

Baris Gecer, PhD

Senior Applied Scientist at Amazon

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Experience

Industry

- Dec. 2022 – **Senior Applied Scientist (L6)**, [AMAZON](#), London, UK.
Present
- (Amazon Studios) Neural Avatars for Visual Dubbing in Movie Production
 - (Ads) Generative AI for Video Ad Generation, e.g., Diffusion Transformers, Dynamic Avatars, Novel View Synthesis:
 - Founding member of [AI-powered Ads Video generation](#) team
 - Contributed to the [Amazon Nova Reel](#):
- June 2020 – **Senior Research Scientist**, [HUAWEI](#), London, UK.
Nov. 2022
- Photorealistic 3D Face Reconstruction
- May 2019 – **Research Intern (6 months)**, [FACEBOOK REALITY LABS](#), Pittsburgh, USA.
October 2019
- Photorealistic Telepresence
 - Supervisor : Yaser Sheikh & Fernando de la Torre
- July 2018 – **Computer Vision Scientist**, [FACE SOFT](#), London, UK.
June 2020
- High resolution synthetic face generation from large scale facial 3D scans
 - 6K- BRDF renderable, identity preserving 3D face&full-head reconstruction (published in CVPR 2020, published in TPAMI)
 - High quality, identity preserving 3D face reconstruction (published in CVPR 2019)
 - **Successful EXIT**
- Feb 2018 – **Research Engineer**, [VISIO IMPULSE](#), London, UK.
July 2018
- Unsupervised anomaly detection by auto-encoders and generative adversarial networks
 - Consultancy to Shell Global AI team on varying computer vision applications
 - 'Pumping gas while engine is on' detection with Mask-RCNN and activity recognition
 - Face verification
 - Masked face (burglary) detection
- Nov 2015 – **Computer Vision and Machine Learning Scientist**, [MIPS](#), Kayseri, Turkey.
June 2016
- Detection and tracking of sperm cells on microscopic videos with convolutional neural networks and 2D image morphology. Then their mobility is measured based on tracking for diagnosis. The startup has received many awards and investment after this project.

Open Source

- March 2021 – **Contributor**, [INSIGHTFACE.AI](#), Github.
Dec 2022
- The open-source project has over 24K stars 5.5K forks on [Github](#)
 - Contributed in terms of 3D Face Reconstruction and Synthesis

Research

Oct 2016 – **Research Assistant**, IMPERIAL COLLEGE, London, UK.

April 2019 *Groups:* - Intelligent Behaviour Understanding Group (**iBUG**)
- Imperial Computer Vision & Learning Lab (**ICVL**)
- (collaboration with) Centre for Vision, Speech and Signal Processing (**CVSSP**)

Projects: - **FACER2VM** (EPSRC)
· Proposed a generative adversarial framework to generate photorealistic face images of new identities with wide ranges of expressions, poses, and illuminations conditioned by a 3D morphable model (published in **ECCV 2018**).
· Set-based face recognition by max-margin Loss and SVMs (published in **ICCVW 2017**).
- **TeSLA: An Adaptive Trust-based e-assessment System for Learning (EU)**
· Cutting edge face verification system for an e-assessment platform.

Sep 2014 – **Research Assistant**, BILKENT UNIVERSITY, Ankara, Turkey.

Jun 2016 *Group:* - **RETINA Vision and Learning Group**

Projects: - **Detection and classification of whole-slide breast histopathology (TUBITAK)**
· Proposed a cascaded framework on detection and classification of whole-slide breast histopathology images by mimicking pathologists with deep convolutional learning (published in **PR 2018**)
· Applied some visualization techniques for better understanding of the learned features and the overall information captured by the network.
· Implemented segmentation of breast tissue by graph cut on superpixels

Mar 2013 – **Research Intern**, UNIVERSITY OF GRONINGEN, Groningen, The Netherlands.

