Sagie Benaim

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EDUCATION

Tel Aviv University, Tel Aviv, Israel **February 2017 - now**

PhD in Computer Science (Computed Vision, Deep Learning)

- Research with Prof Lior Wolf in the areas of Unsupervised Learning, Self-supervised, Generative Models and Domain Adaptation and Disentanglement.
- 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)

- Thesis: 'Verification of Two Variable First Order Logic and related Logics on trees'. Research with Prof Michael Benedikt 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

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, 2020. *Equal Contribution.

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.

S. Benaim, A. Ephrat, O. Lang, T. Dekel, I. Mosseri, W. Freeman, M. Rubinstein, M. Irani. SpeedNet: Learning the Speediness in Videos. 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. International Conference on Learning Representations (ICLR), 2020.

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

M. Michaelsvhvilli, S. Benaim, L. Wolf. Semi-Supervised Monaural Singing Voice Separation With A Masking Network Trained On Synthetic Mixtures. 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. International Conference on Learning Representations (ICLR), 2019.

L. Wolf, S. Benaim, T. Galanti. Unsupervised Learning of the Set of Local Maxima. 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.

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. International Colloquium on Automata, Languages and Programming (ICALP), 2013.
- Also accepted to ACM Transactions on Computational Logic, Volume 17, 2016

Workshops

S. Benaim*, R. Mokady*, A. Bermano, D. Cohen-Or, Lior Wolf. Structural-analogy from a Single Image Pair. In Deep Internal Learning Workshop (ECCV), 2020. *Equal Contribution.

S. Gur*, S. Benaim*, Lior Wolf. Hierarchical Patch VAE-GAN: Generating Diverse Videos from a Single Sample. In Deep Internal Learning Workshop (ECCV), 2020. *Equal Contribution.

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

Preprints

O. Nuriel, S. Benaim, L. Wolf. Permuted AdaIN: Reducing the Bias Towards Global Statistics in Image Classification. Arxiv, 2020 (In Submission).

Teaching

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**
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. Good understanding of OS, Networking and Security Concepts.

Imperial College London, London, UK **June 2009 - September 2010**
Supervisors: Professor 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: Professor 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)

Skills

Computing Skills
Programming and Scripting Languages:
- Proficient: C, Python, Java, Haskell, Matlab, Unix, Network Programming, Assembly (x86 and others), Latex. DL Platforms: PyTorch, Tensorflow.
- Working knowledge of C++, Prolog

Operating Systems: Linux, Windows
Others: Databases (PostgreSQL and MySQL), Network programming (TCP/IP), Unix programming, OS, Networking and Security Concepts and Tools

Languages: English, Hebrew (Native), French (Basic)

Invited Talks

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

Learning the Speediness in Videos and Generating Novel Videos From a Single Sample. 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

Domain Intersection and Domain Difference. 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 Computer Vision Seminar, 2018.

One-Sided Unsupervised Domain Mapping. Hebrew University Computer Vision Seminar, 2018.

One-Sided Unsupervised Domain Mapping. Technion Computer Vision Colloquium, 2018.

Professional Service

Reviewer for: CVPR (2018, 2019, 2020), NeurIPS (2019, 2020), ICML (2019, 2020), ICLR (2020).