



Christopher G. Snyder, MD, PhD

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Education

Washington University in St. Louis

Clinical Pathology Residency

2022–2025

MD/PhD Program

2012–2022

University of Texas Medical Branch (UTMB)

Doctor of Medicine

May 2022

University of Texas at Austin (UTA)

Doctor of Philosophy in Biomedical Engineering

Thesis: Machine Learning and Representation: Translating Deep Learning to Medicine

May 2020

Washington University in St. Louis (WUSTL)

Bachelor of Science Magna Cum Laude (GPA: 3.93 / 4.00)

May 2012

Double Majors: Biomedical Engineering, Applied Mathematics

Minor: Electrical Engineering

HONORS & AWARDS

Paul E. Strandjord Young Investigator Award, ACLPS Oral Presentation

2024

Certification in Quality and Safety - IHI Open School

March 2022

Above and Beyond Award in Patient Care, Teamwork and Growth Mindset, UTMB

2021

Ram's Horn Scholarship: Best Image Processing Project, UTA

2015

Distinction in Mathematics, WUSTL

2012

Dean's List, WUSTL

2008–2012

Tau Beta Pi Engineering Honor Society

2011–Present

Int'l Undergraduate Research Program Scholarship (RWTH University, Aachen, Germany)

2011

RESEARCH EXPERIENCE

WUSTL Pathology Resident, Independent Research: Topics related to Pathology Informatics 2022 – 2025

- Experience in quality improvement life-cycle and pathology laboratory process optimization related to blood bank testing, surgical mycobacteria culture surveillance, flow cytometry software customization, and medical code prediction from pathology reports.
- An independent effort to bridge cutting edge developments in machine learning to the laboratory including data statistics, visualization, and dashboarding, AI and large language models, and conformal prediction.

UTA Laboratory of Dr. Sriram Vishwanath: Graduate Researcher

2015 – 2020

- Collaborated with graduate and postdoctoral students to predict hospital readmissions, predict sepsis, histology slide segmentation of breast cancer cells, regularize deep learning using information theory.
- Mentored undergraduate, masters, and early graduate students –developed weekly research goals and individual projects tailored to each student's developing technical skill set.

UTMB Laboratory of Dr. Frank Goerner: Medical Student Researcher

2013 – 2014

- Wrote image processing algorithm for extracting relaxivity data from MRI images.

WUSTL Laboratory of Dr. Donald Elbert: Undergraduate Research Student

2010 – 2012

- Experience in biology and organic chemistry laboratory techniques which tailored the chemistry and properties of scaffolds for tissue engineering.
- Ideated and lead personal research project using ssDNA to adhere cells to scaffolds.

TEACHING EXPERIENCE

UTA Probability & Statistics Course: Teaching Assistant

2016

- Designed and led weekly lectures for students.
- Created and graded homework assignments.
- Earned excellent student evaluations.

WUSTL MCAT Preparatory Course: Teacher

2011

- Led and taught MCAT preparatory material to undergraduate pre-med WUSTL students.
- Selected as instructor due to exemplary performance (98th percentile) on MCAT and recognized teaching skills.

WUSTL Mathematics Help Desk: Tutor 2011

- Tutored and assisted university students during walk-in hours for mathematics courses of all levels.

LEADERSHIP EXPERIENCE

Trainee Leadership Committee: CP Representative 2022 - 2023

- Worked to improve residency training. Raised issues with program leadership.

UTA Biomedical Engineering Graduate School: TensorFlow Leader 2019

- Spearheaded adoption of new TensorFlow coding framework with department presentation.

UTMB Neurology Club: President 2013

- Collaborated with board members to provide presentations and resources to medical students interested in neurology.

WUSTL Committee on University Policy and Practice: Student Advisor 2011

- Met with panel to consult on school-wide practices and policies.
- Helped develop and advance recommendations based on student input, concerns, and grievances.

