Christopher M. Zarbock

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Education and Training

University of Minnesota July 2020 – Present
Resident, Clinical Pathology Minneapolis, MN
Department of Laboratory Medicine and Pathology

Maine Medical Center July 2018 – June 2020
Resident, Integrated Vascular Surgery Program Portland, ME
Department of Vascular Surgery

University of Wisconsin School of Medicine and Public Health May 2018
Doctor of Medicine Madison, WI

Thayer School of Engineering at Dartmouth College June 2012
Bachelor of Engineering in Engineering Sciences Hanover, NH
Concentration in Biomedical Engineering

Dartmouth College June 2012
Bachelor of Arts in Biomedical Engineering Sciences Hanover, NH
Honors, *Magna Cum Laude*

Informatics Experience

Revising Molecular Care Testing Pathway March 2022 – April 2022

- Worked to help clarify current ordering practices for molecular testing
- Performed subanalysis of number of touch points and turn around time for a site within the M Health Fairview system

Roche Implementation Project March 2022 – April 2022

- Helped analyze the change in tests from the current system to the Roche system so as to identify which tests require new Epic codes

LIS Legacy Data Archiving Project March 2022 – April 2022

- Assisted in validating the search functionality through helping develop and then test various use cases

CAP Synoptic Update Testing Validation March 2022 – April 2022

- Aided in transitioning the AP Beaker implementation of the June 2021 CAP synoptic checklists

Epic Physician Builder Basic and Advanced March 2022 – April 2022

- Course complete, certificate pending projects completion

Epic Notecraft for Physicians March 2022

- Course complete, certificate pending project completion

Digital Image Analysis Utilizing an Artificial Neural Network in the Quantification of Bone Marrow Fibrosis on Reticulin-Stained Trephine Core Biopsies

Developed a digital image analysis algorithm using pixel classification trained via an artificial neural network emphasizing linear shapes for the quantification of bone marrow fibrosis.

University of Minnesota Department of Laboratory Medicine and Pathology — Fall 2021 – Winter 2022

USCAP 2022 111th Annual Meeting Poster Presentation — Los Angeles, CA

Advisor: Bartosz Grzywacz, MD

A Rapid Technique to Address Recall Bias Without a 2-Week Antegrade Washout Period in the Validation of Whole Slide Imaging for Histopathological Primary Diagnosis

Helped to validate a technique which enabled rapid whole-slide imaging validation at the University of Minnesota.

University of Minnesota Department of Laboratory Medicine and Pathology — Fall 2020 – Winter 2021

USCAP 2021 110th Annual Meeting Poster Presentation — Virtual conference

Advisor: Oyedele Adeyi, MD

Updating Program Capability to Interface with New Data Format

Revised MATLAB code to allow for processing of new high-density electroencephalogram data format.

Shapiro Summer Research Program — Summer 2015

Wisconsin Sleep Center — Madison, WI

Advisor: David Plante, MD, PhD

Data Assistant and Programmer for Redesigning Cardiac Surgery to Reduce Neurologic Injury Project

Helped with designing a Microsoft Access database to streamline data entry and access.

Research team member — Fall 2009

Dartmouth College — Hanover, NH

Advisor: Donald Likosky, PhD

Molecular Pathology Experience

Longitudinal Topics Engagement — July 2021 – Present

Remained committed to advancing my knowledge of molecular pathology through faculty-recommended independent study in the following areas:

- Tumor mutational burden specifically with regard to standardization initiatives and the Friends of Cancer Research TMB Harmonization Project
- MGMT testing in glioma
- Homologous recombination deficiency (loss of heterozygosity, telomeric allelic imbalance, large-scale transitions)

Archer Fusion Panel Validation — June 2021 – July 2021

- Assisted in validation of this panel through checking for additional negative fusion partners as a part of the negative control

Worked on Indicator of CREB Activation due to Phosphorylation (ICAP) Sensor through use of Directed Evolution Techniques

Updated sensor fluorophores and worked on development of high-throughput screen to process a large number of variants.

Fulbright Grant Research — September 2012 – June 2013
Max Planck Institute of Neurobiology — Martinsried, Germany
Advisor: Oliver Griesbeck, PhD

Optimizing Homologous Recombination in *T. saccharolyticum*

Explored one way of creating gene knockouts in an anaerobic bacterium. This knowledge could ultimately be used to explore gene function in this organism.

Honors Thesis — Winter 2012 – Spring 2012
Thayer School of Engineering at Dartmouth College — Hanover, NH
Advisor: Lee R. Lynd, PhD

Development of Improved Genetically Encoded Calcium Indicators

Helped conduct directed evolution experiments to find improved variants of GECIs. These protein constructs exhibit a change in fluorescence when bound by calcium and enable the tracking of action potentials and other calcium-dependent events.

