Matthew Cadier Kim

Thorton Hall 912, 1600 Holloway Ave, San Francisco, CA 94132
1 (415) 767-8984
m.cadier.kim@gmail.com

About Me

I do research in combinatorial optimization and machine learning. My mathematical work deals with a class of polytopes related to classical finite reflection groups and submodular set functions. More broadly I am interested in algebraic combinatorics and discrete geometry. I also build machine learning algorithms for medical applications. Currently I am interested in transfer learning and convolutional neural networks for medical images.

Work History

Machine Vision Engineer — UCSF Proctor Foundation
San Francisco, CA — May, 2015 - present
We received a grant to investigate various machine learning algorithms to classifying images of everted eyelids. I worked with the PI to define the direction of the project and develop a grading algorithm according to WHO guidelines for identifying trachoma infection. Also as part of this contract I developed an application to manage the uploading, storage and retrieval of images from studies.

Lecturer in Mathematics — San Francisco State University
San Francisco, CA — September, 2014 - December, 2015
I have been the principal instructor for several sections of college algebra and precalculus. I helped develop and administer a large online calculus coursef for 200+ students each semester.

Data Science Associate — Argyle Data
San Mateo, CA — June, 2014 - February, 2015
I worked alongside the senior software engineer to research, prototype, and develop machine learning and statistical algorithms for fraud detection.

Papers

A Characterization of Generalized Permutohedra for the Classical Reflection Groups, 2015, (thesis)

Generalized W-permutohedra (Talk), 2015, ((slides for a talk about the background of my thesis))

Generalized W-Permutohedra (poster), 2015, (Poster presented at graduate student showcase.)

Discriminating Eyelids with Trachomatous Inflammation - Follicular, with Dr. Travis Porco and Dr. Kazunori Okada, 2015, (in progress)

Education

SFSU: MA , Mathematics, 2015
SFSU: BA , Philosophy, Mathematics, 2012
University of Paris 1: Visiting Student , Philosophy, Logic, Mathematics, 2009-2011

Programming Languages

English French (Fluent) Java Python Matlab Julia