Senthil Purushwalkam

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RESEARCH EXPERIENCE

Member of Technical Staff	OpenAI	Jun 2025 – Present
Senior Research Scientist	Salesforce AI Research	Aug 2022 – May 2025
Research Scientist	Salesforce AI Research	Jun 2020 – Aug 2022
Research Intern *Advisor: Kristen Grauman*	Facebook AI Research	Jun 2020 – Aug 2020
Research Intern *Advisor: Marc'Aurelio Ranzato*	Facebook AI Research	Sept 2018 – Dec 2018
Research Intern *Advisors: Bryan Russell, Danny Kaufman*	Adobe Research	May 2017 – Aug 2017
Graduate Research Assistant *Advisor: Abhinav Gupta*	Carnegie Mellon University	Sept 2015 – May 2022
Research Assistant *Advisor: Dhruv Batra*	Virginia Tech	Sept 2014 – May 2015
Research Intern *Advisor: Tatsuya Harada*	University of Tokyo	May 2014 – Jul 2014
Research Intern *Advisors: Dhruv Batra, Ross Girshick*	Virginia Tech	May 2013 – Jul 2013

EDUCATION

Robotics Institute, Carnegie Mellon University
Ph.D. in Robotics, 2022
Thesis: Visual Representation and Recognition without Human Supervision

Robotics Institute, Carnegie Mellon University
M.S. in Robotics, 2017

Indian Institute of Technology (IIT), Guwahati
B.Tech. Electronics and Electrical Engineering, 2014
Minor: Computer Science

PUBLICATIONS

Trust but Verify: Programmatic VLM Evaluation in the Wild [PDF]
Viraj Prabhu, Senthil Purushwalkam, An Yan, Caiming Xiong, Ran Xu
arXiv preprint arXiv:2410.13121

FaithEval: Can Your Language Model Stay Faithful to Context, Even If "The Moon is Made of Marshmallows" [PDF]
Yifei Ming, Senthil Purushwalkam, Shrey Pandit,
Zixuan Ke, Xuan-Phi Nguyen, Caiming Xiong, Shafiq Joty
arXiv preprint arXiv:2410.03727

SFR-RAG: Towards Contextually Faithful LLMs   [PDF]
    Xuan-Phi Nguyen, Shrey Pandit, Senthil Purushwalkam, Austin Xu,
    Hailin Chen, Yifei Ming, Zixuan Ke, Silvio Savarese, Caiming Xong, Shafiq Joty
    arXiv preprint arXiv:2409.09916

xGen-MM (BLIP-3): A Family of Open Large Multimodal Models   [PDF]
    Le Xue, Manli Shu, Anas Awadalla, Jun Wang, An Yan, Senthil Purushwalkam,
    Honglu Zhou, Viraj Prabhu, Yutong Dai, Michael S Ryoo, Shrikant Kendre, Jieyu Zhang,
    Can Qin, Shu Zhang, Chia-Chih Chen, Ning Yu, Juntao Tan, Tulika Manoj Awalgaonkar,
    Shelby Heinecke, Huan Wang, Yejin Choi, Ludwig Schmidt, Zeyuan Chen,
    Silvio Savarese, Juan Carlos Niebles, Caiming Xiong, Ran Xu
    *EVAL-FoMo Workshop at **ECCV 2024***

xGen-VideoSyn-1: High-fidelity Text-to-Video Synthesis with Compressed Representations   [PDF]
    Can Qin, Congying Xia, Krithika Ramakrishnan, Michael Ryoo, Lifu Tu, Yihao Feng, Manli Shu,
    Honglu Zhou, Anas Awadalla, Jun Wang, Senthil Purushwalkam, Le Xue, Yingbo Zhou, Huan Wang,
    Silvio Savarese, Juan Carlos Niebles, Zeyuan Chen, Ran Xu, Caiming Xiong
    *AI4VA Workshop at **ECCV 2024***

BootPIG: Bootstrapping Zero-shot Personalized Image Generation Capabilities in Pretrained Diffusion Models   [PDF]
    Senthil Purushwalkam, Akash Gokul, Shafiq Joty, Nikhil Naik
    *SyntheticData4CV Workshop at **ECCV 2024***

