## Ashkhan Hojati

Biomedical Engineer / Medical Student
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## EDUCATION

Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign          2019-23
Champaign, IL
**Doctor of Medicine**

Virginia Commonwealth University (VCU) School of Medicine, Richmond, VA          2017-19
**Master of Science – Physiology & Biophysics**

University of Maryland, College Park, MD          2018
**Visiting Student, Advanced Persian Studies – College of Arts & Humanities**

Virginia Commonwealth University (VCU), Richmond, VA          2012-16
**Bachelor of Science, Biomedical Engineering (BME)**
- **Honors:** *magna cum laude*

## HONORS AND AWARDS

**Carle Illinois College of Medicine Innovation Pathway Award Recipient: $2,800**          2021
- Project title: Analysis, Experimentation, and Design of Gastrointestinal Perforation Repair. Conducting research and experimentation on GI perforation treatment modalities and innovating potential solutions for novel endoscopic repair.

**National Science Foundation's Innovation Corps Participant**: **$2,000**          2020
- Lead entrepreneurial representative under Visionaire Products Inc. Presented our novel technology for anterior chamber paracentesis and conducted extensive biomedical and market research. Participated in weekly panel discussions with business professionals and an entrepreneurial training course.

**Co-founder, I RISE 501(c)(3) nonprofit organization, Richmond, VA**          2015-19
- I RISE's aim was providing one-on-one care to homeless individuals and those in need. We provided holistic care, resources, funds for living, educational courses, and socialization. We raised thousands of dollars through grants and fundraising and partnered with several organizations to help in our mission.
- $2,500 Walmart Community Grant (2016)
- VCU Best Local Community Service Award (2016)

**3rd Place Finalist – 2018 Power the Future Design-A-Thon**          2018
- Designed a multi-use smartphone application for consumers of electricity to monitor energy usage from a smart meter (and prototype smart-plugs) in real-time.

# RESEARCH

**Independent Research,** Carle Illinois College of Medicine at University of Illinois Urbana-Champaign   2022
- Medical Education and Simulation
  - Goldmann Applanation Tonometry (GAT) Simulator at gatsim.com
    - Developed unique software applications and graphical user interfaces for training students in GAT.
  - DoubleVision Ophthalmoscope Attachment
    - Research and design in computer vision, optics, and 3D computer aided design (CAD).
    - Engineering team lead in development of a novel attachment onto the standard ophthalmoscope for guidance to key anatomical structures for the non-ophthalmologist.
- Computer Vision AI for image analysis of ocular burn injuries
  - Utilizing Python's OpenCV library for image processing of ocular burn images for computer aided classification.

**R&D Engineer,** Visionaire Products Inc. Champaign, IL                                                     2019-20
- Involved in formulating techniques in molecular biology research including technologies involved in polymerase chain reaction (PCR) and biomarker discovery; developing needle penetration studies for mechanical analyses of force puncture; design and optimization of ophthalmologic instruments.

**Researcher,** Department of Physiology & Biophysics, VCU School of Medicine, Richmond, VA          2014-19
Advisors: Diomedes Logothetis Ph.D. (2014-2015), Javier Maeso Ph.D.  (2016-2017), Jose M. Eltit Ph.D. (2018-2019)
- 2018-2019: Used cell culture techniques and epifluorescence microscopy to study novel compounds at monoamine transporters.
- 2016-17: Designed and conducted complicated mouse behavior models of memory, psychosis, and sensorimotor gating. Performed PCR assays for genotyping of transgenic mice and highly demanding stereotactic surgery to deliver transgenes into specific cell types of the murine brain.
- 2014-15: Utilized the *Xenopus* oocyte heterologous expression system to conduct electrophysiological experiments with the Two-Electrode Voltage Clamp for ion channel analyses.

# PUBLICATIONS/PRESENTATIONS

**Publications**

1.
**Hojati A**, Yerrabelli RS, Amin A, Kastl PR. (2022). Goldmann applanation tonometry training: Past, present, and future. *General Medicine*: Open Access. 10(1).

**Hojati, A,** Yerrabelli, RS, Amin, A. A simulator for Goldmann Applanation Tonometry: A novel approach to training. (Manuscript in preparation for submission to BMC ophthalmology)

**Hojati, A**, Yerrabelli, RS, Gatsim.com - Goldmann applanation tonometer simulator (GatSim)
- Online application for Goldmann applanation tonometry training
- **Website link: gatsim.com**

Sharma, SN, **Hojati, A,** Yerrabelli, RS, Gnanasambandam B, Brozek, J. Designing Molecules to Treat Neurologic and Ophthalmologic Diseases Caused by Sorbitol Excess: Engineering the Agrobacterium Vitis Protein (Manuscript in preparation for submission to BMC Research Notes)
- Preprint: DOI: 10.21203/rs.3.rs-2231853/v1
- In collaboration with the Department of Chemistry at the University of Illinois Urbana-Champaign

