Andrew Srisuwananukorn, MD

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EDUCATION

Northwestern University, Evanston, IL — September 2009 – June 2013
Bachelor of Arts in Mathematics, *Magna Cum Laude*
Bachelor of Arts in Physics, Concentration - Astronomy, *Magna Cum Laude*
Departmental Honors Thesis: Nondetection of Submillimeter Polarization by Rayleigh Scattering in Saturn's B-ring
Phi Beta Kappa Society

Indiana University School of Medicine (IUSM), Indianapolis, IN — August 2013 – May 2017
Doctor of Medicine
Gold Humanism Honor Society

University of Illinois at Chicago (UIC), Chicago, IL — June 2017 – July 2020
Residency, Internal Medicine

Icahn School of Medicine at Mount Sinai, New York City, NY — July 2020 – July 2023
Fellowship, Hematology and Medical Oncology

LICENSURE and BOARD CERTIFICATION

State Medical License, New York - 306318 — July 2020 – June 2022

HONORS and AWARDS

Outstanding Performance by a Sophomore — May 2011
Awarded by the Northwestern University Mathematics Department to one sophomore for excellent performance in honors-level multivariable calculus, linear algebra, abstract algebra, and number theory.

CIERA Summer Research Program — June-August 2011, June-August 2012
Awarded by NASA and the Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA) at Northwestern University to support undergraduates with an interest in astronomy and space-related sciences. Funded to continue research for two summer sessions.

Katherine L. Krieghbaum Undergraduate Research Scholarship — May 2012
Awarded by Northwestern University Weinberg College Committee on Superior Students and Honors for students who demonstrate promise of distinguished research in their major.

Illinois Space Grant Consortium Undergraduate Scholarship — June 2012
Awarded by NASA and the Illinois Space Grant Consortium to support outstanding undergraduate students pursuing interdisciplinary space-related science, engineering or mathematics fields throughout the academic year.

Outstanding Senior Thesis in Physics and Astronomy — June 2013
Selected by departmental honors committee in Physics and Astronomy and awarded to one author each year.

Hazel and Tommy Thompson Cardiac Research Scholarship — August 2014
Awarded to the Third Best Research Project at the Student Research Program in Academic Medicine Prize Competition to students with expressed interest in cardiac research.

UIC Department of Medicine PGY-1 of the Year 2017-2018 — June 2018
Nominated by UIC Internal Medicine residents and faculty as best overall PGY-1 within the academic year of 2017-2018.

American Society of Hematology Abstract Achievement Award — December 2018

UIC Department of Medicine PGY-2 of the Year 2018-2019 — June 2019
Nominated by UIC Internal Medicine residents and faculty as best overall PGY-2 within the academic year of 2018-2019.

RESEARCH EXPERIENCE

Principal Investigator – Giles Novak, PhD — October 2010 – June 2013
Dearborn Observatory, Northwestern University

This lab tests theories about the influence of magnetic fields in the formation of stars by analyzing the polarization of light emitted by dust grains in interstellar clouds. I created programs using Interactive Data Language to process images and data files to analyze as well as determine noise caused by instrumental error for the Caltech Submillimeter Observatory telescope in Mauna Kea, Hawaii. With my nomination, Dr. Novak was awarded the Weinberg College Award for Excellence in Mentoring Undergraduate Research in 2012.

Principal Investigators – Jason Organ, PhD and Matt Allen, PhD — May 2014 – August 2014
Bone Biology Laboratory, Indiana University School of Medicine

This lab works to analyze biomechanical and material properties of bone and muscle. I designed a project to obtain the first in-vivo mouse data with Reference Point Indentation, a novel method of material property analysis. Also, I had written a macro for the visualization program ImageJ to analyze a number of mechanically relevant parameters of muscle fiber cross-sections to replace manually analyzing each individual fiber by hand. This program increased research efficiency in the lab by nearly 1000-fold.

