

# Baris Gecer, PhD

## Curriculum Vitae

+44 739 723 6957  
barisgecer@msn.com  
barisgecer.github.io

### 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. Superiore, M. Zeiler
- 2009 – 2014 **B.Sc in Computer Engineering**, *Hacettepe University, Ankara, Turkey*.  
◦ *GPA*: 3.55/4  
◦ 5<sup>th</sup>/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

- [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  
[WO2021008444](#) 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: Awaiting Re-examination**

## Publications

- 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.

## Experience

### Research

- June 2020 – **Senior Research Scientist**, [HUAWEI](#), London, UK.  
Present
- October 2019 – **Computer Vision Scientist**, [FACEISOFT](#), London, UK.
- High resolution synthetic face generation from large scale facial 3D scans
- June 2020
- 6K- BRDF renderable, identity preserving 3D face&full-head reconstruction (published in CVPR 2020, published in TPAMI)
- 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**, [FACEISOFT](#), London, UK.
- April 2019
- High resolution synthetic face generation from large scale facial 3D scans
  - High quality, identity preserving 3D face reconstruction (published in CVPR 2019)
- 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
- 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.
- 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.

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)

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### Computer skills

Github Profile [github.com/barisgecer](https://github.com/barisgecer)

Programming PYTHON, MATLAB, JAVA, SHELL, C/C++, C#, JAVASCRIPT, SQL, ASSEMBLY

Frameworks Tensorflow, Keras, MatConvNet, PyTorch

Tools Git,  $\LaTeX$

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### 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

- 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 3<sup>rd</sup> place in [ACM ICPC](#) programming contest in Hacettepe University
- Feb 2012 Microsoft Student Partner [MSP](#)
- Mar 2010 2<sup>nd</sup> 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