Berk Tınaz
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Education

- **University of Southern California (USC)** — Los Angeles, CA
  Ph.D. Student in Electrical and Computer Engineering; GPA: 4.00/4.00 — *Aug 2020 – Present*
  Advisor: Prof. Shrikanth (Shri) Narayanan
- **Bilkent University** — Ankara, TR
  Bachelor of Science in Electrical and Electronics Engineering; GPA: 3.95/4.00 — *Sep 2016 – June 2020*
  Graduation Rank: 5/153
- **City University of Hong Kong** — Kowloon, HK
  Exchange Student in Electrical Engineering — *Jan 2019 – May 2019*
- **Ankara Ataturk Anatolian High School** — Ankara, TR
  Graduation GPA: 95.34/100 — *Sep 2012 – June 2016*

Honors and Awards

- **OpenCV AI Competition**: Finalist among 1400+ submissions, 2021
- **USC Viterbi School of Engineering/Graduate School Fellowship**: Full tuition waiver & stipend during the first year of Ph.D. program, 2020
- **Bilkent University Graduate Research Conference (GRC)**: Best paper award for the publication "Semi-supervised learning of mutually accelerated multi-contrast MRI synthesis without fully-sampled ground-truth", 2020
- **Bilkent University High Honor Student**: High honor student for 8 consecutive semesters, 2016-2020
- **Bilkent University Comprehensive Scholarship**: Full tuition waiver & stipend during the B.Sc. program, 2016-2020
- **Crossing Paths Internship Abroad Scholarship**: Selected as 1 of 6 people to receive financial aid for the internship abroad among thousands of applicants, 2018
- **IEEExtreme 11.0 Programming Competition**: Ranked 3^{rd} in Turkey, 39^{th} in IEEE region 8 and 116^{th} among all participants as a team of three, 2017
- **Turkish Intelligence Foundation (TZV) Marathon**: Ranked 11^{th}, 19^{th}, and top 20; 2017, 2018, 2020
- **Nationwide University Entrance Exam (LYS)**: Ranked 139^{th} among 2 million students in Turkey, 2016
- **4th Private Ari Schools Mathematics Olympiad**: Honorable mention, 2012

Work Experience

- **Signal Analysis and Interpretation Lab (SAIL) at USC** — Los Angeles, CA
  Research Assistant — *Aug 2020 - Present*
  - Personal Attribute Classification: Currently working on training single-stage object detector for detecting and labeling person bounding boxes with gender and age labels in a missing labeled dataset.
- **National Magnetic Resonance Research Center (UMRAM)** — Ankara, TR
  Undergraduate Researcher & Research Intern — *Oct 2018 - Apr 2020*
  - Integrating determinantal point process (DPP) sampling as an active learning technique to advance adversarial learning protocols.
  - Transfer learning to enhance generalizability and reliability of MRI synthesis by learning the mapping among different MRI datasets to standardize intensity differences.
  - Semi-supervised learning of accelerated multi-contrast MRI synthesis, undersampled across both contrast sets and k-space coefficients by leveraging randomized sampling masks across training subjects, under the supervision of Prof. Tolga Çukur.
  - Related concepts: Semi-Supervised Learning, Point Processes, Generative Adverserial Networks (GAN), CNNs, Pix2Pix, PyTorch
- **Imperial College London** — London, UK
  Research Intern at Intelligent Behaviour Understanding Group (iBUG) — *July 2018 - Sept 2018*

- Contributed to the development of a novel audio-visual dataset, and detection of blinks and mouth openings in videos.
- Integrated a face detection algorithm to an existing face alignment tool which increased the performance over 45° poses under the supervision of Prof. Maja Pantic and Dr. Stavros Petridis.
- Used: Python (PyTorch, OpenCV, Dlib, Matplotlib), Git, Linux

- **FNSS Defense Industries Inc.** Ankara, TR
  Summer Intern at R & D Department *June 2018 - July 2018*
  - Worked on a project in which I've practised CAN bus protocol on the STM32 microcontroller.

Journal Publications

[1] M. Yurt, M. Ozbey, S. U. H. Dar, **B. Tinaz**, and T. Çukur, "Progressively volumetrized deep generative models for data-efficient contextual learning of MR image recovery", Preprint, to be submitted to *Nature Machine Intelligence*, 2020. [Online]. Available: https://arxiv.org/abs/2011.13913.