**Hojati, A,** Policarpio, J, Wheeler, MB, Rowitz B. Burst Pressure Characterization of Bowel Perforation Repair in Ex-Vivo Animal Model. Preprint: DOI: [10.21203/rs.3.rs-1842208/v1](10.21203/rs.3.rs-1842208/v1) (Manuscript in preparation for submission)

Yerrabelli, RS, Palsgaard, PK, **Hojati, A,** Wagoner Johnson, AJ. Improving visualization of the cervix during pelvic exams: A physical model and a steppingstone to reducing disparities in gynecological cancers. Preprint: DOI: 10.21203/rs.3.rs-1942786/v1 (Manuscript under review by *PLOS ONE*)

Palsgaard, PK, Yerrabelli, RS, **Hojati, A,** Whitmore, E. Improving cervical visualization in the clinical setting. (Manuscript under review by *SAGE Open Medicine*)

**Hojati, A.** (2019). *Pharmacologic profiling of novel compounds via fluorometric analyses of monoamine transporter responses*, master's thesis, Virginia Commonwealth University School of Medicine, Richmond, Virginia, July 2019, <[https://scholarscompass.vcu.edu/etd/5983/](https://scholarscompass.vcu.edu/etd/5983/)>.

Hideshima, K. S.*, **Hojati, A.***, Saunders, J. M., On, D. M., de la Fuente Revenga, M., Shin, J. M., ... González-Maeso, J. (2018). Role of mGlu2 in the 5-HT 2A receptor-dependent antipsychotic activity of clozapine in mice. *Psychopharmacology*, 235(11), 3149–3165.


## Poster Presentations

**Hojati, A,** Yerrabelli, RS, Amin, A, Kastl, PR. (2022, October 27). Goldmann Applanation Tonometer (GAT) Simulator: a novel approach to training. International Ophthalmology Conference. Chicago Illinois, USA (Virtual).

**Hojati, A,** Yerrabelli, RS, Amin, A, Kastl, PR. (2022, October 3). Goldmann Applanation Tonometry Training: Past, Present, Future. 36th European Ophthalmology Congress. London, UK.

**Hojati, A,** Sharma, SN, Yerrabelli RS, Nelson C. (2022, October 27). Designing Molecules to Treat Ophthalmologic Diseases Caused by Sorbitol Excess. International Ophthalmology Conference. Chicago Illinois, USA (Virtual).

**Hojati, A**, Cordner, K, Galchenko, P.S. (2022, October 20). DoubleVision Ophthalmoscope: A novel teaching fundoscope for medical student learners and beyond. American Medical Association Research Challenge (Virtual) Poster Symposium. Chicago Illinois, USA.
  - Senior capstone design project (funded $30,000)

Zhuang, C., **Hojati, A.,** Peterman, N., Kaptur, B., Govan, D., Vashi, A., & McCauley, W. (2022, March 18). Gender and Racial Representation in Anesthesiology [Poster presented]. International Anesthesia Research Society, the Association of University Anesthesiologists, and the Society of Critical Care Anesthesiologists Annual Meetings/Honolulu, HI, USA.

Yerrabelli, R, **Hojati, A**, Hennesy, M. Novel vaginal speculum for mitigation of wall creep during gynecologic examination and procedures. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign Health Innovation Research Day Symposium, 2022, Urbana-Champaign, Illinois.
  - **Awarded 1st Place Poster Presentation in Basic Sciences & Engineering**

**Hojati, A**, Lee, B, Hoffman, JR. Special Consideration: Anemia and Diabetes Mellitus. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign Health Innovation Research Day Symposium, 2022, Urbana-Champaign, Illinois.

**Hojati, A**, Policarpio J, Wheeler MB, Rowitz B. Burst Pressure Characterization of Bowel Perforation Repair in Ex-Vivo Animal Model. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign Health Innovation Research Day Symposium, 2022, Urbana-Champaign, Illinois.

**Hojati, A**, Policarpio J, Wheeler MB, Rowitz B.  Ex-vivo animal testing of small bowel burst pressure and state of the art repair of bowel perforation. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign Health Innovation Research Day Symposium, 2021, Urbana-Champaign, Illinois.

Dickey, A, **Hojati, A,** James, M, Vermillera, K. Small Animal Thermal Support Device: Thermoregulation System for SCIREQ flexiVent Chamber. In: Virginia Commonwealth University College of Engineering Capstone Design Expo, April 2016, Siegel Center, 1200 W. Broad St. Richmond, Virginia. https://scholarscompass.vcu.edu/capstone/132: Biomedical Engineering and Bioengineering Commons; August 2016. Abstract nr 132.

**Hojati, A.** Developing an assay to determine the signaling pathway of any G protein-coupled receptor. VCU Medical Center Summer Undergraduate Research Program (SURP) in Physiology and Biophysics Poster Symposium, 2015, Richmond, Virginia.