Max Planck Internship — Summer 2011
Max Planck Institute of Neurobiology — Martinsried, Germany
Advisor: Oliver Griesbeck, PhD

Development of Bioanalytical Methods to Investigate Protein-Peptide Interactions

Measured protein-peptide interaction and binding affinity through utilization of a Biacore X.

Presidential Scholar Research Assistantship — Summer 2010, Winter 2011
Dartmouth College — Lebanon, NH
Advisor: Mark Spaller, PhD

Proteomics of Aging and Diseased Hearts

Worked on techniques to characterize the proteins of diseased and aging rat hearts.

Research team member — Fall 2010
University of Wisconsin - Stout — Menomonie, WI
Advisor: Jennifer Grant, PhD

Additional Research Experience

Development of Brain Phantoms for Use in Merging Diffuse Optical Tomography with EEG, MEG, and MRI for Neurovascular Exams Project

Attempted to develop a uniformly conductive graphite composite along with silicone molds which imitated the scattering and absorption properties of one's head.

Howard Hughes Medical Institute Fellow — Winter 2010
Thayer School of Engineering at Dartmouth College — Hanover, NH
Advisor: Solomon Diamond, PhD

Leadership

Management and Leadership Development Program, Dartmouth College Winter 2011

Continued developing leadership skills such as negotiation and motivating followers through attending workshops put on by different leaders.

United States Air Force Academy Cadet 2008 – 2009

Learned about leadership through following others.

Senior Patrol Leader, Troop Guide (Boy Scouts of America) 2006 – 2007

Devised and carried out scouting events. Supervised development of those in the troop.

Community Involvement

Wisconsin Health Literacy Spring 2017

Co-taught a course introducing non-native English speakers to prescription medications.

Blaine Center (Men's Homeless Shelter) November 2013 – March 2014

Served dinner to and conversed with homeless men from the Seattle community.

Puget Sound Christian Clinic November 2013 – March 2014

Conducted technical support for the different computers and printers used at the clinic.

Generations Project Intergenerational Internet Program Winter & Fall '11, Spring '12

Assisted a senior citizen with computer-related problems.

Dartmouth Cancer and Patient Services (CAPS) Spring '11 & '12, Winter '12

Helped a patient with yard work, assisted individuals in signing up for the bone marrow registry, and helped paint a residence for outpatients receiving care near Hanover, NH.

Students Fighting Hunger Fall 2011

Helped prepare meals for the underprivileged in the Hanover, NH area.

Chippewa Falls, WI Open Door Clinic Fall 2010

Registered new patients, updated patient records, and worked on updating drug database.

Awards and Honors

USCAP 2022 Annual Meeting Pathologist-in-Training Travel Award 2022

Association for Pathology Informatics 2021 Summit Travel Award 2021

U.S. Student Fulbright Award 2012 – 2013

U.S. Department of State award to expand perspectives through academic and professional advancement and cross-cultural dialogue. This award enabled me to conduct research at the Max Planck Institute for Neurobiology.

DAAD Graduate Scholarship Award 2012 – 2013

Awarded, chose Fulbright grant.

Phi Beta Kappa 2012

Academic honor society.

Tau Beta Pi 2012

Engineering honor society.

Richard W. Olmsted 1932 (Thayer 1933) Prize 2012

Awarded to a Dartmouth senior majoring in Engineering Sciences to recognize outstanding performance in the major.

E.A. Neufeld Endowed Scholar Recipient 2010 – 2012

Awarded to a Dartmouth student, preferably from Wisconsin, who demonstrates personal and academic promise.

Presidential Scholar Research Assistantship at Dartmouth College Summer 2010, Winter 2011

Howard Hughes Medical Institute Fellow Winter 2010

Monroe Fellow (United States Air Force Academy) 2009

Membership in this fellowship was awarded to approximately six cadets who excelled academically in my class of more than 1000. Its members shared an interest in learning for learning's sake and engaged in intellectual events such as book discussions.

Scholar Program Member (United States Air Force Academy) 2009

Limited to roughly the top 60 cadets in academic standing in each class. Members may take special seminar sections of normal course offerings in which scholarly discussion is encouraged.

Two-Time Recipient of Superintendent's List Honor (United States Air Force Academy) 2008 – 2009

Earned when one's grade point average, physical education average, and military performance average are greater than 3.0 at the United States Air Force Academy.

Eagle Scout Award 2007