Matthew Cadier Kim

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About Me

I do research in combinatorial optimization and machine learning. My mathematical work deals with a class of polytopes related to classical root systems 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 applications of convolutional neural networks to eye diseases.

Work History

Researcher in Machine Vision — UCSF Proctor Foundation
San Francisco, CA — May, 2015 - present
We recieved a grant to investigate machine learning algorithms to classify images of eyelids. I worked under the lead biostatistician to develop a grading algorithm according to WHO guidlines for identifying trachoma infection.

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)
Using Transfer learning from Convolutional Neural Networks to learn features to for detection of Trachoma, with Porco, Travis and Okada, Kazunori, 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