## Oral Presentations

**Hojati, A.** GatSim, The Goldmann Applanation Tonometry (GAT) Simulator. Santander Ophthalmological Foundation (FOSCAL), Invited Speaker (January 23, 2023). Floridablanca, Santander, Colombia.

**Hojati, A.** Ocular Chemical Burns. Dell Medical School Department of Ophthalmology, Grand Rounds Presentation (July 22, 2022). Austin, TX.

**Hojati, A.** Grand Rounds Presentation. Department of Ophthalmology at Tulane School of Medicine (September 21, 2022). New Orleans, LA.

**Hojati, A.** Clarity of Codes = Clarity of Mind - Smart Phone Application for Real-Time Medical Billing Feedback. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign, 2021. Urbana-Champaign, IL.

**Hojati, A.** The Stoolectomy – Novel Endoscopic Modality for Ultra Rapid Colonoscopy Preparation. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign, 2021. Urbana-Champaign, IL.

**Hojati, A.** High Definition (HD) Tape – New Technology for Diagnosing Hirschsprung Disease in Developing Countries. Carle Illinois College of Medicine at the University of Illinois at Urbana-Champaign, 2021. Urbana-Champaign, IL.

**Hojati, A.** Iranian Music. University of Maryland, 2018. College Park, MD.

## LEADERSHIP & COMMUNITY SERVICE

**Champaign County Community Eye Care Event, Champaign, IL (9/25/2022):**

- Started the community's first eye care event for underserved populations. The event provided basic eye examinations and education to underserved individuals in the community.

**Medical Education - Preceptor training module development - Carle Illinois College of Medicine (6/2022)**

- Designed and developed online clinical skill modules for physician faculty members to improve student evaluation processes.

**President, Ophthalmology Club (2022 - Present)**

**Student Government: Class Representative (2022 – Present)**

**President, Medical Spanish Club (2020 - Present)**

**Champaign-Urbana Public Health District COVID-19 - Medical Student Volunteer (2021)**

**Covid en espanol website: [www.covidenespanol.com](www.covidenespanol.com)**

- Developed a website for Spanish speakers with information on topics surrounding COVID-19. Our goal was to provide information in a concise manner and combat misinformation.

**HeRMES (Helping Revitalize Medical Education through Service) Student Clinic Volunteer (2019):**
- a student-run free clinic that serves the uninsured and underserved of Illinois.

**Co-founder, I RISE 501(c)(3) nonprofit organization (2015-19)**


## PROFESSIONAL EXPERIENCE

**Mental Health Assistant - VCU Medical Center Department of Medical Psychiatry**          2016
VCU Medical Center, Richmond VA
- Provided one-on-one care to patients with psychiatric disorders. Analyzed patient behaviors and reported activities to nurse/physician staff to establish appropriate care. Worked closely with entire healthcare team to provide comprehensive care to patients.

**VCU Biomedical Engineering Society – President, Vice President, Publicity Chairman**          2013-16
VCU, Richmond, VA
- VCU Engineering Student Gala Host (~200 people) (2015 & 2016)
- VCU School of Engineering Representative at the Biomedical Engineering Society Annual Meeting in San Antonio (2014)

**STEM Reviewer/Section Editor Auctus: Journal of Undergraduate Research and Creativity**          2015-16
VCU, Richmond, VA

**Certified Nursing Assistant (CNA) Training at First Nursing Academy**          2016
- Obtained clinical and classroom instruction/training at skilled nursing facilities

**Clarion Public Health Case Competition** 2015

VCU, Richmond, VA

- Conducted research on a case study regarding the stroke belt states, developed an empirical healthcare model to assist these states in lowering their stroke rates, and presented the model to a panel of medical professionals.
- Awarded: "Outstanding Excellence in Interprofessional Collaboration in the VCU CLARION Case Competition"

**Teaching Assistant**, **Organic Chemistry** 2014

VCU, Richmond, VA

- Evaluated and prepared class examinations.

## OUTSIDE INTERESTS/HOBBIES:

**Multi-instrumentalist and performer Recent performances/ensembles:**

- 2021, 2022: Medical School Ensemble: instruments played: piano, cajon
- 2021: Persian Music Ensemble at University of Illinois Urbana-Champaign: instruments played: daf (frame drum)
- 2016: Persian Music Ensemble at Virginia Commonwealth University: instrument played: guitar
- 2015: Cultural Festival Performance: instrument played: guitar
- 10+ years of performance piano at concerts and sonata/sonatina festivals

**Sports:**

- Martial arts: first degree black belt in Shotokan Karate
- Basketball: Men's club basketball team (2012), recreational/intramural sports
- Soccer: recreational/intramural sports
- Yoga

**Poetry: Recent performances:**

- 2020: Carle Illinois College of Medicine - Pecha Kucha Event: "El Pajaro Tonto (The Silly Bird)"
- 2020: Anatomy Ceremony Event: "Station to Station"

**Languages:** Persian (Advanced), Spanish (basic)