

# Sagie Benaim

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PERSONAL      Email: [sagiebenaim@gmail.com](mailto:sagiebenaim@gmail.com)      Phone: (+972) 525 279 236  
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Github: <https://github.com/sagiebenaim/>  
Scholar: <https://scholar.google.com/citations?user=-zSM2I8AAAAJ&hl=en>

ACADEMIC APPOINTMENTS      **University of Copenhagen**, Copenhagen, Denmark      **November 2021 - Now**  
Postdoctoral Associate (Computer Vision, Deep Learning).  
*Advisor*: Prof. Serge Belongie.  

- Research in the areas of Computer Vision for Augmented Reality, Generative Models, 3D Models and Content Creation.

EDUCATION      **Tel Aviv University**, Tel Aviv, Israel      **April 2017 - October 2021**  
PhD in Computer Science (Computer Vision, Deep Learning)  
*Advisor*: Prof. Lior Wolf.  

- Research in the areas of Unsupervised Learning, Self-supervised Learning, Few-Shot Learning, Generative Models, Content Creation and AI Safety.
- Awarded The Raymond and Beverly Sackler Excellence Scholarship for the Faculty of Exact Sciences (January 2018).

**University of Oxford**, Oxford, UK      **September 2011 - September 2012**  
MSc Mathematics and the Foundations of Computer Science (Distinction)  
*Advisor*: Prof. Michael Benedikt.  

- Thesis: ‘Verification of Two Variable First Order Logic and related Logics on trees’.  
Research in the areas of Algorithms, Formal verification, Logic, Complexity.

**Imperial College London**, London, UK      **September 2008 - June 2011**  
BSc Mathematics and Computer Science (1st Class Honours)  
Awards/Bursaries  

- Computing Entrance Award - Academic Excellence (October 2008).
- Gloucester Research Award - Academic Excellence (awarded top 10 students across all years in department) (October 2009).
- Nuffield Undergraduate Research Bursary - Summer research (June 2010).

PUBLICATIONS      G. Yang\*, **S. Benaim**\*, V. Jampani, K. Genova, J. T. Barron, T. Funkhouser, B. Hariharan, S. Belongie. Polynomial Neural Fields for Subband Decomposition. In Neural Information Processing Systems (NeurIPS), 2022. \*Equal Contribution.

H. Chefer, **S. Benaim**, R. Paiss, L. Wolf. Image-Based CLIP-Guided Essence Transfer. In European Conference of Computer Vision (ECCV), 2022.

S. Loeschcke, S. Belongie, **S. Benaim**. Text-Driven Stylization of Video Objects. In Workshop on AI for Creative Video Editing and Understanding (ECCV), 2022. **Received the best paper award.**

R. Mokady, R. Tzaban, **S. Benaim**, A. Bermano, D. Cohen-or. JOKR: Joint Keypoint Representation for Unsupervised Cross-Domain Motion Retargeting. In Computer Graphics Forum (CGF), 2022.

O. Michel\*, R. Bar-On\*, R. Liu\*, **S. Benaim**, R. Hanocka. Text2Mesh: Text-Driven Neural Stylization for Meshes. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022. \*Equal Contribution. **Accepted as an oral presentation.**

L. Ben Moshe, **S. Benaim**, L. Wolf. FewGAN: Generating from the Joint Distribution of a Few Images. In International Conference on Image Processing (ICIP), 2022.

S. Sheynin\*, **S. Benaim\***, L. Wolf. A Hierarchical Transformation-Discriminating Generative Model for Few Shot Anomaly Detection. In IEEE International Conference on Computer Vision (ICCV), 2021. \*Equal Contribution.

N. Gat, **S. Benaim**, L. Wolf. Identity and Attribute Preserving Thumbnail Upscaling. 2021. In International Conference on Image Processing (ICIP), 2021.

T. Galanti, **S. Benaim**, L. Wolf. Risk Bounds for Unsupervised Cross-Domain Mapping with IPMs. In Journal of Machine Learning Research (JMLR), 2021.

