Jacob Canfield

Jacob.canfield@midwestern.edu | (224) 848-1807

# Education

Michigan State University | Fall 2016 – Spring 2020 | GPA: 3.83

Dual Degree | BS in Physiology | BS in Biochemistry and Molecular Biology | DREW Science Scholar

Chicago College of Osteopathic Medicine | Fall 2023 – Present | GPA: 3.72 | Top 26% of Class

Specialties of Interest: Trauma Surgery, Emergency Medicine and Critical Care

# Clinical Work Experience

## Elite Ambulance | Jul. 2022 – Jul. 2023 | EMT-B

* Experience running emergency and transport calls on an ambulance in the Chicagoland area, managing patient care, performing interventions, patient care report documentation, and transferring care to the emergency department.
* Trained new hires to be competent in emergency medical care, excel at leadership and communication, write quality documentation, and perform proper assessments and examinations.
* Volunteered time to assist with teaching EMT-B class and acting as a simulation patient in scenarios to prepare new EMTs for the field

# Research Experience

Kenneth A. Suarez Summer Research Fellowship Researcher at the Cook County Hospital Trauma and Burn Unit | May 2024 – Present

* Studied resuscitative thoracotomies using the National Trauma Data Bank (NTDB) to determine mortality rates with age to create statistically informed guidelines using technical, clinical bioinformatics skills. This included writing code in Python and Unix to obtain, process, and statistically analyze data from the NTDB.
* Observed and assisted with a wide variety of skills and procedures, including but not limited to resuscitative thoracotomies, in one of the highest-volume trauma units in the country.
* Performed skills under the supervision of residents and attendings, including laceration repairs, wound care, FAST exam, and closure of patient status post resuscitative thoracotomy.
* Assisted nurses, physician assistants, and other hospital staff complete essential tasks in the trauma bay and deliver excellent care to patients from all walks of life with an exceptional bedside manner.

MSU Department of Computational Math, Science, and Engineering

## Undergraduate Researcher | Advisor: Arjun Krishnan | Nov. 2017 – May 2021

* Worked on an independent computational biology project developing a new machine-learning approach to predict the activities of unmeasured genes in high-throughput gene-expression assays.
* I gained proficiency in programming (Python, Unix), high-performance computing, and statistical analysis and visualization of big data.
* Presented research at multiple symposia; Taught primer in data visualization for a graduate-level course; Presented at the Great Lakes Bioinformatics 2019 conference.

MSU Department of Chemistry

## Undergraduate Researcher | Advisor: Marcos Dantus | Dec. 2016 – Nov. 2017

* Worked with a post-doc and a graduate student on biomedical imaging. An ultrafast laser was used to study the multiphoton signal in mouse and monkey retinas.
* I worked on an independent project, building an interferometer to measure the quality of blood stored in blood bags.
* Gained experience in ultrafast laser science, spectroscopy, microscopy, interferometry, writing scientific papers, presentations regarding scientific material, and collaborating on a scientific project.

# Awards and Scholarship

* University Scholars Award | Michigan State University | 4 years |
* Red Cedar Scholarship | Michigan State University | 4 years |
* Summer Research Scholarship | Michigan State University | Summer 2017 |
* ENSURE Summer Research Program | Michigan State University | Summer 2018 |
* Travel Fellowship to Great Lakes Bioinformatics | University of Wisconsin Madison | May 2019 |
* Dean’s List | Michigan State University | Fall 2016 – May 2020 |
* Nominee for Richard Lee Featherstone Endowed Prize | Michigan State University | Spring 2020 |
* Finalist for Physiology Meites Award | Michigan State University | Spring 2020 |
* Recipient for Physiology Senior Research Award | Michigan State University | Spring 2020 |
* Recipient of Physiology Department Service Award | Michigan State University | Spring 2020 |
* Kenneth A. Suarez Summer (KAS) Summer Research Fellowship | Midwestern University | Summer 2024 |

# Peer-Reviewed Publications

Murashova, Gabrielle A, Mancuso, Christopher A, **Canfield, Jacob L**, et al. "Multimodal nonlinear optical imaging of unstained retinas in the epi-direction with a sub-40 fs Yb-fiber laser." *Biomedical Optics Express* 8.11 (2017): 5228-5242.

Christopher A Mancuso\*, **Jacob L Canfield\***, Deepak Singla, Arjun Krishnan, A flexible, interpretable, and accurate approach for imputing the expression of unmeasured genes, *Nucleic Acids Research*, Volume 48, Issue 21, 2 December 2020, Page e125, https://doi.org/10.1093/nar/gkaa881

\* indicates co-first authorship

# Symposia and Conferences

Poster Presentation at MIDSURE | Imputing the Expression of Unmeasured Human Genes Using

Tissue-Specific Signals | Aug. 2018 | Michigan State University |

Talk on Time Management to Student-Athlete Leadership Team| Feb. 2019 | Crystal Lake South High School |

Poster Presentation at UURAF | Imputing the Expression of Unmeasured Genes in Transcriptomes

Across Studies, Platforms, and Technologies | Apr. 2019 | Michigan State University |

Poster at Physiology Department Retreat | Save-A-Bear: Making Conventional CPR Training “Cuddlier” to

Engage Children| May 2019 | Michigan State University |

Poster Presentation at Great Lakes Bioinformatics | Imputing the Expression of Unmeasured Genes in

Transcriptomes Across Studies, Platforms, and Technologies | May 2019 | University of Wisconsin Madison |

Poster at Michigan Physiological Society | Save-A-Bear: Making Conventional CPR Training “Cuddlier” to

Engage Children | Jul. 2019 | Central Michigan University |

# Teaching and Mentoring

Todd Martin Youth Leadership Tutoring and Mentoring | Sep. 2016 – Nov. 2016 |

Physiology Understanding Day Station Leader | Nov. 11th, 2017, Oct. 27th, 2018, Nov. 2nd, 2019 |

Teaching Assistant Virtual Imaging and Physiology Laboratory, Blood Pressure Concerns and Autonomic

Testing | MSU College of Human Medicine | Oct. 2018, Feb. 2019 |

Undergraduate Learning Assistant Physiology Capstone Lab | PSL 475L | Sep. 2019 – May 2021 |

Graduate Level Primer on Data Visualization | MSU Department of CMSE | Mar. 2019 |

# Services and Professional Membership

Hands-Only CPR Challenge Lead | Sep. 2018, Sep. 2019 |

Graphics & Design Executive for Blueprints for Pangaea | Dec. 2018 – May 2020 |

College of Human Medicine Medical Preparation Opportunity | Fall 2016 – May 2020 |

International Society of Computational Biology | May 2019 |

Michigan Physiological Society | Jul. 2019 |

Michigan State University Physiology Society | Fall 2016 - May 2020 |

Stop the Bleed Trainer | Fall 2023 – Present |

# Professional Training

Orthopedic Surgery Shadowing | Dr. Todd Ream | Jul. 2018 |

Hospital Volunteering at McLaren Greater Lansing and Sparrow Lansing | Jan. 2017 – Dec. 2018 |

Hospitalist Scribe at Advocate Good Shepherd Barrington, IL | May 2021 - June 2022 |

EMT - Basic | Feb 2022 – Jul 2023 |

# Extracurricular Activities & Hobbies

## Extracurricular

Taekwondo Club | Michigan State University | Aug 2019 – May 2020 |

Intramural Sports | Michigan State University | Fall 2016, Fall 2019 |

## Hobbies

Scuba diving, soccer, golf, weightlifting, taekwondo, reading and electronics/technology