Principal Investigator – Tim Lautenschlaeger, MD, PhD — March 2016 – May 2017
Department of Radiation Oncology, Indiana University School of Medicine

This lab investigates the role of miRNA utilized as predictive biomarkers for various characteristics of a number of cancer types in vivo. I have assisted with study design and implemented inclusion algorithms for a project to investigate miRNA biomarkers associated with lymph node metastases. Furthermore, I developed and programmed algorithms to identify miRNA signatures to screen early and late stage Non-Small Cell Lung Cancer in Indiana patients. Additionally, I also implemented statistical testing and designed predictive models to identify correlations among 3 genetic biomarkers with clinical outcomes in an international cohort of patients with various grades of neurologic malignancies.

Principal Investigator – Santosh Saraf, MD — December 2017 – Present
Sickle Cell Center, University of Illinois at Chicago

This project aims to determining associations among various clinical parameters and genomic data to predict venous thromboembolism events (VTEs) and cerebral vascular accidents (CVAs) within the Sickle Cell Disease (SCD) population at UIC. I have obtained access to query for all sickle cell patients from 2008-2017. I developed an algorithm to semi-automate sickle cell subtyping. I also have written numerous programs in the R language for data processing, including stepwise backward elimination for variable selection to create a prospective multivariate logistic regression model as a potential clinical decision-making tool.

Principal Investigator – Shivi Jain, MD
Sickle Cell Center, University of Illinois at Chicago

This project aims to determine the incidence and prevalence of malignancy in the SCD population. I have developed the queries to obtain SCD and cancer patients. I have manually confirmed of the accuracy of each patient result. I have also written a number of programs in R to perform inferential statistics and run thousands of simulations to assess the significance of cancer incidence in our population.

Principal Investigator – William Galanter, MD, PhD
Department of Medicine, University of Illinois at Chicago

As a collaboration between a number of faculty in the Department of Medicine, Department of Hematology and Oncology, and the College of Pharmacy, this interdisciplinary group aims to determine the incidence and prevalence of Type 2 Diabetes Mellitus (T2DM) in SCD patients, determine associated clinical parameters, and identify patterns of diagnosis and management of T2DM. I have contributed the raw data of SCD patients and laboratory values within our UIC population with the intention of comparing our local cohort to the SCD patients found in the Truven Health Analytics database, a national insurance claims database.

Principal Investigator – Alexander Pearson, MD, PhD — March 2019 – Present
Head and Neck Cancer Laboratory, University of Chicago

This project aims to utilize new informatic and computational methods for assessing clinically relevant diagnostic parameters. I am spearheading an initiative in collaboration with multiple teams at University of Chicago and Uniklinik RWTH in Aachen, Germany to process 13 terabytes of histology whole slide images from The Cancer Genome Atlas in order to detect actionable genetic mutations across a pan-cancer cohort. I have learned the principles of deep-learning and artificial intelligence in order to create a programming script in R and python to train our deep-learning models and predict mutational status of histology images. I have also assisted in the initial setup and installation of the workstation computer with production-ready processing power to undergo such computationally intensive image analysis.