O. Nuriel, **S. Benaim**, L. Wolf. Permuted AdaIN: Reducing the Bias Towards Global Statistics in Image Classification. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

Y. Benny, T. Galanti, **S. Benaim**, L. Wolf. Evaluation Metrics for Conditional Image Generation. In International Journal of Computer Vision (IJCV), 2020.

**S. Benaim\***, R. Mokady\*, A. Bermano, D. Cohen-Or, Lior Wolf. Structural-analogy from a Single Image Pair. In Computer Graphics Forum (CGF), 2020. \*Equal Contribution.

- Also in Deep Internal Learning Workshop (ECCV), 2020.

S. Gur\*, **S. Benaim\***, Lior Wolf. Hierarchical Patch VAE-GAN: Generating Diverse Videos from a Single Sample. In Neural Information Processing Systems (NeurIPS), 2020. \*Equal Contribution.

- Also in Deep Internal Learning Workshop (ECCV), 2020.

**S. Benaim**, A. Ephrat, O. Lang, T. Dekel, I. Mosseri, W. Freeman, M. Rubinstein, M. Irani. SpeedNet: Learning the Speediness in Videos. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020. **Accepted as an oral presentation.**

R. Mokady, **S. Benaim**, L. Wolf, A. Bermano. Mask Based Unsupervised Content Transfer. In International Conference on Learning Representations (ICLR), 2020.

**S. Benaim**, M. Khaitov, T. Galanti, L. Wolf. Domain Intersection and Domain Difference. In IEEE International Conference on Computer Vision (ICCV), 2019.

M. Michaelshvilli, **S. Benaim**, L. Wolf. Semi-Supervised Monaural Singing Voice Separation With A Masking Network Trained On Synthetic Mixtures. In International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2019.

O. Press, T. Galanti, **S. Benaim**, L. Wolf. Emerging Disentanglement in Auto-Encoder Based Unsupervised Image Content Transfer. In International Conference on Learning Representations (ICLR), 2019.

L. Wolf, **S. Benaim**, T. Galanti. Unsupervised Learning of the Set of Local Maxima. In International Conference on Learning Representations (ICLR), 2019.

**S. Benaim**, L. Wolf. One-Shot Unsupervised Cross Domain Translation. In Neural Information Processing Systems Conference (NeurIPS), 2018.

T. Galanti, **S. Benaim**, L. Wolf. Risk Bounds for Unsupervised Cross-Domain Mapping with IPMs. In Integration of Deep Learning Theories workshop, (NeurIPS), 2018.

**S. Benaim\***, T. Galanti\*, L. Wolf. Estimating the Success of Unsupervised Image to Image Translation. In European Conference of Computer Vision (ECCV), 2018. \*Equal Contribution.

T. Galanti, L. Wolf, **S. Benaim**. The Role of Minimal Complexity Functions in Unsupervised Learning of Semantic Mappings. In International Conference on Learning Representations (ICLR), 2018

**S. Benaim**, L. Wolf. One-Sided Unsupervised Domain Mapping. In Neural Information Processing Systems Conference (NIPS), 2017. **Accepted as a spotlight presentation.**

**S. Benaim**, M. Benedikt, W. Charatonik, E. Kieronski, R. Lenhardt, F. Mazowiecki and J. Worell. Complexity of Two-Variable Logic on Finite Trees. In International Colloquium on Automata, Languages and Programming (ICALP), 2013.

- Also accepted to ACM Transactions on Computational Logic Journal, Volume 17, 2016

#### PREPRINTS

P. E. Christensen, V. Snaebjarnarson, A. Dittadi, S. Belongie, **S. Benaim**. Assessing Neural Network Robustness via Adversarial Pivotal Tuning of Real Images. In Submission.

**S. Benaim**, F. Warburg, P. E. Christensen, S. Belongie. Volumetric Disentanglement for 3D Scene Manipulation. In Submission.