RESEARCH PRESENTATIONS

- **Snyder, C.G.**, Broadsky, V.. (2024, May). Conformal Prediction and Large Language Models for Medical Coding. **[Poster Acceptance]** Association for Pathology Informatics.
- Eberly AR, **Snyder CG**, Keeven M, Sinclair D, Marschall J, Mejia-Chew C. Microbiologic Yield and Cost of Mycobacterial Cultures from Osteoarticular Specimens. **Oral Poster Presentation**, ASM Microbe, Houston TX. June 2023.
- **Snyder, C.G.**, Vishwanath, S.. (2020, April 30). Deep Learning and Representation: Translating Deep Learning to Medicine. **[Dissertation Defense]** - Department Biomedical Engineering/Austin, TX, USA.
- **Snyder, C.G.**. Deep Logical Circuits: Generalization through Interpretation **[Oral Presentation]**. UTA Computer Sciences Department. Invited by Dr. Qiang Lui.
- **[Visiting Lecturer] Snyder, C.G.**. Inverse Problems and Machine Learning, Combinatorial Complexity of Deep Networks: Think Weight Configurations, not Perturbations!. Texas A&M University – Mathematics Department, Lecture Series: Inverse Problems and Machine Learning. **[Sponsored Oral Presentation]** by The Dept of Mathematics at A&M (Dr. Boris Hanin). Nov 13, 2020
- **Snyder, C.G.**, Vishwanath, S.. (2021, February 10). Deep Networks as Logical Circuits **[Poster Presented]**. Information Theory and Applications Workshop/San Diego, CA, USA.
- Wicaksono, D., **Snyder, C.G.**, Mhamdi, A., Marquardt, W.. (2011, September 04). Inverse Problem Approach for Screening and Design of Reaction Solvents **[Poster Presented]**. Gesellschaft Deutscher Chemiker Wissenschaftsforum Chemie/Bremen, DEU.
- **Snyder, C.G.**. (2011, August 01). Computer-aided Solvent Design to Promote Organic Reaction Kinetics **[Oral Presentation]**. Rheinisch-Westfälische Technische Hochschule Undergraduate Research Opportunities Program Symposium/Aachen, DEU.

PUBLICATIONS

- **Snyder, C.G.**, Zaydman, M.. (2023, Aug). Generative AI: More of the Same or Off the Control Chart? Journal of Clinical Chemistry and Laboratory Medicine.
- **Snyder, C.G.**, Vishwanath, S.. (2020, June 26). Interpretable Factorization for Neural Network ECG Models. <https://arxiv.org/abs/2006.15189>
- **Snyder, C.G.**, Ucherek, J., Vishwanath, S.. (2020, Jan). The Importance of Baseline Models in Sepsis Prediction. Machine Learning for Health Care, Clinical Abstracts(1), 1.
- **Snyder, C.G.**, Vishwanath, S.. (2020, May). Sample Compression, Support Vectors, and Generalization in Deep Learning. Institute of Electrical and Electronics Engineers Journal on Selected Areas in Information Theory, 1(1), 106-120.
- **Snyder, C.G.**, Vishwanath, S.. (2020, June). Deep Networks as Logical Circuits: Generalization and Interpretation . <https://arxiv.org/abs/2006.15189>

- **Snyder, C.G.**, Kacaoglu, M., Dimakis, A.G., Vishwanath, S.. (2018, Jan). CausalGAN: Learning Causal Implicit Generative Models with Adversarial Training. Sixth International Conference on Learning Representations, Vancouver, May, 2018, (-), -. (Journal equivalent). Ranked as Top 2% of submitted papers.
- Shen, Y., Goener, F.L., **Snyder, C.G.**, Morelli, J.N., Hao, D., Hu, D., Li, X., Runge, V.M. . (2015, May). T1 Relaxivities of Gadolinium-Based Magnetic Resonance Contrast Agents in Human Whole Blood at 1.5, 3, and 7 T. Investigative Radiology, 50(5), 300-338. PMID:25658049.
**This work completed while taking medical school classes before PhD training*
- Nguyen, P.K., **Snyder, C.G.**, Shields, J.D., Smith, A.W., Elbert, D.L. . (2013, Apr). Clickable Poly(ethylene glycol)-Microsphere-Based Cell Scaffolds. Macromolecular Chemistry and Physics, 25(8), 948-956. PMID: 24052690.

PROFESSIONAL SOCIETIES AND MEMBERSHIPS

Association for Pathology Informatics
 American Society of Hematopathology
 Association for Molecular Pathology
 Association for Diagnostics and Laboratory Medicine
 American Society for Clinical Pathology
 Tau Beta Pi Engineering Honor Society

OTHER INTERESTS AND HOBBIES

Interests / Hobbies :

I am interested in various scientific fields at an amateur level, including space travel and cosmology. I am also very interested in history, especially 19th-20th century, and I play chess at a club player level. I play an enthusiastic, amateur-level game of tennis , but more often presently I go to Orange Theory workout studios for recreation.