

# Sevgi Gokce Kafali, M.S.

skafali@mednet.ucla.edu | +1-310-721-7168 | [https://mrrl.ucla.edu/wulab/sevgi\\_kafali](https://mrrl.ucla.edu/wulab/sevgi_kafali)

---

## EDUCATION

### University of California, Los Angeles

*Ph.D. Candidate in Bioengineering*  
*M.S. in Bioengineering, GPA: 3.78*

Los Angeles, CA, USA  
07/2020- present  
09/2018-06/2020

### Bilkent University

*M.S. in Electrical and Electronics Engineering*  
*B.S. in Electrical and Electronics Engineering*

Ankara, Turkey  
09/2015-04/2018  
09/2011-08/2015

### University of Erlangen-Nuremberg

*Electrical and Electronics Engineering, Exchange student*

Erlangen, Germany  
03/2014-08/2014

## EXPERIENCE

### Siemens Healthineers

*Biomedical Engineering PhD Intern*

Los Angeles, CA, USA  
06/2021-09/2021

### University of California, Los Angeles

*Research Assistant*

Los Angeles, CA, USA  
09/2018-present

- *Project 1:* to improve the current prototype free-breathing liver MR elastography technique with faster data acquisition and motion compensation in children and adults in comparison with the reference standard breath-held MR elastography.
- *Project 2:* to segment the adipose tissue (visceral and subcutaneous) in MR images using deep learning to detect future risks associated with liver diseases in adults and children.

*Teaching Assistant*

- Advanced Topics in Magnetic Resonance Imaging M229
- Physics of Diagnostic Radiology PBM205

Spring 2020, Spring 2021  
Fall 2019

### Bilkent University

*Research Assistant*

Ankara, Turkey  
02/2015-04/2018

- Enhanced the image quality in diffusion weighted MRI images of the spinal cord by eliminating low SNR limitations and phase issues induced by physiological motion.

*Teaching Assistant*

- Signals & Systems EEE321
- Microprocessors EEE212
- Engineering Mathematics MATH241

Fall 2017  
Spring 2016, Fall 2016, Spring 2017, Spring 2018  
Fall 2015

## RESEARCH INTERESTS

Medical Image Processing, Deep Learning and Neural Networks, Quantitative Magnetic Resonance Imaging (MRI), Medical Image Reconstruction

## ACHIEVEMENTS and AWARDS

*Magna Cum Laude Award*  
*Travel Grant Award*  
*Bioengineering Department Fellowship*  
*Educational Stipend*  
*100% Merit Scholarship for MS studies*  
*Monthly Stipend for MS studies*  
*50% Merit Scholarship for BS studies*

ISMRM 2017, 2020  
IEEE ISBI 2020  
University of California, Los Angeles 2018  
ISMRM 2016-2018  
Bilkent University 2015-2018  
Bilkent University 2015-2018  
Bilkent University 2011-2015

## JOURNAL PUBLICATIONS

1. **SG Kafali**, T Armstrong, S Shih, GJ Kim, JL Holtrop, RS Venick, S Ghahremani, BD Bolster Jr., CM Hillenbrand, KL Calkins, HH Wu. *Free-Breathing Radial Magnetic Resonance Elastography of the Liver in Children at 3T: A Pilot Study*. Pediatric Radiology. 1-12. (2022).
2. X Zhong, T Armstrong, C Gao, MD Nickel, F Han, BM Dale, X Li, **SG Kafali**, P Hu, HH. Wu, V Deshpande. *Accelerated k-Space Shift Calibration for Free-Breathing Stack-of-Radial MRI Quantification of Liver Fat and  $R_2^*$* , Magn Reson Med. 87.1: 281-291 (2021).

3. **SG Kafali**, T Cukur and EU Saritas. *Phase-Correcting Non-Local Means Filtering for Diffusion Weighted Imaging of the Spinal Cord*, Magn Reson Med. 80.3: 1020-1035, (2018).