PUBLICATIONS AND PRESENTATIONS

Manuscripts

1. Srisuwananukorn A, Allen MR, Brown DM, Wallace JM, Organ JM. In vivo reference point indentation measurement variability in skeletally mature inbred mice. Bonekey Rep. 2015;4:712. Published 2015 Jun 17.
2. Organ JM, Srisuwananukorn A, Price P, Joll JE, Biro KC, Rupert JE, Chen NX, Avin KG, Moe SM, Allen MR. Reduced skeletal muscle function is associated with decreased fiber cross-sectional area in the Cy/+ rat model of progressive kidney disease. Nephrol Dial Transplant. 2016;31(2):223-230.
3. Crafts TD, Bell TM, Srisuwananukorn A, Applebaum H, Markel TA. Accounting for early job turnover in recent pediatric surgery fellowship graduates: An American Pediatric Surgical Association Membership and Credentials Committee study. J Pediatr Surg. 2018;53(11):2273-2278.
4. Srisuwananukorn A, Raslan R, Zhang X, Shah BN, Han J, Gowhari M, Molokie RE, Gordeuk VR, Saraf SL.Clinical, laboratory, and genetic risk factors for thrombosis in sickle cell disease. Blood Adv. 2020;4(9):1978-1986.
5. Nouraie M, Zhang X, Srisuwananukorn A, Machado RF, Gordeuk VR, Gladwin MT, Saraf S. Potential Contribution of Pulmonary Thromboembolic Disease in Pulmonary Hypertension in Sickle Cell Disease. Ann Am Thorac Soc. 2020;17(7):899-901.
6. Kather JN, Heij LR, Grabsch HI, Loeffler C, Echle A, Muti HS, Krause J, Niehues JM, Sommer KAJ, Bankhead P, Kooreman LFS, Schulte JJ, Cipriani NA, Buelow RD, Boor P, Ortiz-Brüchle N, Hanby AM, Speirs V, Kochanny S, Patnaik A, Srisuwananukorn A, Brenner H, Hoffmeister M, van den Brandt PA, Jäger D, Trautwein C, Pearson AT, Luedde T. Pan-cancer image-based detection of clinically actionable genetic alterations. Nature Cancer. 2020;1: 789–799.
7. Srisuwananukorn A, Han J, Raslan R, Gowhari M, Hussain F, Njoku F, Molokie RE, Gordeuk VR, Saraf SL. Antimicrobial resistance is a risk factor for mortality in adults with sickle cell disease. Haematologica. 2020 Oct 29;Online ahead of print:0.
8. Goldenberg B, Srisuwananukorn A, Cummins JS, Kreston R, Gramelspacher AM, King R. Stories in Training. Acad Med. 2020 Oct;95(10):1540.
9. Zhou J, Calip G, Nutescu E, Han J, Srisuwananukorn A, Galanter W. Type 2 Diabetes Mellitus Burdens among Adults with Sickle Cell Disease: A Twelve-year Single Health System-based Cohort Analysis. British Journal of Hematology (Manuscript submitted)

Peer-Reviewed Poster Presentations

1. Srisuwananukorn A, Allen MR, Organ JM Variability of In-Vivo Reference Point Indentation in Skeletally Mature Mice. Presented at
   - (2014, September). 27th Annual Student Research Program in Academic Medicine Poster Session, Indianapolis, IN.
   - (2014, September). 6th Annual Indiana Clinical and Translational Sciences Institute (CTSI) Meeting, Indianapolis, IN.
   - (2014, October). Indiana University School of Medicine Department of Anatomy and Histology Poster Presentation, Indianapolis, IN.
   - (2015, January and February). Indiana University School of Medicine BioMedical Gateway (IBMG) Program Poster Presentation, Indianapolis, IN.
2. Srisuwananukorn A, Allen MR, Brown DM, Wallace JM, Organ JM (2015, March). In Vivo Reference Point Indentation Variability in Skeletally Mature Inbred Mice. American Association of Anatomists (AAA) Annual Meeting at Experimental Biology 2015, Boston, MA.
3. Elkhatib W, Organ JM, Srisuwananukorn A, Price P, Joll JC, Biro KC, Rupert JE, Chen NX, Avin KG, Moe SM, Allen MR (2015, October). Reduced Skeletal Muscle Function is Associated with Decreased Fiber Area and Increased Connective Tissue in a Rat Model of Progressive Kidney Disease. Biomedical Engineering Society Annual Meeting, Tampa, FL.
4. Jain S, Srisuwananukorn A, Saraf SL, Zhang X, Han J, Gowhari M, Molokie RE, Gordeuk VR, (2018, December). Cancer Incidence in Sickle Cell Disease: an Institutional Experience. 60th ASH Annual Meeting & Exposition, San Diego, CA.
5. Zhou J, Han J, Nutescu EA, Galanter W, Walton SM, Gordeuk VR, Saraf SL, Srisuwananukorn A, Calip GS (2018, December). Type 2 Diabetes Mellitus in Patients with Sickle Cell Disease: A Population-Based Longitudinal Analysis of Three Cohorts. 60th ASH Annual Meeting & Exposition, San Diego, CA.
6. Rahman S, Srisuwananukorn A, Molokie RE, Gowhari M, Njoku F, Hussain FA, Nutescu EA, Gordeuk VR, Saraf SL, Han J (2020, December). Correction of Point-of-Care International Normalized Ratio (INR) Values in Patients with Sickle Cell Disease. 62nd ASH Annual Meeting & Exposition, Virtual.
7. Han J, Srisuwananukorn A, Gowhari M, Hussain FA, Njoku F, Molokie RE, Gordeuk VR, Saraf SL (2020, December). Effects of Hydroxyurea and Renin-Angiotensin Blockade on Kidney Function in Sickle Cell Disease. 62nd ASH Annual Meeting & Exposition, Virtual.
8. Khan M, Srisuwananukorn A, Saraf SL, Hussain FA, Molokie RE, Gowhari M, Gordeuk VR, Njoku F (2020, December). Cancer Incidence and Chemotherapy Tolerance in Patients with Sickle Cell Disease. 62nd ASH Annual Meeting & Exposition, Virtual.
9. Cheng R, Srisuwananukorn A, Han J, Gowhari M, Njoku F, Hussain FA, Molokie RE, Gordeuk VR, Saraf SL (2020, December). Lower Apache II Score and Exchange Transfusions Predict Better Outcomes in the Intensive Care Unit for Patients with Sickle Cell Disease. 62nd ASH Annual Meeting & Exposition, Virtual.

