

Omer Shapira - Engineer, Researcher

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Engineer and Researcher focused on Human-facing problems. Experienced in systems-level and product-level work. Extensive experience in leadership of product and engineering efforts in production environments. Comfortable with executive communication and thrives in multidisciplinary teams.

Interests: 3D Graphics, Computer Vision, Computational Photography, Displays & Cameras, Interaction, Perception, Haptics, Compilers and Recommendation Systems.

Employment

2016 - Now **NVIDIA** *Omniverse, Simulation Technology, Research.*

- ▶ **NVIDIA Research** AI-Mediated Reality & Interactions group. Research on neural human representation and perception. Tech transfer, training & engineering efforts and collaborating on AI and graphics research with teams across NVIDIA Research.
- ▶ **Engineering and Product Lead, Omniverse XR.**
 - Shipped Omniverse Create XR, first-in-market raytraced VR engine. Delivered product success for partners in key markets: AEC, Automotive and Manufacturing.
 - Hired, trained and shaped technical and product roles in the XR team org-wide. Led the team through first three deliveries and saw it through transition to platform model.
 - Owned the Omniverse XR product and technical roadmaps and codebase. Maintained performance through a combination of team practices and comprehensive perf testing.
 - Owned the effort to make the engine run at VR framerates. Deployed testing systems for all aspects of interactive networked applications and worked closely with VPs in the company to align technical roadmaps and ensure delivery at target metrics. Drove cross-company features into the product, such as CloudXR and Deepsearch.
 - Owned technical and strategic 3rd-party collaborations with HMD manufacturers, platform owners and infrastructure providers.
 - Contributed paradigm-changing improvements to Omniverse's scripting framework and developer tools to allow technical artists to become product contributors. Balanced individual contribution and leadership.
- ▶ **DriveSim.** Led the tools transition of NVIDIA's autonomous vehicle simulator from a 3rd party engine to Omniverse. Solved workflows for large world generation pipelines with DCC tool plugins and microservices. Maintained observable compatibility between the engine and Omniverse through the transition.
- ▶ **Isaac Data Studio (now Omniverse Replicator).** Pioneered & Shipped NVIDIA's 3D synthetic data generation framework; Built to bootstrap a "10-year problem" in VR: rich semantic scene understanding. The Synthetic Data vertical is now Omniverse's key usecase.
- ▶ **Isaac.** Engineering work on NVIDIA's Robotics Reinforcement Learning platform. Main contributions: delivered pathfinding milestone for vision training and debugging physical robot inference and actions in VR. Led end-to-end Sim2Real demonstration from Game Engine to physical robot playing dominoes shown side-by-side at *SIGGRAPH 2017*.
- ▶ **XR Development Technology Engineer.** Produced research and patents in Redirected Walking and Haptics, internally and in collaboration with academic teams. Contributed and published research in ACM TOG and IEEE.

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 Fake Love's VR studio, owning tech and product strategy. Hired and developed talent for XR design and tech. Delivered apps and high-end VFX work - in ad budgets and timelines.
- ▶ Led technology development on Rendering, Game Engine, Artist Tools, and Cameras. Owned VFX & Game production pipelines. Delivered first-in-market proprietary 8k 360° Camera system at film quality - and delivered ads with them on time.
- ▶ XR was the value leader in *NYT*'s decision to acquire, enabling growth to 50 people post sale.

2014 - 2015 **Framestore** NYC, *Engineer, VR & Computer Vision*

Tech Lead in the VFX studio's first-in-market VR arm.

Clients: *Google, Nike, Epic Games, Universal Pictures, Samsung, Disney, Carfax.*

Awards: *Art Directors' Club, Webby, Clio, Hatch*

- ▶ Shipped games, installations and demos for Fortune 100 clients at realtime performance and film asset quality. Built artist and rendering tools to enable VFX artists to build for realtime workflows in Unity and Unreal Engine.
- ▶ Led and shipped the first-in-market roomscale VR Installation system, *Merrell: Trailscape*, built entirely in-house, at Sundance Film Festival 2015.
- ▶ Led and shipped Samsung Gear VR's bundled launch title: *Avengers: Tony Stark's Lab*, Installed on all Gear VR phones.
- ▶ Developed computer vision algorithms for mobile VR. Pioneered methods in: Redirected Walking, HUDs, IMU-Optical Tracker Sensor Fusion, and design guidelines for VR.

Fall 2013 **Microsoft Research, FUSE Labs** NYC, *Research Intern.*

Student internship. R&D of an affective computing embedded device for the home.

Summer 2013 **Midnight Commercial** NYC, *Engineering Intern*

Wrote artist tools for laser vector displays. Wrote CAD pipelines for 3D printing.

2006 - 2012 **Channel 10**, Tel Aviv, Israel. Israel's largest national TV News station.

- ▶ **TV Presenter.** Anchor in Israel's highest rated late-night news magazine "Hatzinor". Worked on format development since pitching phase to its' #1 spot in rating charts for the slot.
- ▶ **Director, Editor.** Promo/Ads, Longform documentary shows and News.

2007 - 2013 **Freelance VFX Artist.** Compositing, Color and Motion Graphics for Film & TV.

Research, Invention & Academics

Selected Publications

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

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

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

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

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

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

Patents

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

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

Academics

2024 ACM I3D Jury

2023 ACM SIGGRAPH Unified Jury

2022 CVPR CV4VRAR Keynote: Inverting The Compute Funnel

Education

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

2012 - 2014 **M.P.S, 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*.