

# Vlad Sobal

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## Education

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### PhD in Data Science, New York University

New York, NY

*NYU Center for Data Science, advised by professors Yann LeCun and Kyunghyun Cho*

*Sep. 2019 – present*

Working on representation learning, model-based planning, joint-embedding predicting architectures (JEPA).

### BSc in Computer Science, University of Warsaw

Warsaw, Poland

*Faculty of Mathematics, Informatics, and Mechanics*

*Oct. 2015 – May 2019*

Thesis topic: Feature Space Augmentations for Object Classification and Detection.

## Publications

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- **X-Sample Contrastive Loss: Improving Contrastive Learning with Sample Similarity Graphs**  
Vlad Sobal, Mark Ibrahim, Randall Balestrieri, Vivien Cabannes, Diane Bouchacourt, Pietro Astolfi, Kyunghyun Cho, Yann LeCun  
(2024, ArXiv preprint, submitted to ICLR 2025)  
<https://arxiv.org/pdf/2407.18134>
- **Hierarchical World Models as Visual Whole-Body Humanoid Controllers**  
Nicklas Hansen, Jyothir S V, Vlad Sobal, Yann LeCun, Xiaolong Wang, Hao Su  
(2024, ArXiv preprint, Submitted to ICLR 2025)  
<https://arxiv.org/pdf/2405.18418>
- **Gradient-based Planning with World Models**  
Jyothir S V, Siddhartha Jalagam, Yann LeCun, Vlad Sobal  
(Generative Models for Decision Making Workshop at ICLR 2024)  
<https://arxiv.org/pdf/2312.17227>
- **A cookbook of self-supervised learning**  
Randall Balestrieri, Mark Ibrahim, Vlad Sobal *et. al.* (contributed a chapter on RL)  
(2023, ArXiv preprint)  
<https://arxiv.org/abs/2304.12210>
- **Light-weight probing of unsupervised representations for reinforcement learning**  
Wancong Zhang, Anthony GX-Chen, Vlad Sobal, Yann LeCun, Nicolas Carion  
(2023, ArXiv preprint, Reinforcement Learning Conference 2024)  
<https://arxiv.org/abs/2208.12345>
- **Joint embedding predictive architectures focus on slow features**  
Vlad Sobal, Jyothir SV, Siddhartha Jalagam, Nicolas Carion, Kyunghyun Cho, Yann LeCun  
(Self-Supervised Learning - Theory and Practice Workshop, NeurIPS 2022)  
<https://arxiv.org/abs/2204.07184>
- **Separating the World and Ego Models for Self-Driving**  
Vlad Sobal, Alfredo Canziani, Nicolas Carion, Kyunghyun Cho, Yann LeCun  
(Generalizable Policy Learning in the Physical World Workshop at ICLR 2022)  
<https://arxiv.org/abs/2204.07184>

## Experience

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### Meta AI Research

October 2022 - October 2024

*Visiting Researcher with Mikael Henaff and Yann LeCun*

*New York, NY*

- Working on learning representations and world models for robotic manipulation tasks using joint-embedding predictive architectures (JEPAs).

**NVIDIA***Deep Learning Research Intern*

June 2021 - December 2021

*Remote*

- Applying joint-embedding methods to pre-train autonomous vehicles perception models.

**NVIDIA***Software Engineering Intern with Autonomous Vehicles Perception team*

May 2019 - August 2019

*Santa Clara, CA*

- Contributed to C++ pipeline for intersection bounding box processing.
- Built a model to classify digital traffic signs.

**Jane Street Europe***Software Engineering Intern with Trading Systems team*

July 2018 - September 2018

*London, UK*

- Working on Jane Street trading systems' price processing pipeline built with OCaml.

**NVIDIA***Software Engineering Intern with Autonomous Vehicles SDK team*

March 2018 - June 2018

*Santa Clara, CA*

- Built a tool to monitor pipeline throughput for autonomous vehicle's sensor data.

**NVIDIA***Software Engineering Intern with GPU Cloud team (NGC)*

October 2017 - March 2018

*Santa Clara, CA*

- Contributed to the front-end and back-end of communication system for GPU cluster (Python), making dataset upload up to 10 times faster.

**Google***Software Engineering Intern with Google Ads team*

July 2017 - October 2017

*Mountain View, CA*

- Built a logs analysis pipeline for dynamically generated ads using Go.

**Google***Software Engineering Intern with Google Maps for iOS team*

July 2016 - September 2016

*Zurich, Switzerland*

- Worked on permission notification system for Timeline feature of iOS app for Google Maps (Objective C).

## Service

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**Reviewer:** NeurIPS Goal-Conditioned RL workshop 2023, NeurIPS 2023, ICML 2023, ICLR 2024**Teaching Assistant:** NYU Deep Learning class Spring 2021, Spring 2022**Volunteer:** ICML 2022