Jun 2013 *Group:* - **Intelligent Systems Lab.**

Project: - **Colour COSFIRE Filters**
· Developed an innovative method for joint object detection and recognition that combines shape and color information (published in **IMAVIS 2017**)

Teaching

Oct 2017 – **Teaching Assistant**, IMPERIAL COLLEGE, London, UK.

Jun 2018 ○ M.Eng. student supervision: **Guillaume Rame**

- EE462 Computer Vision (Spring 2018)
- EE468 Pattern Recognition (Fall 2017)
- EE1-10 Mathematics I (Fall 2017)

Sep 2014 – **Teaching Assistant**, BILKENT UNIVERSITY, Ankara, Turkey.

Jun 2016 ○ CS464 Introduction to Machine Learning (Spring 2016)

- CS484 Image Analysis (Fall 2015)
- CS113 Introduction to Computing for Engineers (Spring 2015)
- CS101 Algorithms and Programming 1 (Fall 2014)

Education

- 2016 – 2020 **Ph.D. in Computing**, *Imperial College, London, UK*.
- *Advisor*: Stefanos Zafeiriou
 - *Collaborator*: Josef Kittler and Tae-Kyun (T-K) Kim
 - *Topic*: Synthesization and Reconstruction of 3D Faces by Deep Neural Networks
- 2014 – 2016 **M.Sc in Computer Engineering**, *Bilkent University, Ankara, Turkey*.
- *Advisor*: Selim Aksoy
 - *Topic*: Computer Aided Analysis of Whole-Slide Breast Histopathology Images with Convolutional Neural Networks (thesis)
 - *GPA*: 3.86/4
- July 2015 **International Computer Vision Summer School (ICVSS)**, *Sicily, Italy*.
- *Theme*: Learning to See
 - *Speakers*: Y. Bengio, T. Brox, D. Buchmuller, D. Cremers, F-F. Li, M. Pollefeys, C. Snoek, S. Soatto, D. Tsao, A. Vedaldi, R.Vidal, T. Kanade, S. Mallat, E. N. Superieure, M.Zeiler
- 2009 – 2014 **B.Sc in Computer Engineering**, *Hacettepe University, Ankara, Turkey*.
- *GPA*: 3.55/4
 - 5th/112 – with High Honors
- 2012 – 2013 **Erasmus exchange student (B.Sc)**, *University of Groningen, The Netherlands*.
- *GPA*: 8.43/10
 - followed [M.Sc Artificial Intelligence](#) program

Patents

- [US12149757B1](#) Wenbin Ouyang, Naveen Sudhakaran Nair, **Baris Gecer** & Ali Abdool. *Inserting supplemental data into image data*. Filing Date 29 Jun 2023, Publication Date 19 Nov 2024, Grant Date 19 Nov 2024 **Status: Granted**
- [GB2581374](#) **Baris Gecer** & Stefanos Zafeiriou. *3D Face Reconstruction System and Method*. [WO2020165557](#) Filing Date 14 Feb 2019, Publication Date 19 Aug 2020, Grant Date 12 Apr 2022 **Status: Granted**
- [GB2585708](#) **Baris Gecer** & Stefanos Zafeiriou. *Generating Three-Dimensional Facial Data*. Filing Date 15 Jul 2019, Publication Date 20 Jan 2021, Grant Date 07 Jun 2022 **Status: Granted**
- [GB2593441](#) Stefanos Zafeiriou, Alexandros Lattas, Stylianos Moschoglou, Stylianos Ploumpis, & [WO2021164759](#) **Baris Gecer**. *Three-Dimensional Facial Reconstruction*. Filing Date 21 Feb 2020, Publication Date 29 Sep 2021 **Status: Granted**

