*
Working with Dr. Abhishek Sharma and Dr. Sachin Talathi
Improving slip robustness in head-mounted eye tracking by fusing 2D and 3D signals.

Fall 2018, Summer 2019 **Amazon Lab 126**, *Applied Scientist Intern*
Working with Dr. Ambrish Tyagi
Action recognition and unsupervised 3D human object pose estimation.

2017–2023 **PhD Student Researcher**, *Georgia Institute of Technology, College of Computing*
Working with Prof. James Rehg
Led research on low-shot learning, self-supervised learning, and 3D object shape reconstruction.

Awards and Honors

2024 **HAI Postdoctoral Fellowship**
One year of funding from Stanford's Human-centered AI institute.

2024 **HAI Compute Award**
$85K Azure credits awarded to selected project proposals.

2021 **Top Reviewer - International Conference on Machine Learning (ICML)**
Awarded to the top 10% of reviewers.

2019 **Best Paper Finalist at CVPR - Computer Vision and Pattern Recognition**
45 papers from 5,165 submissions – top 0.1% of submitted papers.

2017 **Dr. Richard M. Siegel Memorial Prize in Science**
Awarded to one graduating student at Bard College for academic excellence in science.

Publications and Preprints

Preprints

1. The BabyView Dataset: High-resolution Egocentric Videos of Infants' and Young Children's Everyday Experiences
Bria Lorelle Long*, Violet Xiang*, **Stefan Stojanov***, Robert Z. Sparks, Zi Yin, Grace Keene, Alvin Wei Ming Tan, Steven Y. Feng, Auddithio Nag, Chengxu Zhuang, Virginia A. Marchman, Daniel LK Yamins, Michael Frank
`https://arxiv.org/abs/2406.10447`
2. Self-Supervised Learning of Motion Concepts by Optimizing Counterfactuals
Stefan Stojanov*, David Wendt*, Seungwoo Kim*, Rahul Mysore Venkatesh*, Kevin Feigelis, Jiajun Wu, Daniel LK Yamins
`https://arxiv.org/abs/2503.19953`
3. Discovering and Using Spelke Segments
Rahul Venkatesh*, Klemen Kotar*, Lilian Naing Chen*, Seungwoo Kim, Luca Thomas Wheeler, Jared Watrous, Ashley Xu, Gia Ancone, Wanhee Lee, Honglin Chen, Daniel Bear, **Stefan Stojanov**, Daniel Yamins
`https://arxiv.org/abs/2507.16038`
4. Taming generative video models for zero-shot optical flow extraction
Seungwoo Kim, Khai Loong Aw, Klemen Kotar, Cristobal Eyzaguirre, Wanhee Lee, Yunong Liu, Jared Watrous, **Stefan Stojanov**, Juan Carlos Niebles, Jiajun Wu, Daniel LK Yamins
`https://arxiv.org/abs/2507.09082`

Publications

5. Weakly-Supervised Learning of Dense Functional Correspondences
Stefan Stojanov*, Linan Zhao*, Yunzhi Zhang, Daniel LK Yamins, Jiajun Wu
In International Conference of Computer Vision (ICCV) 2025
`project page`
6. 3×2: 3D Object Part Segmentation by 2D Semantic Correspondences
Anh Thai, Weiyao Wang, Hao Tang, **Stefan Stojanov**, James M Rehg, Matt Feiszli
In European Conference of Computer Vision (ECCV) 2024
`https://arxiv.org/abs/2407.09648`
7. ZeroShape: Regression-based Zero-shot Shape Reconstruction
Zixuan Huang*, **Stefan Stojanov***, Anh Thai, Varun Jampani, James M Rehg
In Computer Vision and Pattern Recognition (CVPR) 2024
`https://arxiv.org/abs/2312.14198`