## CONFERENCE PAPERS

1. **SG Kafali**, S Shih, X Li, S Chowdhury, S Loong, S Barnes, Z Li, HH Wu. *3D Neural Networks for Visceral and Subcutaneous Adipose Tissue Segmentation using Volumetric Multi-Contrast MRI*, 2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC), pp. 3933-3937, doi: 10.1109/EMBC46164.2021.9630110 PMID: 34892092. (2021) **(Oral presentation)**
2. SF Shih, **SG Kafali**, T Armstrong, X Zhong, KL Calkins and HH Wu, *Deep Learning-Based Parameter Mapping With Uncertainty Estimation For Fat Quantification Using Accelerated Free-Breathing Radial MRI* 2021 IEEE 18th International Symposium on Biomedical Imaging (ISBI), pp. 433-437, doi: 10.1109/ISBI48211.2021.9433938. (2021) **(Oral presentation)**
3. **SG Kafali**, S Shih, D Ruan and HH Wu, *Adaptive Locally Low Rank and Sparsity Constrained Reconstruction for Accelerated Dynamic MRI* 2020 IEEE 17th International Symposium on Biomedical Imaging (ISBI), pp. 930-934, doi: 10.1109/ISBI45749.2020.9098461. (2020) **(Oral presentation, Travel Grant Award)**
4. **SG Kafali**, T Cukur, EU Saritas. *Simultaneous Phase-Correction and Denoising For Diffusion-Weighted MRI*, SIU, Zonguldak, Turkey, p. 1313-1316. (2016) **(Oral presentation)**

## CONFERENCE PROCEEDINGS

1. **SG Kafali**, S Shih, X Li, S Chowdhury, S Loong, S Barnes, Z Li, HH Wu. *Automated Adipose Tissue Segmentation using 3D Attention-Based Competitive Dense Networks and Volumetric Multi-Contrast MRI*, ISMRM, London, 2022. **(Oral presentation)**
2. **SG Kafali**, BD Bolster Jr., S Shih, GJ Kim, J Yeh, RS Venick, S Ghahremani, KL Calkins, HH Wu. *Self-Navigated Radial Free-Breathing Magnetic Resonance Elastography of the Liver with Rapid Motion Encoding in Children at 3T*, ISMRM, London, 2022. **(Oral presentation)**
3. J Story, **SG Kafali**, S Shih, K Kuwahara, KL Calkins, S Ghahremani, HH Wu. *Region-Based Pancreatic Fat Quantification Using Free-Breathing MRI Characterizes Fat Spatial Heterogeneity and is Associated with Insulin Resistance in Overweight Children*, Pediatric Academic Societies, 2022. **(Oral presentation)**
4. **SG Kafali**, S Shih, X Li, T Armstrong, K Kuwahara, S Govardhan, KV Ly, S Ghahremani, KL Calkins, HH Wu. *A Densely Connected Neural Network with Frequency Balancing Loss for Adipose Tissue Segmentation in Children using Free-Breathing Abdominal MRI*, ISMRM, Virtual conference, p2263, 2021.
5. J Story, **SG Kafali**, S Shih, KL Calkins, S Ghahremani, HH Wu. *Using Free-Breathing MRI to Characterize Heterogeneity of Pancreatic Fat in Children with Nonalcoholic Fatty Liver Disease*, ISMRM, Virtual conference, p354, 2021. **(Oral presentation, Magna Cum Laude Award)**
6. KM Strobel, **SG Kafali**, S Shih, R Masamed, KL Calkins, and HH Wu. *Quantifying Fetal and Maternal Body Composition using 3-D Stack-of-Radial Free-Breathing MRI*, ISMRM, Virtual conference, p2278, 2021.
7. S Shih, **SG Kafali**, T Armstrong, X Zhong, KL Calkins, and HH Wu. *Deep-learning Based Liver Fat and R2\* mapping with Uncertainty Estimation using Self-Gated Free-Breathing Stack-of-Radial MRI*, ISMRM, Virtual conference, p3847, 2021.
8. BA Barlas, CD Bahadir, **SG Kafali**, U Yilmaz, EU Saritas. *Off-resonance Robustness in Reduced FOV Imaging using Sheared 2DRF Excitation*, ISMRM, Virtual conference, p779, 2021. **(Oral presentation)**
9. KM Strobel, **SG Kafali**, S Shih, R Masamed, HH Wu, and KL Calkins. *Investigating fetal body composition using magnetic resonance imaging*. Western Society of Pediatric Research (WSPR), Virtual conference, 2021. **(Oral presentation, Abbot David W. Smith Pediatric Trainee Research Award)**
10. KM Strobel, **SG Kafali**, S Shih, R Masamed, HH Wu, and KL Calkins. *Maternal Adiposity and Gestational Diabetes are Associated with Fetal Liver Fat: A 3-D Free Breathing MRI Study*. Proceedings of the PAS Annual Meeting, 2021.
11. J Story, **SG Kafali**, S Shih, KL Calkins, S Ghahremani, HH Wu. *A Practical and Accurate Method to Quantify Pancreatic Fat on MRI in Children with Non-Alcoholic Fatty Liver Disease*. Western Society of Pediatric Research (WSPR), Virtual conference, 2021. **(Oral presentation)**
12. **SG Kafali**, S Shih, X Li, T Armstrong, KV Ly, S Ghahremani, KL Calkins, HH Wu. *Fully Convolutional Networks for Adipose Tissue Segmentation Using Free-Breathing Abdominal MRI in Healthy and Overweight Children*, ISMRM, Virtual conference, p71, 2020. **(Oral presentation, Magna Cum Laude Award)**
13. **SG Kafali**, T Armstrong, S Shih, JL Holtrop, RS Venick, S Ghahremani, BD Bolster Jr, CM Hillenbrand, KL Calkins, and HH Wu. *Assessment of Free-Breathing Radial Magnetic Resonance Elastography in Healthy Children and Children with Liver Disease at 3T*, ISMRM, Virtual conference, p87, 2020. **(Oral presentation, Magna Cum Laude Award)**
14. S Shih, T Armstrong, **SG Kafali**, X Zhong, KL Calkins, HH Wu. *Rapid Free-Breathing Volumetric Liver Fat and R2\* Quantification using Soft-Gating and Sparsity-Promoting Tensor Reconstruction*, ISMRM, Virtual conference, p330, 2020. **(Oral presentation, Magna Cum Laude Award)**
15. D Cho, **SG Kafali**, S Shih, T Armstrong, S Ghahremani, HH Wu, KL Calkins. *Measuring Infant Body Composition with Free-Breathing MRI*, California Association of Neonatologists (CAN), Coronado, USA, 2020