Publications

- [ICCV 2023](#) Urwa Muaz, Wondong Jang, Rohun Tripathi, Santhosh Mani, Wenbin Ouyang, Ravi Teja Gadde, **Baris Gecer**, Sergio Elizondo, Reza Madad & Naveen Nair. *SIDGAN: High-Resolution Dubbed Video Generation via Shift-Invariant Learning*. International Conference on Computer Vision 2023
- [CVPR 2023](#) Alexandros Lattas, Stylianos Moschoglou, Stylianos Ploumpis, **Baris Gecer**, Jiankang Deng, & Stefanos Zafeiriou. *FitMe: Deep Photorealistic 3D Morphable Model Avatars*. In conference on Computer Vision and Pattern Recognition 2023

- WACV 2023 Stathis Galanakis, **Baris Gecer**, Alexandros Lattas, & Stefanos Zafeiriou. *3DMM-RF: Convolutional Radiance Fields for 3D Face Modeling*. IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023
- FG 2023 Xingyu Ren, Alexandros Lattas, **Baris Gecer**, Jiankang Deng, Chao Ma, Xiaokang Yang, & Stefanos Zafeiriou. *Facial Geometric Detail Recovery via Implicit Representation*. International Conference on Automatic Face and Gesture Recognition 2023
- CVPR 2022 Amin Jourabloo, **Baris Gecer**, Fernando De la Torre, Jason Saragih, Shih-En Wei, Stephen Lombardi, Te-Li Wang, Danielle Belko, Autumn Trimble, Hernan Badino. *Robust Egocentric Photo-realistic Facial Expression Transfer for Virtual Reality*. In conference on Computer Vision and Pattern Recognition 2022
- ECCV 2022 Athanasios Papaioannou, **Baris Gecer**, Shiyang Cheng, Grigorios Chrysos, Jiankang Deng, Eftychia Fotiadou, Christos Kampouris, Dimitrios Kollias, Stylianos Moschoglou, Kritaphat Songsri-In, Stylianos Ploumpis, George Trigeorgis, Panagiotis Tzirakis, Evangelos Ververas, Yuxiang Zhou, Allan Ponniah, Anastasios Roussos, & Stefanos Zafeiriou. *MimicME: A Large Scale Diverse 4D Database for Facial Expression Analysis*. In European Conference on Computer Vision 2022
- TPAMI 2021 **Baris Gecer**, Stylianos Ploumpis, Irene Kotsia, & Stefanos Zafeiriou. *Fast-GANFIT: Generative Adversarial Network for High Fidelity 3D Face Reconstruction*. IEEE transactions on pattern analysis and machine intelligence (2021).
- TPAMI 2021 Alexandros Lattas, Stylianos Moschoglou, Stylianos Ploumpis, **Baris Gecer**, Abhijeet Ghosh, & Stefanos Zafeiriou. *AvatarMe++: Facial Shape and BRDF Inference with Photorealistic Rendering-Aware GANs*. IEEE transactions on pattern analysis and machine intelligence (2021).
- CVPR 2021 **Baris Gecer**, Jiankang Deng & Stefanos Zafeiriou. *OSTeC: One-Shot Texture Completion*. In conference on Computer Vision and Pattern Recognition 2021
- Ph.D. Thesis 2020 **Baris Gecer**. *Synthesization and Reconstruction of 3D Faces by Deep Neural Networks*. Diss. Imperial College London, 2020.
- TPAMI 2020 Stylianos Ploumpis, Evangelos Ververas, Eimear O' Sullivan, Stylianos Moschoglou, Haoyang Wang, Nick Pears, William A. P. Smith, **Baris Gecer**, & Stefanos Zafeiriou. *Towards a complete 3D morphable model of the human head*. IEEE transactions on pattern analysis and machine intelligence (2020).
- CVPR 2020 Alexandros Lattas, Stylianos Moschoglou, **Baris Gecer**, Stylianos Ploumpis, Vasileios Triantafyllou, Abhijeet Ghosh, & Stefanos Zafeiriou. *AvatarMe: Realistically Renderable 3D Facial Reconstruction "in-the-wild"*. In conference on Computer Vision and Pattern Recognition 2020
- ECCV 2020 **Baris Gecer**, Alexander Lattas, Stylianos Ploumpis, Jiankang Deng, Athanasios Papaioannou, Stylianos Moschoglou, & Stefanos Zafeiriou. *Synthesizing Coupled 3D Face Modalities by Trunk-Branch Generative Adversarial Networks*. In European Conference on Computer Vision 2020
- CVPR 2019 **Baris Gecer**, Stylianos Ploumpis, Irene Kotsia, & Stefanos Zafeiriou. *GANFIT: Generative Adversarial Network Fitting for High Fidelity 3D Face Reconstruction*. In conference on Computer Vision and Pattern Recognition 2019

