Omer Shapira - Engineer, AI & Graphics

Portfolio: omershapira.com   Email: info@omershapira.com   Google Scholar: link

AI & Graphics Engineer focused on Human-facing problems. Contributed work in systems, product, and research. Thrives in multidisciplinary teams. Experience in Technical and Strategic ownership in production environments. Comfortable with vertical and horizontal communication. Extensive shipping experience of new product categories and research. Seeking a challenging combination of the above.

Interests: Machine Learning, 3D Graphics & Vision, AI-Driven HCI, Displays & Cameras.

Presented work at SIGGRAPH, NEURIPS, ICRA and CVPR.

AI Contributions: Sim2Real & Simulation, Neural Human Representation, Robotic Teleop.

Graphics Contributions: OpenUSD/Omniverse, Path-Traced VR, XR Redirected Walking.

Employment

2016–Now   **NVIDIA**

- **NVIDIA Research** AI-Mediated Reality & Interactions group. AI Engineering in Neural Human Representation and 3D Vision. Worked on scaling generative networks for research and production and robustifying networks for shipping. Built frameworks for large, multi-stage data pipelines for training foundation models and large scale networks. Presented work at *SIGGRAPH* and *CVPR*, with patents pending.

- **Engineering and Product Lead, Omniverse XR**.
  - Shipped *Omniverse Create XR*, first-in-market path-traced VR-Enabled Simulation engine, as part of NVIDIA's OpenUSD Platform. Made contributions in all stack layers: rendering & runtime (C++), and scripting & application features. Owned the product & technical roadmaps, and the codebase. Brought XR functionality from demo to shipped product.
  - Delivered paradigm-changing improvements to platform to allow support of XR interaction and rendering. Developed tools and practices to maintain XR framerates on demanding datasets and XR comfort in demanding work scenarios. Expanded the platform's tooling to allow non-technical customers to build shippable applications - including building a python JIT&AOT compilers to allow in-app coding of visual scripting components.
  - Trained and shaped technical & product roles in the XR team org-wide.
  - Worked with executive stakeholders on shared roadmaps and target metrics. Drove integration of cross-company efforts into the product, such as XR pixel streaming and spatial AI frameworks. Owned technical and strategic collaborations with 3rd-party HMD manufacturers, platforms and telecoms. Led the effort from inception through multiple delivery cycles and through transition from a desktop engine to a cloud platform.

- **DriveSim**. Architected the tools transition of NVIDIA's Autonomous Vehicle simulator from Unreal Engine to NVIDIA's OpenUSD engine, Omniverse. Owned the ecosystem of tool workflows for large-world generation. Developed tools to maintain observable low-level compatibility between the engines through the transition.

- **Isaac Data Studio (now Omniverse Replicator)**. Pioneered & developed NVIDIA's 3D synthetic data generation framework for rich semantic scene understanding. Developed synthetic data generation approaches and helped train mission critical networks. Published a paper about new methods enabled by this framework at *ICRA 2019*.

- **Isaac**. NVIDIA's Robotics Simulation & Training platform. Delivered tools to test robotic action and interaction in VR. Tech Lead for end-to-end Sim2Real interactive demo: From synthetic data to playing dominoes with a physical robot and a robot digital twin, shown at *SIGGRAPH 2017*.

- **XR Development Technology (DevTech) Engineer**. Drove internal prototypes, external demos and produced research and patents in XR and interaction technology.

2015–2016 **Fake Love (acquired by The New York Times)** NYC, *Director, Games & Virtual Reality.***Clients**: *Google, Dell, The Weinstein Company, The New York Times, Tribeca Film Festival.*

- Founded the ad agency's VR studio, owning tech & strategy from inception to NYT acquisition.
- Hired & developed technical and design talent for XR. Delivered software in short timelines.
- Designed and shipped first-in-market $8k$ 360° camera & software, and delivered ads with it.

2014–2015 **Framestore** NYC, *Graphics Programmer.* **Clients:** *Google, Nike, Epic Games, Universal Pictures, Samsung, Disney, Carfax.* **Awards:** *Art Directors' Club, Webby, Clio, Hatch*

- Architected and shipped the first-in-market room-scale VR experience, *Merrell: Trailscape*, shown at Sundance Film Festival 2015.
- Led and shipped *Tony Stark's Lab* (*Samsung Gear VR* launch title game).
- Developed artist tools and embedded software and computer vision algorithms.

Fall 2013 **Microsoft Research, FUSE Labs** NYC, *Student Researcher.* Affective Computing Research.

Summer 2013 **Midnight Commercial** NYC, *Engineering Intern.* Wrote CAD software for 3D printing.

2006–2012 **Channel 10**, Tel Aviv. **TV Presenter.** Co-{Anchored, developed} the award-winning news show "Hatzinor". **Director, Editor.** Ads, Longform documentary and News.

Research, Invention & Academics

SIGGRAPH 2025 GAIA: Generative Animatable Interactive Avatars with Expression-Conditioned Gaussians [link]

NEURIPS 2021 Assistive Tele-op: Leveraging Transformers to Collect Robotic Task Demonstrations

ICRA 2019 Structured Domain Randomization: Bridging the Reality Gap by Context-Aware Synthetic Data.

SIGGRAPH 2018 Towards Infinite Virtual Reality Redirected Walking. **[ACM TOG 2018, SIGGRAPH 2018 Orals]** [link]

IEEE 2018 Fluidic Elastomer Actuators for Haptic Interactions in Virtual Reality.
[IEEE Robotics and Automation Letters 2018]

ROBOSOFT 2018 A Variable Shape and Variable Stiffness Controller for Haptic Virtual Interactions. **[IEEE RoboSoft 2018]**

SIGGRAPH 2017 Stretchable Transducers for Kinesthetic Interactions in Virtual Reality. **[SIGGRAPH 2017]**

Academic Service

2025–Now CVPR Workshop on Computer Vision for Mixed Reality(*CV4MR*) Co-Organizer & Paper Chair

2025–Now CVPR Reviewer

2024–Now ACM I3D Jury

2023 ACM SIGGRAPH Unified Jury

2022 CVPR CV4VRAR Keynote Speaker [link]

Patents

2024 Teleportation System Combining Virtual Reality and Augmented Reality **[USPTO # 18/411,327]**

2021 Saccadic Redirection for Virtual Reality Locomotion **[USPTO # 10,573,071]**

2020 Path Planning for Virtual Reality Locomotion **[USPTO # 10,573,061]**

Education

Spring 2014 **Massachusetts Institute of Technology**, Media Lab, *Visiting Student,* Tangible Media Group.

2012–2014 **M.PS, New York University,** Interactive Telecommunications Program**,** *Tisch Scholarship.* VR and Graphics Research at the NYU Courant Media Research Lab. Supervisor: Prof. Ken Perlin.

2008–2012 **B.Sc, Tel Aviv University,** Mathematics & Linguistics, *Summa Cum Laude.*