

# Eren Alay

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Research Associate  
Department of Biomedical Engineering  
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## EDUCATION

**New Jersey Institute of Technology, Newark, NJ**

M.S., Biomedical Engineering

January 2014

Thesis: Using piezoelectric backscatter signal for remote sensing of neural signals

Advisor: Mesut Sahin

**Ankara University, Ankara, Turkey**

B.S., Electronics Engineering

June 2011

Thesis: Oral, nasal, and abdominal respiratory tracking and monitoring system

Advisor: Osman Eroglu

## ACADEMIC EXPERIENCE

**Research Associate**

December 2014 - Present

Center for Injury Biomechanics, Materials and Medicine

New Jersey Institute of Technology, Newark, NJ

- Performed research on the characteristics and the effects of blast waves on both animal and biomechanical models.
- Provided technical, analytical and numerical support for overall \$4.5 million Department of Defense and U.S. Army sponsored blast-induced neurotrauma (BINT) research and development projects.

**Research Assistant**

June 2014 - October 2014

NYU Langone Health, Bellevue Hospital Center

New York, NY

- Contributed to traumatic brain injury study analyzing eye movement data and optimizing the software compatibility of eye movement detection devices.

**Research Assistant**

January 2012 - January 2014

Neural Prosthetics Laboratory

New Jersey Institute of Technology, Newark, NJ

- Conducted research on energy harvesting issues on wireless stimulation of spinal cord injury.

## PROFESSIONAL EXPERIENCE

**Summer Intern**

July 2010 - September 2010

ASELSAN Military Electronic Industries, Inc.

Test Engineering Division, Ankara, Turkey

- Contributed to development of a computer-based military test platform using MS Visual C# to test the recorded signals gathered from fieldwork. This work resulted not only in the creation of a military test platform but also saved the company \$100k for related software test platforms.

## PUBLICATIONS

### *Peer-reviewed journal articles*

- J1. **E Alay**, M Skotak, A Misistia, N Chandra (2018). Dynamic loads on human and animal surrogates at different test locations in compressed-gas-driven shock tubes. *Shock Waves* 28 (1), 51-62.
- J2. KV Rama Rao, S Iring, D Younger, M Kuriakose, M Skotak, **E Alay**, RK Gupta, N Chandra (2018). A single primary blast-induced traumatic brain injury in rodent model causes cell-type dependent increase in NADPH oxidase isoforms in vulnerable brain regions. *Journal of Neurotrauma*.
- J3. M Skotak\*, **E Alay\***, N Chandra (2018). On the accurate determination of shock wave time-pressure profile in the experimental models of blast induced neurotrauma. *Frontiers in neurology* 9, 52.
- J4. A Sundaramurthy, M Skotak, **E Alay**, G Unnikrishnan, H Mao, X Duan, ST Williams, TH Harding, N Chandra, J Reifman (2018). Assessment of the effectiveness of combat eyewear protection against blast overpressure. *Journal of biomechanical engineering* 140 (7), 071003.
- J5. M Skotak\*, **E Alay\***, JQ Zheng, V Halls, N Chandra (2018). Effective testing of personal protective equipment in blast loading conditions in shock tube: Comparison of three different testing locations. *PloS one* 13 (6), e0198968.

### *Conference abstracts/posters*

- C1. R Rattazzi, D Patel, **E Alay**, M Skotak, J Zheng, V Halls, N Chandra (2018). The Performance Evaluation of Combat Helmets Under Blast Loading in the Shock Tube. *Military Health System Research Symposium*, 2018.
- C2. S Kahali, M Kuriakose, M Skotak, **E Alay**, A Misistia, N Chandra (2016). Artifact-free loading conditions in compressed gas driven shock tube with end plate: Focus in primary blast injury animal models. *Journal of Neurotrauma* 33 (13), A93-A93.
- C3. **E Alay**, M Skotak, A Misistia, N Chandra (2016). Protection effectiveness against blast overpressure: Role of shield-specimen geometric mismatch and gap-filler material properties. *Journal of Neurotrauma* 33 (13), A93-A93.
- C4. A Mishra, D Ozgulbas, **E Alay**, EH Kim, T Alvarez (2013). Checking the saliency of the stimuli on central versus peripheral visual field. *39th Annual Northeast Bioengineering Conference*.
- C5. **E Alay\***, B Altinoz\*, D Ozgulbas\*, Z Telatar, O Erogul (2011). Oral, nasal, and abdominal respiratory tracking and monitoring system. *TIPTEKNO 2011, 16th Annual Biomedical Engineering National Conference*, 419-422.

\*indicates equal authorship

## RELEVANT COURSEWORK

- Statistics and R - HarvardX: PH525.1x (online - Harvard University),
- CS109 – Data Science (online - Harvard University),
- Hands-On Machine Learning with Scikit-Learn and TensorFlow (online - O'Reilly Media),
- Introduction to Accelerated Computing (online - NVIDIA – QWIKLABS),
- Applications of Deep Learning with Caffe, Theano and Torch (online - NVIDIA – QWIKLABS),
- Introduction to Biostatistics,
- Neural Engineering,
- Neural fMRI,
- Cell and Molecular Tissue Engineering,
- Probability and Random Variables,
- Linear Algebra,
- Digital Signal Processing.

## **TECHNICAL SKILLS**

- Programming Languages: Python, R, C, MS Visual C#.
- Other tools/software: L<sup>A</sup>T<sub>E</sub>X, OriginLab, Minitab, MATLAB, G\*Power, ImageJ, SPM, MS Office Applications, Adobe Creative Cloud Applications.