Vighnesh Birodkar

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Work Experience

Senior Research Engineer *Luma Labs AI* *Sept 2024 – present*
- Architected and deployed the central experiment framework the central experiment framework for training audio/image/video autoencoders and diffusion models.
- Drove video pre-training strategy for the 'Ray' series of models, enabling deployment in Dream Machine.
- Established research baselines and rigorous evaluation processes, accelerating model iteration cycles.

Research Engineer *Google* *June 2018 – Aug 2024*
- Created the breakthrough prototype for Veo that secured Google I/O demo placement.
- Achieved state-of-the-art performance in partially supervised instance segmentation tasks.
- Maintained TF Object Detection API, and scaled it up for use in Books, Nest, CrowdSource, and Maps.

Research Scientist *FeatureX* *June 2017 – June 2018*
- Developed production-grade ML algorithms for road network detection and pan-sharpening.
- Architected and managed training cluster and inference deployment for the whole team.

Data Scientist *NYU Center for Data Science* *Sept 2015 – Apr 2016*
- Wrote core algorithms (k-means, gradient boosting) for scikit-learn, a library with 4M monthly downloads.
- Developed an ML project template adopted by 20+ projects, establishing best practices across the ecosystem.

Selected Papers

Gemini 2.5 Technical Report *arXiv 2025*
Multiple authors

Sample what you can't compress *arXiv 2024*
Vighnesh Birodkar, Gabriel Barcik, James Lyon, Sergey Ioffe, David Minnen, Joshua V. Dillon

VideoPoet: A Large Language Model for Zero-Shot Video Generation *ICLR 2024*
Multiple authors

Scaling vision transformers to 22 billion parameters *ICLR 2023*
Multiple authors

Semantic Redundancies in Image-Classification Datasets : The 10% You Don't Need *arXiv 2019*
Vighnesh Birodkar, Hossein Mobahi, Samy Bengio

The surprising impact of mask-head architecture on novel class segmentation *CVPR 2021*
Vighnesh Birodkar, Zhichao Lu, Siyang Li, Vivek Rathod, Jonathan Huang

Unsupervised Learning of Disentangled Representations from Video *NeurIPS 2017*
Emily Denton, Vighnesh Birodkar

Education

New York University
Master's in Computer Science. Departmental fellowship.

National Institute of Technology Goa
Bachelor's in Computer Science and Engineering