Humza N. Zubair

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Career Goal: Doctorate in Biological Sciences

Education

Aug. 2015 – Current: Arizona State University Tempe, AZ
- Major: Biochemistry (B.S.)
- Courses: Cell Biology, Animal Physiology, Biophysical Chemistry, Medicinal Chemistry, Biochemistry, Organic Chemistry, Physical Chemistry

Jun. 2014 - Current: Barrow Neurological Institute, Phoenix, AZ
- Neurophysiology Research

Jun. 2014 - July 2015 (Gap year after graduation from high school)

Peggy Payne Academy for gifted youth, McClintock High School, Tempe, AZ
- Graduation 2014; cumulative GPA (weighted): 4.83

Summer 2013: Harvard College– Cambridge, MA (Summer 2013)
- Intro to Biochemistry
- Child Health in America and Around the Globe

Summer 2012: Johns Hopkins – Baltimore, MD (Summer 2012)
- Genetics

Summer 2011: Stanford University, Stanford, CA (Summer 2011)
- Mathematical Logic and Problem Solving

Honors/Awards

- 2017 – Goldwater Scholarship – Honorable Mention
- Presidential Scholar, Arizona State University
- *Dean's List:* Every semester, Arizona State University
- *National Advanced Placement Scholar* (eight 5's)
- 2012: Recipient of "*First Place in Arizona"* in AMC10A competition award from Mathematical Association of America. Earned AMC 10 Honor Roll of Distinction medal.
- 2010: Top in the Country – SAT-M: Johns Hopkins University CTY
- 2010: Inductee into The Julian C. Stanley Study of Exceptional Talent (SET)

Research Experience

Research Assistant*in the Motor Systems Neurophysiology Laboratory, Barrow Neurological Institute, Phoenix, AZ. Director: Dr. Beloozerova (Irina.Beloozerova@thebni.org)*

- May 2014 – Aug 2015: Full-time research during post-high school graduation "gap" year. *Focus*: Analysis of head movement in the walking cat - a first study on the topic in this popular model for research in motor physiology
    - Results presented at the 2015 Society for Neuroscience annual meeting and recently published in a peer-reviewed journal (Zubair et al., 2016)

- Aug 2015 – current: *Focus*: Analysis of gaze behavior during locomotion in the cat. Gaze behavior shows how vision is used for guidance of locomotion.
    - Results presented at the 2016 Society for Neuroscience annual meeting. Manuscript in preparation.

- *Technical Training and Expertise*:
    - Analyzed data using Dev C++ and Matlab programming
    - Applied a Monte Carlo analysis method to evaluate sequences of gaze behaviors in the walking subject
    - Trained research animals to perform various tasks for experimental study
    - Assisted during numerous neurophysiological experiments
    - Assisted in brain surgeries including cortical injections and implantation of electrodes in research subjects' brain
    - Helped maintain electronic devices and recording equipment

- *Other Contributions to Lab:*
    - Mentored four undergraduate and high school students in the laboratory
    - Provided input to several research proposals to NIH and NSF

Publications

1. **Zubair HN**,Beloozerova IN, Sun H, Marlinski V.(2016) Head movement during walking in the cat. Neuroscience 332:101-120.
    - Contributions to publication: Conducted all data analyses, composed Methods and Results sections, drafted figures, assembled the Reference list, and contributed input and writing of the Introduction and Discussion sections.

2. *In preparation*:
    - **Zubair HN**, Chu KMI, Johnson JL, Rivers TJ, Beloozerova IN. Coordination of gaze behaviors with stepping in the cat.
    - Stout EE, **Zubair HN**, Beloozerova IN, Dounskaia N. Control of intersegmental dynamics during known and unexpected perturbations of complex locomotion.

Conference Presentations

1. Chu KM, **Zubair HN**, Johnson JL, Rivers TJ, Beloozerova IN (2016) Gaze coordination with strides during walking in the cat. Program No 705.19. Society for Neuroscience Annual Meeting, San Diego, CA.

- Main presenter

2. **Zubair HN**, Izady MY, Sun H, Marlinski V, Beloozerova IN (2015) Feline head movement during walking. Program No 335.14. Society for Neuroscience Annual Meeting, Chicago, IL.

- Main presenter

3. **Zubair HN**, Sun H, Marlinski V, Beloozerova IN (2015) Feline Head Kinematics During Locomotion in Dark and Light. Barrow Neurological Institute. Aug 5 2015.

- Main presenter

Clinical Experience

- Shadowed neurosurgeon, Dr. Hai Sun, at Barrow Neurosurgical Institute at St. Joseph's Hospital in Phoenix, AZ
    - Shadowed once a week for four months during patient visits pre- and post-surgery
    - Viewed live brain surgeries in 3D surgery-viewing auditorium
- Shadowed radiologist at St. Luke's hospital
- ASU Medical Society

Professional Associations

- Member of Society for Neuroscience
- Member of American Society for Biochemistry and Molecular Biology
- Member of American Physiological Society