

# Mohammed Junaid Farooqi

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## Education

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### **PhD, Physics, Biophysics**

University of Texas San Antonio

**May 2015**

San Antonio, Texas

### **Masters of Science, Physics, Biophysics**

Miami University

**August 2009**

Oxford, Ohio

### **Bachelor of Science, Physics, Biophysics**

University of Texas Pan-American

**May 2006**

Edinburg, Texas

## Teaching Experience

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### **Texas A&M – Higher Education Center at McAllen**

*Instructional Assistant Professor*

**August 2018 – Current**

### **University of Texas Rio Grande Valley**

*Adjunct Lecturer*

**August 2018 – May 2020**

### **South Texas College**

*Adjunct Lecturer*

**June 2017 – July 2019**

### **University of Texas Rio Grande Valley**

*Lecturer*

**June 2017 – July 2018**

### **Gonzaga University**

*Lecturer*

**August 2016 – May 2017**

### **University of Texas San Antonio**

*Lecturer*

**May 2015 – August 2016**

### **University of Texas San Antonio**

*Graduate Teaching Assistant*

**August 2009 – May 2015**

### **Miami University of Ohio**

*Graduate Teaching Assistant*

**August 2007 – July 2009**

### **Weslaco High School**

*Teacher*

**August 2006 – May 2007**

### **University of Texas Pan American**

*Teaching Assistant*

**August 2005 – May 2006**



## Research Experience

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### University of Texas San Antonio

August 2009 – May 2015

Graduate Research Assistant for [Dr. Lorenzo Brancalion](#)

The goal of my dissertation research topic is to establish and understand the mechanisms by which photoactive dyes (perylene derivatives) non-covalently attached to proteins can prompt conformational changes of the protein upon irradiation with visible light. These studies are then used to either inactivate specific proteins or introduce photosensitive, “artificial” properties (structural, enzymatic, etc.) to globular proteins.

Instrumentation Skills: Fluorescence Emission and Absorption Spectroscopy, Fluorescence Lifetime, Circular Dichroism Spectroscopy.

Computational Software: Autodock, VMD/NAMD, Chimera, Argus Lab

### Miami University of Ohio

August 2007 – July 2009

Graduate Research Assistant for [Dr. Paul Urayama](#)

My thesis research included calculations of thermodynamic properties of NADH (dihyronicotinamide adenine dinucleotide) conformational states at 1 atm pressure in a pH neutral buffer with varying concentrations of denaturant concentrations. Analysis of the fluorescence emission data was done using linear and spectral decomposition model to calculate fraction-unfolded values of NADH in different methanol concentrations.

Another part of my thesis work included developing an optical sectioning system using a structured illumination setup for use with a wide-field microscope. The sectioning ability of the system was tested using slide and capillary mounted paper fibers. The illumination setup acquired sectioned images by varying the z-axis coordinates and building a 3D image of the slide mounted paper fibers.

Instrumentation Skills: Fluorescence Emission, Structured Illumination with a wide field microscope.

### Texas A&M University

June 2005 – August 2005

Research Experience for Undergraduates for [Robert Tribble](#)

My summer research project included the redesign and repair of the Multipole - Dipole - Multipole (MDM) Spectrometer. This project included using of autocad to design the parts involved in the redesign and working in the machine shop to learn how to make the parts from the specification in the software.

Computer Design: Autocad.

### University of Texas Pan American

August 2004 – May 2006

Research Assistant for [Dr. Nikolaos Dimakis](#)

This research project used Density functional theory (DFT) and X-ray absorption fine structure (XAFS) spectroscopy for the biophysical study of active sites in metalloproteins. DFT is used to compute XAFS multiple scattering Debye Waller factors, which are then employed in genetic algorithm-based fitting process to obtain a global fit to the XAFS in the space of fitting parameters.

Computer Simulations: Mathematica, Java programming basics.

## Publications

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Dimakis, N.; Farooqi, M. J.; Salas, I.; Gonzalez, L.; Smotkin, E., [Carbon monoxide and water coadsorption on platinum and platinum-based mixed-metal anode catalysts for polymer electrolyte membrane fuel cells.](#) *Abstracts of papers of the american chemical society* **2018**, 255.

Farooqi, M.; Penick, M.; Negrete, G.; Brancalion, L., [Human serum albumin as vehicle for the solubilization of perylene diimides in aqueous solutions.](#) *International Journal of Biological Macromolecules* **2017**, 94 (Pt A): 246-257.

Farooqi, M.; Penick, M.; Burch, J.; Negrete, G.; Brancalion, L., [Characterization of novel Perylene Diimides Containing Aromatic Amino Acid Side Chains.](#) *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* **2016**, 153: 124-131.

Farooqi, M.; Penick, M.; Negrete, G.; Brancalion, L., [Interaction of Human Serum Albumin with Novel 3,9-Disubstituted Perylenes.](#) *Protein J* **2013**, 32 (6), 493-504.

Dimakis, N.; Farooqi, M. J.; Garza, E. S.; Bunker, G., [Zinc cysteine active sites of metalloproteins: A density functional theory and x-ray absorption fine structure study.](#) *The Journal of Chemical Physics* **2008**, 128 (11).

Master's Thesis: Farooqi, Mohammed. "[Methods for in situ piezophysiological studies: optical sectioning via structured illumination and fluorescence based characterization of NADH conformation.](#)" Electronic Thesis or Dissertation. Miami University, 2009. *OhioLINK Electronic Theses and Dissertations Center*. 28 Aug 2014.

## Presentations

Farooqi, M. J.; Penick, M. A.; Negrete, G.; Brancalion, [Interaction of albumin with perylene-diimides with aromatic substituents.](#) *American Physical Society Meeting, (March 2015)*

Farooqi, M. J.; Penick, M. A.; Negrete, G.; Brancalion, L., [Binding of Perylene derivatives to Human Serum Albumin.](#)

Farooqi, M. J.; Penick, M. A.; Negrete, G.; Brancalion, L., [Docking Simulations of Perylene-HSA Binding.](#) *Biophysical Journal* 102 (3), 61a-62a.

Farooqi, M. J.; Regueyra, L. A.; Alquist, E. J.; Jasensky, J.; Urayama, P., Pressure effects on the solvent denaturation of NADH. *Biophysical Journal* 98 (3), 583a.

Farooqi, M., [MDM Focal Plane Detector redesign and repair.](#) Texas A&M Cyclotron Institute, Summer REU 2015.

## Reference Contacts

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### [Dr. Lorenzo Brancalion](#)

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Email: [lorenzo.brancalion@utsa.edu](mailto:lorenzo.brancalion@utsa.edu)

University of Texas San Antonio

### [Dr. Akbar Ansari](#)

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Email: [ansari@gonzaga.edu](mailto:ansari@gonzaga.edu)

Miami University

### [Dr. Kathryn Mayer](#)

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### [Dr. Liao Chen](#)

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