Nejat Yigit Can

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EDUCATION

University of Southern California **Los Angeles, CA**
Ph.D. in Biomedical Engineering Aug 2022 – present

- **Research Areas:** Low-field MRI, Image Processing

University of Rochester **Rochester, NY**
B.S. in Biomedical Engineering September 2018 – May 2022

- **Honors and Scholarships:** International Baccalaureate Scholarship, Dean's List, Jesse L Rosenberger Prize
- **Selected Courses:** Medical Imaging, Signals & Systems, MATLAB for BME, Quantitative Physiology

RESEARCH EXPERIENCE

University of Southern California **Los Angeles, CA**
Research Assistant Aug 2022 – present

- Designing a novel higher-order dynamic MRI reconstruction with physics-based concomitant field correction

Martinos Center for Biomedical Imaging (Harvard-MIT-MGH) **Boston, MA**
Research Intern May 2021 – Nov 2021

- Designed and trained a physics-based unsupervised deep learning model for 4-dimensional tensor estimation for DTI in TensorFlow
  - Outperformed runtime of conventional computation technique (linear least squares) by over an order of magnitude (runtime improved from 16.76s to 0.96s); Network performance was high fidelity at an SSIM of 0.93 and PSNR of 39.2 dB
- Awarded competitive stipend

University of Rochester **Rochester, NY**
Research Assistant, Lee Lab and Yoon Lab April 2019 – May 2021

- Researched non-contact optical methods to measure the human cornea's mechanical properties *in vivo* by exploiting the phenomenon of Brillouin scattering.
- Designed and manufactured devices used in research experiments, saved the lab >$15,000
  - Tools used: CAD (Solidworks), Arduino, C++ for hardware programming, 3D printing
- Used MATLAB to analyze mechanical loads on mice during ACL rupture *(Summer 2020)*
- Independently investigated calcium activation of Piezo channels in knee cartilage *(Summer 2019)*

PUBLICATIONS

Can, NY, Lee, NG, Tian, Y, Nayak, KN. (2024). Improved large-FOV dynamic MRI with concomitant field correction, *ISMRM Annual Meeting 2024*.

Can, NY, Tian, Q, Bilgic, B. (2021). Physics-based unsupervised deep learning for rapid DTI tensor estimation, *ISMRM Diffusion Study Group 2021*. **(Oral Presentation)**

Kotelsky, A, Anissa, E, **Can, NY**, Proctor, A, Mannava, S, Prösche, C, Lee, W. (2021). Effect of knee joint loading on chondrocyte mechano-vulnerability and severity of posttraumatic osteoarthritis induced by ACL-injury in mice. *Osteoarthritis and Cartilage.* https://doi.org/10.1016/j.ocarto.2021.100227

Kotelsky, A, Proctor, A, Anissa, E, **Can, NY**, Mannava, S, Lee, W. (2021). Unilateral and bilateral ACL injuries exhibit distinct vulnerability of chondrocytes to injurious mechanical forces, *ORS Annual Meeting 2021*.

Kotelsky, A, Proctor, A, Anissa, E, **Can, NY**, Mannava, S, Lee, W. (2020). Unilateral and bilateral ACL injuries exhibit distinct sensitivity of chondrocytes to injurious impact loading, *Center for Musculoskeletal Research 10th Annual Symposium.*

SELECTED PROJECTS

Force Gauge Device for Research Application https://github.com/ncan33/STIF-2019

Designed a device that measures the amount of force applied during ACL injury on mice. The device has contributed to academic publications. Access technical report for device here.

Physics-Based Unsupervised Deep Learning in TensorFlow https://tinyurl.com/u7h3987m

35-layer 3-D convolutional neural network for rapid DTI tensor estimation.

Confocal Microscope Imaging Platform https://tinyurl.com/3mcuws34

Designed and 3D printed a part that fulfilled the design need for a platform that allows greater spatial translation in the x and y directions during imaging in the confocal microscope.

Computational Analysis of Laser Spectrum https://github.com/ncan33/matlabHighFinesse

Acquired a large dataset of laser spectra using optical methods. Using MATLAB, wrote an automated algorithm that converts raw ASCII output into an easy to analyze data structure. Processed the signal using Fourier transform and destructive interference.

LEADERSHIP

Team Captain, University of Rochester Varsity Rowing

- Acted as a liaison between coaches and 50 athletes; promoted a positive and competitive team atmosphere

Head Teaching Assistant (TA), University of Rochester

- Led a team of 11 teaching assistants for a biomedical engineering class

President of Girls Who Code, University of Rochester

- Leading activities in the Greater Rochester Area to decrease the gender gap in computer science

Committee Chair, International Model United Nations of Alkmaar

- Chair at a 2017 Model UN conference in the Netherlands; led a committee of 60 Model UN delegates

SKILLS

Software Proficiency:	Solidworks, Creo (Pro/ENGINEER), MATLAB, LaTeX, FEBio, ImageJ
Communication Skills:	Competed in World Debate Championships
Languages:	English (Bilingual Proficiency), Turkish (Native Speaker)
Programming Languages:	Python, C/C++, Git, bash
Technical Skills:	CAD, 3D Printing, Arduino, FEM/FEA, Keras/TensorFlow (machine learning)