



Amani Ahmed F. Al-Tarouti

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age 1 of 3

Education

2011 -
Present

📎 **Master of Science (MS), Biomedical Visualization**
University of Illinois at Chicago (UIC), Chicago, IL

2011

📎 United States Medical Licensing Examination (USMLE) & Residency
Complete Prep Program, Kaplan Medical Chicago

2008

📎 **Bachelor of Medicine/Bachelor of Surgery (MBBS)**
King Saudi University, Riyadh , Saudi Arabia

Advanced Exam Scores:

- USMLE Step 2 CK: **250**. First attempt
- USMLE Step 1: **251**. First attempt
- USMLE Step 2 CS: **Passed**. First attempt
- MCCEE: **375/400**. First attempt

Clinical Experience

Jul 2014-
Present

📎 **PGY1 Resident (Preliminary Intern), Internal Medicine**
Mercy Medical Center, Baltimore, MD

Duties include managing patient daily care through rotations in inpatient
medicine, critical care, subspecialties, and ambulatory care.

Future Positions

Jul 2016

📎 **PGY2 Resident , Ophthalmology**
SUNY-Buffalo , Ross Eye Institute , Buffalo, NY

Research Experience

2013–2014

📎 **Pre-Residency Research Fellow, Kellogg Eye Center (KEC), Inherited Retinal Degeneration Clinic**, University of Michigan (UM), Ann Arbor, MI.
Mentor: K. Thiran Jayasundera, M.D. Studied novel diagnostic and prognostic tests measures for inherited retinal degenerative disease.

Laboratory

Investigation of peripheral inflammatory biomarkers in patients with late onset retinal degeneration (non-paraneoplastic autoimmune retinopathy). Responsible for plasma separation, peripheral blood cell preparation, cell culture techniques, and several methods of cell analysis including flow cytometry staining to explore the role of specific immune subsets in disease process.

Clinical

1- Image Analysis: Demonstrated feasibility of automated detection and quantification of retinal disease in fluorescein angiograms and autofluorescence imaging utilizing machine learning methods.

Proof of concept for automated detection and quantification of:

- Diabetic macular edema in fluorescein angiograms. **First author.**
- Non perfusion (capillary loss) in fluorescein angiograms.
- Hyperfluorescence and hypofluorescence in autofluorescence images in age related macular degeneration.

Michigan Collegiate Innovation Prize (MCIP): Team leader in timeline formation for commercialization and launch of a cloud based automated retinal image analysis system.

2- Multidisciplinary Design Program: Mentored undergraduate engineering students by providing technical and research guidance for visualization and image processing.

Projects:

- **MDViz:** A three dimensional retinal image visualization software tool that used point by point analysis to localize corresponding areas of abnormalities in retinal functional tests and images.

Research Experience continued



2012–2013

- **RetDegenDx:** A clinical, diagnostic tool to facilitate clinical and molecular diagnosis of retinal dystrophies, aiding ophthalmologists evaluate patients and identify the likely causative genes based on a database of imaging, clinical findings, and validated algorithms. Patent pending.

• **Graduate Research, Dept. of Biomedical Engineering at UIC, Neural Engineering Vision Laboratory (NEVL).** Mentor: John R. Hetling, Ph.D.

Masters thesis: Transformation of Complex Data from the Multi-Electrode Electroretinogram into a Comprehensible Visual Display. Researched and developed a graphical output for the multi-electrode electroretinogram (meERG), a new functional imaging tool that provides spatial information spanning the entire anatomical retina and yielding a novel map of retinal health. Manuscript in progress: Spatial Distribution of Rat Oscillatory Potentials Evaluated using the Multi-Electrode Electroretinogram.

Awards & Recognition

2014

• **National Eye Institute (NEI) Travel Grant** (The Association for Research in Vision and Ophthalmology (ARVO) Travel Grants)

2013

• **Vesalian Scholar for Visual Communication in the Health Sciences,** Association of Medical Illustrators Vesalius Trust, for Master Thesis research

2009

• **Pre-Residency Scholarship,** Ministry of Higher Education, Saudi Arabia

Patents

2013

Jayasundera, T., **Al-Tarouti, A.**, Johnson-Roberson, M., Khan N., Huang J., Hohner G., Patel, N., and Ranella, C. 2013. Method for automatically diagnosing inherited retinal disease. Includes pre-processing dissimilar types of data to generate a feature vector descriptive of a patient. U.S. Patent 61/881,711, filed September 2013. Patent Pending.

