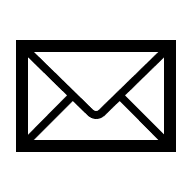
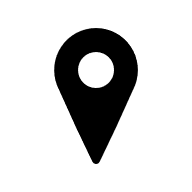
# A qr code with a white background AI-generated content may be incorrect.Smart Phone with solid fill**TOYGAN KILIC**

+1 (612) 895-0570 |  toygank@gmail.com | Minnesota, USA | ![A black background with a black square

AI-generated content may be incorrect.](data:image/png;base64,iVBORw0KGgoAAAANSUhEUgAAACEAAAAhBAMAAAClyt9cAAAAAXNSR0IArs4c6QAAAARnQU1BAACxjwv8YQUAAAAVUExURQAAAAAAAAAAAAAAAAAAAAAAAAAAABIBAKQAAAAHdFJOUwD/97ut7AZLz9OkAAAACXBIWXMAACHVAAAh1QEEnLSdAAAASklEQVQoz2NgIBMIIgEBkAAjsoggRSJIohARAQwRIQwRYkwGmgNBqCLMEP8gicAcgiTCwsDAiiLCBvI3qskg3uAQISfkMeOUHAAAQdARj6IAK1MAAAAASUVORK5CYII=) [linkedin.com/in/toygan-kilic/](https://www.linkedin.com/in/toygan-kilic/)

**PROFESSIONAL SUMMARY**

*I began my career with a strong focus on classical* ***signal and image processing****, where I learned the fundamentals of* ***optimization and developed algorithms*** *for applications such as MR image reconstruction, camera imaging, and radar SAR systems. This early experience gave me a solid foundation in physics-based modeling and classical approaches to* ***inverse problems****. Wanting to expand my expertise and explore the potential of* ***machine learning****, I moved to the United States to pursue my Ph.D. My doctoral research centers on* ***deep learning and optimization*** *for ultra-high-field MRI, with a particular emphasis on parallel transmit (pTx) pulse design and advanced diffusion-weighted imaging reconstruction. By combining classical signal processing principles with modern* ***ML/DL*** *frameworks, including* ***convolutional neural networks, score-based generative models, and physics-informed neural networks****, I aim to create innovative solutions that address some of the problems in next-generation MRI.*

**SKILLS**

**Skills:** Python, PyTorch, VHDL, Linux/Unix, Git, GitHub, MATLAB, C++, MRI, IDEA, MLflow

**EDUCATION**

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| **University of Minnesota - Twin Cities** | **September 2021 - January 2026** |
| *PhD, Electrical and Computer Engineering* | *GPA: 4.00* |

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| **Bilkent University** | **January 2016 - February 2019** |
| *Master's, Electrical and Electronics Engineering* | *GPA: 3.41* |

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| **Bilkent University** | **September 2011 - January 2016** |
| *Bachelor's, Electrical and Electronics Engineering* | *GPA: 3.45* |

**PROFESSIONAL EXPERIENCE**

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| **University of Minnesota - Twin Cities** | **Minnesota, USA** |
| *Research Assistant* | *August 2021 - Present* |

* Developed deep learning methods for inhomogeneity correction at 7T in pTx, in collaboration with Siemens
* Advanced diffusion-weighted MRI reconstruction using deep learning with physics-driven priors, score-based denoising
* Implemented optimization algorithms for pTx pulse design and reconstruction methods
* Published 1 journal article and 6 conference papers on MRI reconstruction and pTx methods

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| **ASELSAN** | **Ankara, Turkey** |
| *Digital Design Engineer* | *November 2020 - July 2021* |

* Implemented and optimized radar algorithms in FPGA to enhance system performance
* Integrated external components, employing communication protocols such as UART and I2C for FPGA

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| **ASELSAN** | **Ankara, Turkey** |
| *Radar System Engineer* | *May 2019 - November 2020* |

* Developed and implemented 3D radar imaging algorithms to achieve high-resolution and accurate spatial mapping
* Designed and implemented radar algorithms for target detection and classification
* Determined the system requirements and specifications for radar systems
* Radar link-budget analysis and radar system performance analysis

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| **ORTANA Electronic Software Contracting Inc.** | **Ankara, Turkey** |
| *R&D Engineer* | *August 2018 - May 2019* |

* Implemented and optimized HDR imaging algorithms, incorporating insights from relevant articles
* Implemented camera processing pipeline, white balance, demosaicing, and gamma correction in C++ and MATLAB
* Tested the camera image quality using Imatest Software to test sharpness, noise, and color response
* Build a camera image quality test laboratory

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| **Bilkent University** | **Ankara, Turkey** |
| *Research Assistant* | *January 2016 - February 2019* |

* Designed and implemented multi-contrast MRI reconstruction methods for parallel imaging
* Programmed pulse sequences on Siemens IDEA to enable compressed sensing
* Collaborated with radiologists to apply methods to time-of-flight (TOF) angiography, improving vessel visualization
* Conducted extensive in vivo experiments to validate reconstruction strategies