- ECCV 2018** **Baris Gecer**, Binod Bhattarai, Josef Kittler, & Tae-Kyun Kim. *Semi-supervised Adversarial Learning to Generate Photorealistic Images of New Identities from 3D Morphable Model*. In European Conference on Computer Vision 2018
- PR 2018** **Baris Gecer**, Selim Aksoy, Ezgi Mercan, Linda G. Shapiro, Donald L. Weaver, and Joann G. Elmore. *Detection and Classification of Cancer in Whole Slide Breast Histopathology Images Using Deep Convolutional Networks*. Pattern Recognition, Special Issue on Deep Learning for Computer Aided Cancer Detection and Diagnosis with Medical Imaging, 84 (2018): 345-356
- ICCVW 2017** **Baris Gecer**, Vassileios Balntas, and Tae-Kyun Kim. *Learning Deep Convolutional Embeddings for Face Representation Using Joint Sample-and Set-Based Supervision*. In IEEE International Conference on Computer Vision, pp. 1665-1672. 2017.
- IMAVIS 2017** **Baris Gecer**, George Azzopardi, and Nicolai Petkov. *Color-blob-based COSFIRE filters for object recognition*. Image and Vision Computing 57 (2017): 165-174.
- M.Sc Thesis 2016** **Baris Gecer**. *Detection and Classification of Breast Cancer in Whole Slide Histopathology Images Using Deep Convolutional Networks*. Diss.Bilkent University, 2016.

Computer skills

- Github Profile github.com/barisgecer
- Frameworks PyTorch, Tensorflow, Keras, MatConvNet
- 3D Graphics Blender, MeshLab, SketchUp, Lumion
- Programming PYTHON, MATLAB, JAVA, C/C++
- Tools Git, L^AT_EX

Academic Activities

- Since 2017 Oral/Poster presentation at CVPR/ICCV/ECCV and various workshops
- Aug 2017 Student member of IEEE
- Sep 2017 Student Volunteer as [Videographer](#) at BMVC 2017
- Reviewer
- CVPR 2021 (Outstanding Reviewer), 2020, 2019
 - ICCV 2019, 2017
 - ECCV 2020, 2018
 - AAAI 2020
 - IJCV (Special Issue on Deep Learning for Face Analysis)
 - JMI
 - CVIU
 - BMVC 2018

Awards & Recognitions

- Jun 2022 Endorsed by [Tech Nation](#) as 'Exceptional Talent' for Global Talent Visa of UK
- Nov 2015 Ministry of Education PhD scholarship for tuition and living expenses for 4 years
- Sep 2014 [TUBITAK ARDEB](#) scholarship for 2 years of M.Sc program
- Sep 2012 Scholarship for the expenses of 10 months Erasmus exchange program in Netherlands

Oct 2012 Regional representative at the [ACM ICPC](#) southeastern regional programming contest
Apr 2012 3rd place in [ACM ICPC](#) programming contest in Hacettepe University
Feb 2012 Microsoft Student Partner [MSP](#)
Mar 2010 2nd place in Hacettepe University programming contest
Sep 2009 Hacettepe Excellence scholarship during B.Sc program
Jan 2008 [InfoMatrix](#) international programming contest finalist during high school