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Scholar: 15k+ Citations — h-index: 18

Yulia Rubanova

Staff Research Scientist

Research Expertise

Summary Staff Research Scientist with a proven track record of driving from a research prototype to the product deployed on a large scale (core contributor to Google's Veo video models), combined with global academic influence (8000+ citations and NeurIPS Best Paper Award).

Core Focus Build controllable, physically grounded world and video generative models that support real-time, interactive interventions on objects and environments.

Expertise Generative AI (Video/Image Diffusion), learning physics in 3D (SDF-Sim), Graph Neural Networks (GNNs), and Continuous-time ML (Neural ODEs).

Experience

2025–Present **Staff Research Scientist**, *Google DeepMind*, London, UK

- Core contributor **Veo Ingredients**, a flagship controllable reference-to-video capability in Google's generative video model. Launched at Google I/O 2025, achieving SOTA performance. Core contribution to developing this feature, including idea inception, data mining, model training, building evaluation benchmark and metrics, coordinating work with downstream product teams.
- Co-led the **Veo Ingredients with audio** and enhanced character consistency. Onboarding a team of 5 researchers and engineers, with downstream product teams, leading to a public launch in September 2025.
- **Veo Robotics** Collaborating with robotics teams on the adoption for Veo for Robotics to support scalable policy learning (*Gemini Robotics* and *Veo Robotics* papers)

2023–2025 **Senior Research Scientist**, *Google DeepMind*, London, UK

- **Controllable generation:** Pioneered methods for 3D-aware editing in image diffusion models, enabling fine-grained control over object pose and placement (*Neural Assets* paper)
- **Simulation at Scale:** Led the development of **SDF-Sim**, the first *learned* rigid-body simulator to scale to scenes with hundreds of objects and 1.1M nodes.

2020–2023 **Research Scientist**, *Google DeepMind*, London, UK

- **Learned Physics Simulator** Engineered a graph-network-based simulator for rigid-body physics in 3D, outperforming traditional mesh-based approaches in memory efficiency and speed.

2019–2020 **Research Intern**, *Google Brain*, Toronto, Canada

- Developed RL-based optimization for discrete structures (graphs and text), published at UAI.

2018 **Software Engineering Intern**, *Google Brain*, Mountain View, USA

- Developed "Genomics-as-Vision" models using image similarity networks to detect cancer mutations with high precision.

2013–2014 **Junior Software Developer**, *Parallels Research*

- Full-stack development for virtualization interfaces, managing complex back-end architectures for Windows-on-Mac systems.

Education

2016–2020 **PhD in Computer Science**, *University of Toronto*, Canada

Thesis: Continuous-time latent-variable models for time series.
Advised by Quaid Morris and David Duvenaud. Developed **Neural ODEs**.

2014–2016 **M.Sc. in Computer Science**, *University of Toronto*, Canada
Probabilistic modeling for genomic data; focused on DNA constraint identification.

2012–2014 **M.Sc. Applied Mathematics and Physics**, *MIPT*, Russia, Honors
Focus on kernel-level disk scheduling. MIPT is a top-tier tech university in Russia.

Selected Publications

See Google Scholar for a full list

2025 **Evaluating Gemini Robotics Policies in a Veo World Simulator**.
arXiv preprint arXiv:2512.10675

2025 **Gemini robotics 1.5: Pushing the frontier of generalist robots with advanced embodied reasoning, thinking, and motion transfer**.
arXiv preprint arXiv:2510.03342

2024 **Neural Assets: 3D-Aware Multi-Object Scene Synthesis.**
NeurIPS 2024. **Spotlight (Top 2.08%)**

2024 **SDF-Sim: Learning rigid-body simulators over implicit shapes.**
NeurIPS 2024. **Oral (Top 0.4%)**

2018 **Neural Ordinary Differential Equations.**
NeurIPS 2018. **Best Paper Award (8,000+ citations)**. Foundation for continuous-time ML.

2019 **Latent ODEs for Irregularly-Sampled Time Series.**
NeurIPS 2019.

2020 **Nature Publications.** Co-authored seminal pan-cancer analysis papers (Nature, Nature Comm).

Academic Service

Area Chair ICLR (2024, 2026), NeurIPS (2025)

Reviewer CVPR, NeurIPS, ICLR, ICML (2017–2025). Invited speaker at AMLD 2022.