**INTERNSHIPS**

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| **Greinon Engineering AB** | **Lund, SN, Sweden** |
| *Embedded Software Engineer (Intern)* | *January 2015 - February 2015* |

* Implemented communication between IoT devices using CC3200 Launchpad

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| **ASELSAN** | **Ankara, Turkey** |
| *Digital Design Engineer (Intern)* | *June 2013 - September 2013* |

* Implemented Hadamard Transform using DSP Builder, a toolbox in Simulink that can generate VHDL code

**PUBLICATIONS**

**Journal Publications**

* **T Kilic,** P Liebig, OB Demirel, J Herrler, A Nagel, K Ugurbil, M Akcakaya *“Unsupervised Deep Learning with Convolutional Neural Networks for Static Parallel Transmit Design: A Retrospective Study”*, MRM, DOI: 10.1002/mrm.30014
* E Kopanoglu, A Gungor, **T Kilic**, EU Saritas, KK Oguz, T Cukur, HE Guven *“Simultaneous use of Individual and Joint Regularization Terms in Compressive Sensing: Joint Reconstruction of Multi-Channel Multi-Contrast MRI Acquisitions”*, NMR in Biomedicine, DOI: 10.1002/nbm.4247
* OB Demirel, **T Kilic**, T Cukur, EU Saritas *“Anatomical Measurements Correlate with Individual Magnetostimulation Thresholds for kHz-range Homogeneous Magnetic Fields”*, Medical Physics, 47: 1836–1844, 2020 DOI: 10.1002/mp.14032
* LK Senel, **T Kilic**, A Gungor, E Kopanoglu, HE Guven, EU Saritas, A Koc, T Cukur *“Statistically Segregated k-Space Sampling for Accelerating Multiple-Acquisition MRI”*, IEEE Trans Med Imag, 38(7):1701–1714, 2019 DOI: 10.1109/TMI.2019.2892378

**Conference Publications**

* **T Kilic**, YU Alcalar, S Moeller, M Akcakaya *“Phase-Adaptive Averaging and Score-Based Denoising for Inverse Problems in Diffusion Imaging” Proc. Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA,*
* **T Kilic**, J Herrler, P Liebig, OB Demirel, A Nagel, K Ugurbil, M Akcakaya*“Towards Fast Hard-Constrained Parallel Transmit Design in Ultrahigh Field MRI With Physics-Driven Neural Networks”* , ISBI, May 2024
* **T Kilic**, J Herrler, P Liebig, OB Demirel, A Nagel, K Ugurbil, M Akcakaya*“Towards Physics-Driven Neural-Network pTx Design with Hard Constraints”* , Proc. 32nd ISMRM, Singapore, May 2024
* OB Demirel, C Zhang, B Yaman, **T Kilic**, S Moeller, C Shenoy, S Weingärtner, T Leiner, M Akçakaya *“Database-Free ZS-Deep Learning Reconstruction for Highly-Accelerated Free-Breathing Perfusion CMR”* , Proc. 31st ISMRM, Toronto, Canada, p.0388, June 2023
* **T Kilic**, P Liebig, OB Demirel, J Herrler, A Nagel, K Ugurbil, M Akçakaya *“Unsupervised Deep Learning for Fast Parallel Transmit Design”* ISMRM Workshop on Ultra-High Field MR, March 2022
* OB Demirel, **T Kilic**, T Cukur, EU Saritas *“Simple Anatomical Measures Correlate with Individual PNS Thresholds for kHz-range Homogeneous Magnetic Fields”* Proc. 28th ISMRM, Virtual Conference, p.1127, August 2020
* E Kopanoglu, A Gungor, **T Kilic**, EU Saritas, K Oguz, T Cukur, HE Guven *“Multi-Channel Multi-Contrast Reconstructions via Simultaneous Use of Individual and Joint Regularization Terms”* Proc. 27th ISMRM, Montreal, Canada, p.4748, May 2019
* E Kopanoglu, A Gungor, **T Kilic**, EU Saritas, T Cukur, HE Guven *“Compressive Sensing Reconstruction for Multi-Contrast Data with Unequal Acceleration Rates”* Proc. 26th ISMRM, Paris, France, p.3534, June 2018
* **T Kilic**, O Algin, T Cukur, EU Saritas *“Joint Partial Fourier and Compressed Sensing Reconstruction for Accelerated Time-of-Flight MR Angiography”* Proc. 26th IEEE SIU, Izmir, Turkey, May 2018
* **T Kilic**, E Ilicak, T Cukur, EU Saritas *“Improved SPIRiT Operator for Joint Reconstruction of Multiple T2-Weighted Images”* Proc. 25th ISMRM, Hawaii, USA, p.5165, April 2017
* E Kopanoglu, A Gungor, **T Kilic**, EU Saritas, T Cukur, HE Guven *“Joint Reconstruction of Multi-Contrast Images Using Joint and Individual Regularization”* Proc. 25th ISMRM, Hawaii, USA, p.3875, April 2017