S. Sheynin, **S. Benaim**, A. Polyak, L. Wolf. Locally Shifted Attention With Early Global Integration. In Submission.

#### TEACHING

**Tel Aviv University**, Israel **February 2021 - July 2021**  
Course lecturer for the course ‘Convolutional Neural Networks’.

**Tel Aviv University**, Israel **February 2020 - July 2020**  
Course lecturer for the course ‘Convolutional Neural Networks’.

**Tel Aviv University**, Israel **February 2019 - July 2019**  
Course lecturer for the course ‘Convolutional Neural Networks’.

#### EMPLOYMENT

**Google Research**, Israel **June 2019 - September 2019**  
*Advisors:* Prof. William T. Freeman, Prof. Michal Irani, Prof. Tali Dekel.  
Research Intern, Perception Team.

- *Role:* Research in self supervised learning of videos.

**Israel Defense Forces**, Israel **October 2013 - October 2016**  
Software Engineer, Intelligence Unit.

- *Role:* Research and development in the flagship project of the department.
- Programming in Embedded Settings in C and Python, Network programming (TCP/IP), Unix programming.

**Imperial College London**, London, UK **June 2010 - September 2010**

Supervisors: Prof. David Ham, Dr Jon Hill

Applied Modeling and Computation Group.

- *Role*: Improve Imperial College Ocean Model (ICOM).

**Imperial College London**, London, UK **June 2009 - September 2009**

Supervisors: Prof. David Colling, Dr Janusz Martiniak

High Energy Physics Group.

- *Role*: Integration of Imperial's GridPP and Nordugrid information systems (two distributed grid systems used for particle physics).

INVITED TALKS

Text2Mesh: Text-Driven Stylization for Meshes. *Israel Computer Vision Day, 2021* and *Pre-CVPR Day, University of Copenhagen, 2022*.

Semantic Manipulation of Visual Content. *Pioneer Center of AI Colloquium, hosted by Aarhus University, 2021* and *Technion CDS Seminar, 2021*.

Structure-Aware Manipulation of Images and Videos. *Google Research (Israel), 2021; Nvidia Research (US), 2021; Stanford Vision and Learning Lab Seminar, 2021; Visual Computing Seminar (Tel Aviv University), 2021; Facebook AI Research (London), 2021*.

Manipulating Structure in Images and Videos. *Technion Computational Data Science Seminar, 2021; Berkeley Vision Seminar, 2021; Nvidia Research (Israel), 2021*.

On Disentangled and Few Shot Visual Generation and Understanding. *Google Viscam Seminar, 2020*.

Learning the Speediness in Videos and Generating Novel Videos From a Single Sample. *Hebrew University Computer Vision Seminar, 2020; Technion Machine Learning Seminar, 2020*.

SpeedNet: Learning the Speediness in Videos. *Viz.ai, 2020*.

Visual Analogies: The role of disentanglement and learning from few example. *Hebrew University Vision Seminar, 2020*.

Domain Intersection and Domain Difference. *Amazon, 2020; ICCVi, 2019*.

Generative Adversarial Networks for Image to Image Translation. *Israel Machine Vision Conference, 2019*.

New Capabilities in Unsupervised Image to Image Translation. *Bar Ilan University Machine Learning Seminar, 2019*.

One-Shot Unsupervised Cross Domain Translation. *Technion Computational Data Science Seminar, 2019*.

Introduction to Generative Adversarial Networks. *Elbit, 2018*.

Generative Adversarial Networks for Image to Image Translation. *Nexar, 2018*.

One-Sided Unsupervised Domain Mapping. *Weizmann Institute Vision Seminar, 2018;*  
*Hebrew University Vision Seminar, 2018; Technion Computer Vision Colloquium, 2018.*

PROFESSIONAL  
SERVICE

- Reviewer for: NeurIPS (2019 - 2022), CVPR (2019 - 2022), ICML (2019, 2020), ICLR (2020, 2021), ICCV (2019, 2021), ECCV (2020), AAAI (2021).
- Social chair at ECCV 2022.
- Evaluator for ELLIS PhD Program (2021, 2022).