Publications

2014

Pending

Books

Zahid S., **Al-Tarouti A.**, Branham K., Pennesi M., Michaelides, Heckenlively J.R., Jayasundera K.T. (2014). *Retinal Dystrophy Gene Atlas*. Springer International.

Papers

1. Alapati, A., Goetz, K., Suk, J., Navani, M., **Al-Tarouti, A.**, Jayasundera, K., ... Ayyagari, R. (2014). Molecular Diagnostic Testing by eyeGENE®. Analysis of patients with hereditary retinal dystrophy phenotype involving central vision loss. *Investigative Ophthalmology and Visual Science*.
2. Krakova, Y., Tajalli, H., Thongpang, S., Derafshi, Z., Ban, T., Rahmani, S., **Al-Tarouti A.**... Hetling, J. (2014). Spatial differences in corneal electroretinogram potentials measured in rat with a contact lens electrode array. *Doc Ophthalmol*.

Abstracts

- Automated identification and quantification of fluorescein leakage in patients with diabetic macular edema, ARVO
- Analysis of Circulating Effector and Regulatory B Cell Subsets in Autoimmune Retinopathy Patients, ARVO
- Automated Detection of Fluorescein Leakage in Diabetic Macular Edema (First Author, NEH Travel Grant Award), Federation of Clinical Immunology Societies (FOCIS)
- Distinct Patterns of Fundus Autofluorescence in Paraneoplastic and Non-Paraneoplastic Forms of Autoimmune Retinopathy Responding to Systemic Immunosuppressive Therapy, Retina Society

Sep 2014


Jun 2014

May 2014

May 2014

Publications continued

Medical Illustrations





- 2011  • Ferry, R. (2011). *The management of pediatric obesity and diabetes* (pp. 231-233). Totowa, N.J.: Humana.

Professional & Extracurricular Activity




Memberships

- 2011-2013  • Association of Medical Illustrators; Certification exam passed
2012-2013  • Graduate Representative for UIC Biomedical Visualization Department

Presentations

- 2014  • International Society for Clinical Electrophysiology of Vision (ISCEV) at ARVO. Biomedical visualizations for presentation of Multi-Electrode ERG Retinal Map Visualization: Measuring spatial differences in corneal potentials
 • Animation showcasing MDViz: Multidimensional Retinal Disease Diagnosis and Progression Visual Tool at the Electrophysiology lab at KEC
• 30th Annual Departmental Research Day: Automated detection and quantification of fluorescein leakage in patients with DME, KEC
• Grand Rounds: Implications for Expanded Genetic Testing In Retinal Dystrophy Cases, KEC
• Retina Research Meeting: Introduction of the MDViz 3D visualization tool to the retina team and potential future applications for the software, KEC
• Michigan Collegiate Innovation Prize (MCIP): Biweekly online presentations with mentors and faculty from UM Center for Entrepreneurship and final pitch presentation: Online tool for automated retinal image analysis, UM
- 2013  • Fall Alumni Day: Showcased research work in diagnostic tools for inherited retinal degeneration (RetDegenDx and MDViz 3D tool), KEC
 • UIC Student Research Forum: poster presentation highlighting key features of Master research process and judged by UIC faculty and alumni, UIC



Exhibits

-  • Digital Creations, The National Museum of Health and Medicine
 • Heart and Anatomy, Pilsen Vintage and Thrift Art Show
 • Online, Consortium of Academic and Research Libraries in Illinois (CARLI)

Contests

- 2013 • The Image of Research competition, UIC Graduate College
• BioEngineering Student Research Image Contest, UIC

Voluntary/Community Service

- 2012  • Mentored undergraduate/premed students at UIC, supporting achievement of higher social and academic goals.
• Assisted students at Kaplan Medical Center with the Clinical Skills Exam preparation and Step 1 USMLE exam.
 • Volunteering with the Network of Arab-American Professionals, working at food drives, provide assistance with different community services , and mentorship programs. Currently working with the Baltimore chapter.

Skills/Personal

Technical and Creative

- 3D modeling and animation: 3ds Max, MudBox, Zbrush, AfterEffects
- 2D illustration for print and digital production: Adobe CS6 with in depth knowledge of Adobe Illustrator, Photoshop, and Acrobat
- Computer programming: HTML and CSS; web and interface design

Language

- English (native)
- Arabic (fluent)

Of Note

- Dual citizenship; United States of America and Saudi Arabia