PUBLICATIONS AND PRESENTATIONS continued

Oral Presentations

1. Srisuwananukorn A, Allen MR, Organ JM (2014, August). Variability of In-Vivo Reference Point Indentation in Skeletally Mature Mice. 27th Annual Student Research Program in Academic Medicine Oral Competition, Indianapolis, IN.
2. Srisuwananukorn A, Raslan R, Zhang X, Shah BN, Han J, Gowhari M, Jain S, Molokie RE, Gordeuk VR, Saraf SL (2018, December). Clinical, Laboratory, and Genetic Risk Factors for Thrombosis in Sickle Cell Disease. 60th ASH Annual Meeting & Exposition, San Diego, CA.
3. Srisuwananukorn A (2019, September). Machine Learning Implementation of Cancer Histology Actionable Gene Detection. The Computational Life Sciences Seminar Series at the University of Chicago, Chicago, IL.

QUALITY IMPROVEMENT

Website Design, Internal Medicine Residency **July 2017 – Present**

Department of Medicine, University of Illinois at Chicago

For my quality improvement project, I aim to create an outlet to increase the efficiency of our residents on our daily tasks. I have created and curated an entirely new website based off of Microsoft Sharepoint as an outlet for Chief residents to share important documents, schedules, and announcements. Furthermore, I have created a space and community for residents to post questions on a forum, discuss journal articles, and trade rotations or individual shifts. I have held multiple education lectures to teach this Wikipedia-style website to allow for population-based editing to help foster a sustainable website for future residents after my graduation. I currently have data regarding website usage, but I am still collecting data regarding changes in efficiency.

SERVICE AND LEADERSHIP

Campus Host for Bone Marrow Drive June 2015, September 2016

Delete Blood Cancer, Indiana University School of Medicine

- Organized a bone marrow drive to be held during Class of 2017 clinical clerkship orientation. I recruited classmates to assist, implemented an advertising campaign, and organized work shift schedules to allow multiple donation times. As a result, we obtained 57 new donors for the bone marrow registry, in which one registrant has currently matched and proceeded with bone marrow donation.

ADDITIONAL SKILLS

Programming:

- Completed Data Scientist in R Career Track on DataCamp.com (23/ 23 courses)
- Advanced proficiency in R
- Basic proficiency in Python and SQL
- Intermediate proficiency in machine learning API Keras in R, and FastAI in Python