[2] M. Yurt, S. U. H. Dar, **B. Tinaz**, M. Ozbey, and T. Çukur, "Semi-supervised learning of mutually accelerated multi-contrast MRI synthesis without fully-sampled ground-truths", Preprint, to be submitted to *IEEE Transactions on Medical Imaging*, 2020. [Online]. Available: https://arxiv.org/abs/2011.14347.

[3] S. U. H. Dar, M. Yurt, M. Shahdloo, M. E. Ildiz, **B. Tinaz**, and T. Çukur, "Prior-guided image reconstruction for accelerated multi-contrast MRI via generative adversarial networks", *IEEE Journal of Selected Topics in Signal Processing*, vol. 14, no. 6, pp. 1072–1087, 2020. [Online]. Available: https://ieeexplore.ieee.org/document/9115255.

Peer-Reviewed Conference Publications

[4] M. Yurt, **B. Tinaz**, M. Ozbey, S. U. H. Dar, and T. Çukur, "Semi-supervised learning of multi-contrast MR image synthesis without fully-sampled ground-truth acquisitions", in *Medical Imaging Meets NeurIPS*, Virtual Conference, Dec. 2020.

[5] M. Yurt, **B. Tinaz**, S. U. H. Dar, M. Ozbey, and T. Çukur, "A semi-supervised learning framework for jointly accelerated multi-contrast MRI synthesis without fully-sampled ground-truths", in *29th annual meeting of International Society for Magnetic Resonance Imaging (ISMRM)*, Vancouver, May 2021 (submitted).

[6] M. Yurt, M. Ozbey, S. U. H. Dar, **B. Tinaz**, and T. Çukur, "Progressive volumetrization of cross-sectional image recovery tasks for data-efficient contextual learning in MRI", in *29th annual meeting of International Society for Magnetic Resonance Imaging (ISMRM)*, Vancouver, May 2021 (submitted).

Skills

- **Language**: English (fluent, TOEFL iBT: 109/120), Turkish (native)
- **Programming**: Python, MATLAB, C/C++, R
- **Libraries**: PyTorch, Scikit-Learn, OpenCV, NumPy, Matplotlib
- **Others**: Git, LaTeX, Java, Microsoft Office Applications, Android Studio, FSL5.0, LTSpice, VHDL, Assembly (8051)

Projects

- **Drone Localization and Field Mapping (2019-2020)**: Worked on UAV simultaneous mapping and localization (SLAM) and high-precision photogrammetry as a group of six under the supervision of Prof. Orhan Arikan for our senior project course. The project was funded by ASELSAN and state of the art RTK-GPS receivers were used to achieve 3 cm accuracy in mapping.
- **Knockurity (2018)**: Knock detection based customizable home security system implemented on FRDM-KL25Z using C++ for the EE212 "Microprocessors" course project.
- **Space Invaders Clone (2017)**: Implemented the world-renowned arcade game "Space Invaders" on the FPGA board Basys3 using VHDL as the EE102 "Introduction to Digital Design" course project. Rewarded as 1 of 4 "Best Projects".

- **UniCal (2017)**: As a team of 5, we developed an Android application called "UniCal" from scratch by using Android Studio for the CS102 "Algorithms and Programming" course project. "UniCal" is a life organization application and it helps you to plan your week and track your assignments.
- **AAALRUN (2014)**: As a team of 5 volunteer high school students, we made an endless runner game (e.g. "Temple Run") called "AAALRUN" using the Unity engine. I designed logos, banners and models that were used in the game.

Extracurricular Activities and Hobbies

- **USC exploreCSR Workshop Series on Computational Media Intelligence (2021)**:
  - Mentoring undergraduates through workshop series in computational media intelligence sponsored by Google Research.
- **Bilkent IEEE Student Branch Active Member (2016-2020)**:
  - "Road to University" Volunteer (2016-2017): Introducing engineering and campus life to high school students from all around Turkey.
  - Graphics Design Team: Made several posters for the events organized by the student branch of IEEE.
- **Hobbies**: Playing the piano, Image editing/design (Photoshop), Travelling, Hiking/Camping, Reading, Trekking, Squash