16. S Shih, **SG Kafali**, X Li, X Zhong, T Armstrong, HH Wu. *Deep Learning-Based Reconstruction for Radial MRI using Magnitude and Phase Dense U-Nets*, ISMRM Workshop on Data Sampling and Reconstruction, Sedona, USA, 2020
17. **SG Kafali**, AC Aydinkarahaliloglu, T Cukur and EU Saritas. *Anisotropic Diffusion Filter for Simultaneous Combination and Denoising of Multiple Acquisitions in DWI of the Spinal Cord*, ISMRM, Paris, France, p.1626, 2018.
18. **SG Kafali**, T Cukur and EU Saritas. *Joint Non-local Means Reconstruction for Correction of Phase-Induced Errors in Diffusion Tensor Imaging.*, ISMRM, Hawaii, USA, p.3332. 2017. (**Magna Cum Laude Award**)
19. **SG Kafali**, T Cukur and EU Saritas. *Phase-correcting Non-local Means Denoising for Diffusion-Weighted Imaging*, ISMRM, Singapore, p.2050, 2016.

### **SKILLS**

#### Programming skills

- MATLAB (advanced level)
- Python (PyTorch-advanced level, TensorFlow-basic level)
- C/C++ (basic level)

#### Language skills

- English, Fluent, TOEFL: 105 (2018), IELTS: 8.0 (2018)
- German, Intermediate, B2 certificate (2015)
- Turkish, Native

#### Miscellaneous

- Siemens MR scanner operation

### **ACADEMIC SOCIETIES**

International Society in Magnetic Resonance in Medicine (ISMRM)

Institute of Electrical and Electronics Engineers (IEEE)

Radiological Society of North America (RSNA)

### **RELEVANT COURSES**

Signal and Image Processing for Biomedicine, Digital Image Processing, Deep Learning and Neural Networks, Advanced Topics in Magnetic Resonance Imaging, Foundations of Magnetic Resonance Imaging, Biomedical Instrumentation