8. Low-shot Object Learning with Mutual Exclusivity Bias
   Ngoc Anh Thai, Ahmad Humayun*, **Stefan Stojanov***, Zixuan Huang, Bikram Boote, James Matthew Rehg
   In Neural Information Processing Systems - Datasets & Benchmarks (NeurIPS) 2023
   https://arxiv.org/abs/2312.03533
9. ShapeClipper: Scalable 3D Shape Learning from Single-View Images via Geometric and CLIP-based Consistency
   Zixuan Huang, Varun Jampani, Anh Thai, Yuanzhen Li, **Stefan Stojanov**, James M. Rehg
   In Computer Vision and Pattern Recognition (CVPR) 2023
   https://arxiv.org/abs/2304.06247
10. The Benefits of Depth Information for Head-Mounted Gaze Estimation
    Stefan Stojanov, Sachin S Talathi, Abhishek Sharma
    In Eye Tracking Research and Applications (ETRA) 2022
    acm:3517031.3529638
11. Learning Dense Object Descriptors from Multiple Views for Low-shot Category Generalization
    Stefan Stojanov, Anh Thai, Zixuan Huang, James M. Rehg
    In Neural Information Processing Systems (NeurIPS) 2022
    https://arxiv.org/abs/2211.15059
12. Planes vs. Chairs: Category-guided 3D shape learning without any 3D cues
    Zixuan Huang, **Stefan Stojanov**, Anh Thai, Varun Jampani, James M. Rehg
    In European Conference of Computer Vision (ECCV) 2022
    https://arxiv.org/abs/2204.10235
13. The Surprising Positive Knowledge Transfer in Continual 3D Object Shape Reconstruction
    Anh Thai, **Stefan Stojanov**, Zixuan Huang, Isaac Rehg, James M Rehg
    In International Conference on 3D Vision (3DV) 2022 - Oral
    https://arxiv.org/abs/2101.07295
14. 3D Reconstruction of Novel Object Shapes from Single Images
    Anh Thai, **Stefan Stojanov**, Zixuan Huang, Isaac Rehg, James M Rehg
    In International Conference on 3D Vision (3DV) 2021
    https://arxiv.org/abs/2006.07752
15. Using Shape to Categorize: Low-Shot Learning with an Explicit Shape Bias
    Stefan Stojanov, Anh Thai, James M Rehg
    In Computer Vision and Pattern Recognition (CVPR) 2021
    https://arxiv.org/abs/2101.07296
16. Incremental Object Learning from Contiguous Views
    Stefan Stojanov, Samarth Mishra*, Anh Thai*, James M Rehg
    In Computer Vision and Pattern Recognition (CVPR) 2019
    Oral Presentation - **Best Paper Finalist - 45 papers from 5,165 submissions**
    CVF Open Access URL

17. Unsupervised 3d Pose Estimation with Geometric Self-supervision Views
Ching-Hang Chen, Ambrish Tyagi, Amit Agrawal, Dylan Drover, Rohith MV, **Stefan Stojanov**, James M. Rehg
In Computer Vision and Pattern Recognition (CVPR) 2019 - Oral Presentation
`https://arxiv.org/abs/1904.04812`

Posters and Talks

November 2024 Self-supervised Learning of Motion Concepts by Optimizing Counterfactuals
Lightning talk and poster
Google Workshop on Theory and Practice of Foundation Models

February 2023 University of California San Diego - Research presentation

January 2023 Brown University - Research Presentation

January 2023 Stanford University - Research presentation

January 2023 Columbia University - Research presentation

July 2022 Instance to category generalization: A self-supervised model inspired by infant learning
Poster at International Congress of Infant Studies (ICIS2022)

July 2020 The success of continual machine learning in an infant-inspired setting
Poster at Virtual International Congress of Infant Studies (vICIS2020)

Professional Activities

Reviewing

Computer Vision and Pattern Recognition (CVPR)	*'20, '21, '22, '23, '24, '25*
Neural Information Processing Systems (NeurIPS)	*'20, '21, '22, '24, '25*
International Conference on Machine Learning (ICML)	*'21 (top 10%), '22, '23, '24*
International Conference on Computer Vision (ICCV)	*'21, '25*
International Conference on Learning Representations (ICLR)	*'24*

Organization

2022 Developmental Machine Learning: From Human Learning to Machines and Back
Dagstuhl Workshop - Student volunteer for seminar organization - `webpage`

Mentorship

Johnathan Xie, *Stanford BS → Tesla Autopilot MLE*
David Wendt, *Stanford MS → Global Liquid Markets SWE*
Linan (Frank) Zhao, *Stanford MS → Meta SWE*
Seungwoo (Simon) Kim, *Stanford BS*
Auddithio Nag, *Stanford BS*
Anh Thai, *Georgia Tech BS → Georgia Tech PhD Student*
Samarth Mishra, *Georgia Tech MS → Boston University PhD Student*

Skills

Programming languages: Python, MATLAB, C, C++, Bash, Java

Tools: PyTorch, Blender, Unity, OpenCV, NumPy, Trimesh, AWS, GCP, Azure, SLURM