Diffusion Model Alignment Using Direct Preference Optimization   [PDF]
    Bram Wallace, Meihua Dang, Rafael Rafailov, Linqi Zhou, Aaron Lou,
    Senthil Purushwalkam, Stefano Ermon, Caiming Xiong, Shafiq Joty, Nikhil Naik
    *Conference on Computer Vision and Pattern Recognition **(CVPR) 2024***

ConRad: Image Constrained Radiance Fields for 3D Generation from a Single Image   [PDF]
    Senthil Purushwalkam, Nikhil Naik
    *Advances in Neural Information Processing Systems **(NeurIPS) 2023***

The Challenges of Continuous Self-Supervised Learning   [PDF]
    Senthil Purushwalkam, Pedro Morgado, Abhinav Gupta
    *European Conference on Computer Vision **(ECCV) 2022***

The Unsurprising Effectiveness of Pre-trained Vision Models for Control   [PDF]
    Simone Parisi, Aravind Rajeswaran, Senthil Purushwalkam, Abhinav Gupta
    *International Conference on Machine Learning **(ICML) 2022**.*

The Functional Correspondence Problem   [PDF]
    Zihang Lai*, Senthil Purushwalkam*, Abhinav Gupta
    *International Conference on Computer Vision **(ICCV) 2021**.*

Audio-Visual Floorplan Reconstruction   [PDF]
    Senthil Purushwalkam, Sebastian Vicenc Amengual Gari, Vamsi Krishna Ithapu,
    Carl Schissler, Philip Robinson, Abhinav Gupta, Kristen Grauman
    *International Conference on Computer Vision **(ICCV) 2021**.*

Demystifying Contrastive Self-Supervised Learning: Invariances, Augmentations and Dataset Biases   [PDF]
    Senthil Purushwalkam, Abhinav Gupta
    *Advances in Neural Information Processing Systems 33 **(NeuRIPS) 2020***

Aligning Videos in Space and Time   [PDF]
    Senthil Purushwalkam, Tian Ye, Saurabh Gupta, Abhinav Gupta
    *European Conference on Computer Vision **(ECCV) 2020**.*

Task-Driven Modular Networks for Zero-Shot Compositional Learning   [PDF]
   Senthil Purushwalkam, Maximilian Nickel, Abhinav Gupta, Marc'Aurelio Ranzato
   International Conference on Computer Vision (ICCV) 2019.

Bounce and Learn: Modeling Scene Dynamics with Real-World Bounces   [PDF]
   Senthil Purushwalkam, Abhinav Gupta, Danny Kaufman, Bryan Russell
   International Conference on Learning Representations (ICLR) 2019.

Stochastic Multiple Choice Learning for Training Diverse Deep Ensembles.   [PDF]
   Stefan Lee, Senthil Purushwalkam, Michael Cogswell, Viresh Ranjan,
   David Crandall, Dhruv Batra
   Advances in Neural Information Processing Systems (NIPS) 2016.

Pose from Action: Unsupervised Learning of Pose Features based on Motion.   [PDF]
   Senthil Purushwalkam, Abhinav Gupta
   Workshop on Action and Anticipation for Visual Learning at ECCV 2016.

Applying machine learning to identify autistic adults using imitation: An exploratory study. [PDF]
   Baihua Li, Arjun Sharma, James Meng, Senthil Purushwalkam, and Emma Gowen.
   PloS one 12.8 (2017)

Why M Heads are Better than One: Training a Diverse Ensemble of Deep Networks.   [PDF]
   Stefan Lee, Senthil Purushwalkam, Michael Cogswell, David Crandall, Dhruv Batra.
   Arxiv preprint arXiv:1511.06314

Combining the Best of Graphical Models and ConvNets for Semantic Segmentation.   [PDF]
   Michael Cogswell, Xiao Lin, Senthil Purushwalkam, Dhruv Batra.
   Arxiv preprint arXiv:1412.4313.

Automatic Segmentation of Adipose Tissue from Thigh Magnetic Resonance Images.   [PDF]
   Senthil Purushwalkam, Baihua Li, Qinggang Meng, Jamie McPhee.
   International Conference on Image Analysis and Recognition (ICIAR) 2013.