Aris **Paschalidis**

Medical Student · UMass Chan Medical School

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Education

University of Massachusetts Chan Medical School
Worcester, MA

M.D. Candidate — *Aug. 2022 - Present*

Brown University
Providence, RI

B.S. in Computational Biology — *Sep. 2017 - May 2021*

- Honors Thesis Title: "coiaf: Complexity Of Infection Estimation with Allele Frequencies"
- Magna Cum Laude
- GPA 4.0

Boston University
Boston, MA

Took classes while in high school — *Sep. 2015 - May 2017*

- GPA 3.98

Research Experience

Brown University
Providence, RI

Bioinformatician — *June 2021 - August 2022*

- Developer for coiaf, a package to estimate the number of malarial strains a patient is infected with, which is known as the Complexity of Infection (COI).
- Developer for MIPTools, a suite of computational tools used for molecular inversion probe design, data processing, and analysis.
- Developer for miplicorn, a unified framework for molecular inversion probe and amplicon analysis. It provides the tools to quickly parse files several gigabytes large, filter and manipulate data, analyze data, and, most informatively, visualize data.

Lab Member — *January 2020 - August 2022*

- Developer for coiaf, a package to estimate the number of malarial strains a patient is infected with, which is known as the Complexity of Infection (COI).

Massachusetts General Hospital (MGH)
Boston, MA

Research Intern — *May 2019 - September 2020*

- Worked at the Orthopedic Trauma Department shadowing doctors and conducting research primarily with Dr. Heng.
- Focused on examining associations between mental health scores and physical function scores of patients who had recently undergone total knee or hip replacements.

Summer Fellow — *May 2019 - December 2019*

- Worked at the cardiovascular research center under the tutelage of Dr. Das, Dr. Varrias, and Dr. Rodosthenous.
- Worked on examining associations between micro RNAs, long non coding RNAs, and heart failure.

Brown University
Providence, RI

Research Intern — *May 2018 - January 2019*

- Worked with Prof. Schmid at the Center for Evidence Based Synthesis.
- Created a package to analyze n-of-1 clinical trials. The package allows users to run normal, binomial, poisson, or ordinal regressions on the data.

Massachusetts Institute of Technology
Cambridge, MA

Research Intern — *June 2016 - September 2016*

- Internship at the MIT Operations Research Center.
- Worked with Dr. Bertsimas and Dr. Dunn on regression and classification problems using an approach which derives optimal decision trees by solving an integer optimization problem.

Research Intern — *June 2015 - September 2015*

- Worked at the MIT Operations Research Center.
- Worked with Prof. Dimitris Bertsimas on a regression problem with an application to ophthalmology.

Software Projects

MIPTools
October 2021 - Present

A suite of computational tools used for molecular inversion probe design, data processing, and analysis.

miplicorn
August 2021 - Present

A unified analysis framework for molecular inversion probe (MIP) and amplicon-targeted sequencing analysis after micro haplotyping or variant calling. It provides tools for parsing large variant files, filtering and manipulating the data, and basic analyses and visualization.

coiaf
March 2020 - Present

Methods for estimating complexity of infection using easily calculated measures from sequence read depth data.

nof1gen *December 2018 - March 2019*

A package for running analyses for N of 1 study trials.

CAvaccines *March 2020 - October 2021*

A package to examine associations between vaccination rates and disease incidence in California counties.

Selected Honors & Awards

2021 **Magna Cum Laude,** Brown University

2021 **Honors,** Computational Biology, Brown University

2019 **Fellowship,** American Heart Association Undergraduate Student Summer Fellowship Award

Publications

Journal Articles

The Not-So-Distant Future or Just Hype? Utilizing Machine Learning To Predict 30-Day Post-Operative Complications In Laparoscopic Colectomy Patients

Velmahos C. S., Paschalidis A., and Paranjape C. N.

The American Surgeon. Mar. 2023

coiaf: Directly Estimating Complexity of Infection with Allele Frequencies

Paschalidis A., Watson O. J., Aydemir O., Verity R., and Bailey J. A.

Preprint. May 2022

Patient-Reported Mental Health Score Influences Physical Function After Primary Total Knee Arthroplasty

Melnic C. M., Paschalidis A., Katakam A., et al.

The Journal of Arthroplasty. Apr. 2021

Predictive Models of Mortality for Hospitalized Patients With COVID-19: Retrospective Cohort Study

Wang T., Paschalidis A., Liu Q., et al.

JMIR Medical Informatics. Oct. 2020

Conference Proceedings

Regression and Classification Using Optimal Decision Trees

Bertsimas D., Dunn J., and Paschalidis A.

2017 IEEE MIT Undergraduate Research Technology Conference (URTC), Nov. 2017

Poster Presentations

The Effects of a Mental Health Diagnosis on Achieving the Minimal Clinically Important Difference in Primary and Revision Total Joint Arthroplasty

Salimy M. S., Paschalidis A., Dunahoe J., et al.

American Association of Hip and Knee Surgeons Annual Meeting, Nov. 2022, Grapevine, Texas

Effects of Mental Health on PROMIS Scores After Primary THA

Paschalidis A., Salimy M. S., Robinson M. G., et al.

Eastern Orthopedic Association Annual Meeting, Oct. 2022, Naples, Florida

Complexity of Infection Estimation with Allele Frequencies

Paschalidis A., Watson O. J., Verity R. J., and Bailey J. A.

American Society of Tropical Medicine and Hygiene Annual Meeting, Nov. 2021, Virtual

Physical Function After Primary Total Knee Arthroplasties (TKAs) Stratified by Pre-operative Patient-Reported Mental Health Score

Melnic C. M., Paschalidis A., Katakam A., et al.

American Academy of Orthopaedic Surgeons 2021 Annual Meeting, Aug. 2021, San Diego, California

Predictors Of Continuing Improvement After 1st Month Of Crt Implantation In Women With Heart Failure (Hf)

Varrias D., Pujol M., Samala V., et al.

Heart Rhythm Society 2020 Science 2020, Virtual

Changes in Plasma Extracellular RNAs: Independent Associations with Left and Right Ventricular Reverse Remodeling

Varrias D., Paschalidis A., Michelhaugh S., et al.

Cardiovascular Research Center Retreat 2019