

RESEARCH INTERESTS

Deep learning, geometry, dynamical systems & probabilistic graphical models

ACADEMIC APPOINTMENTS

Princeton University

Postdoctoral Researcher, [Mechanical and Aerospace Engineering](#)
Presidential Postdoctoral Research Fellow

Princeton, NJ
August 2020 - Present

EDUCATION

University of Pennsylvania

Ph.D., [Computer and Information Science](#)

M.S.E., [Robotics](#)

Dissertation: Leveraging Symmetric Structure for Improved Learning in Convolutional Neural Networks

Advisor: Prof. Kostas Daniilidis

NSF IGERT Complex Scene Perception Fellow

Distinguished Fontaine Fellow

GEM Fellow

Philadelphia, PA

Spring 2020

May 2013

San Jose State University

B.S. Computer Engineering

B.S. Mechanical Engineering

David A. Brown Mechatronics Fellow

San Jose, CA

August 2011

August 2011

PUBLICATIONS

C. Esteves, Y. Xu, **C. Allen-Blanchette**, K. Daniilidis, *[Equivariant Multi-View Networks](#)*, ICCV, 2019 (**Oral**)

C. Esteves, **C. Allen-Blanchette**, A. Makadia, K. Daniilidis, *[Learning SO\(3\) Equivariant Representations with Spherical CNNs](#)*, ECCV, 2018 (**Oral**)

C. Esteves, **C. Allen-Blanchette**, X. Zhou, K. Daniilidis, *[Polar Transformer Networks](#)*, ICLR, 2018

S. Leonardos, **C. Allen-Blanchette**, J. Gallier, *[The exponential map for the group of similarity transformations and applications to motion interpolation](#)*, IEEE ICRA, 2015

Publications In Preparation

C. Allen-Blanchette, S. Veer, A. Majumdar, N. Leonard, *[LagNet: Lagrangian Neural Network](#)*

C. Allen-Blanchette, K. Daniilidis, *[Joint Estimation of Image Representations and their Lie Invariants](#)*

P. Posey, **C. Allen-Blanchette**, *[Unequal Exposures: An Application of Convolutional Neural Networks to Predict Neighborhood Physical and Social Characteristics](#)*

K. Schwerzmann, **C. Allen-Blanchette**, J. Gallion, *[Prior Understandings: Algorithms and the Justice System](#)*

AWARDS & FELLOWSHIPS

[Presidential Postdoctoral Research Fellows](#), Princeton University, 2019-Present

[Provost Postdoctoral Fellow](#), University of Pennsylvania, 2019 (declined offer)

[Fontaine Fellowship](#), University of Pennsylvania, 2012-2019

[FOCUS Fellows](#), Georgia Institute of Technology, 2016

[NextProf Future Faculty Workshop](#), University of Michigan, 2015

[NSF IGERT Complex Scene Perception Fellowship](#), University of Pennsylvania, 2012-2014

[GEM Fellowship](#), University of Pennsylvania, 2012

[Summer Undergraduate Research Fellowship](#), Georgia Institute of Technology, 2010

[Tau Beta Pi Honor Society](#), San Jose State University, 2008

[David A. Brown Fellowship in Mechatronics](#), San Jose State University, 2007

[Pi Tau Sigma Honor Society](#), San Jose State University, 2006

PATENTS

(WO2009086109) Systems and Methods for Dynamic Alignment Beam Calibration

A method for performing DA (Dynamic Alignment) beam calibration in a plasma processing system is provided.

(US8751047B2) Systems and Methods for Calibrating End Effector Alignment in a Plasma Processing System

A method for calibrating alignment of an end effector with respect to a chuck in a plasma processing system is provided.

(WO2009086164) Systems and Methods for Calibrating End Effector Alignment Using at Least a Light Source

A method for calibrating alignment of an end effector with respect to a chuck in a plasma processing system is provided.

(WO2009086042) Arrangements and Methods for Determining Positions and Offsets

A method for determining positions and offsets in a plasma processing system, the plasma processing system including at least a chuck and an upper electrode is provided.

PRESENTATIONS

“LagNet: Lagrangian Neural Networks”, *Princeton University*, Princeton, NJ April 6, 2020

“Equivariant Filtering in CNNs”, *Princeton University*, Princeton, NJ January 31, 2020

“Design and Use of Equivariant Filters in CNNs”, *University of Pennsylvania, Kod*lab*, Philadelphia, PA, June 26, 2018

“3D Object Classification”, *NSF-IUCRC ROSE-HUB*, Minneapolis, MN, April 26-27, 2018

“Equivariant networks”, *NSF-IUCRC ROSE-HUB*, Denver, CO, November 16-17, 2017

“Motion Interpolation in SIM(3)”, *GEM Annual Board Meeting and Conference*, San Diego, CA, August 13-15, 2014

RESEARCH EXPERIENCE

University of Pennsylvania

Graduate Researcher, GRASP Laboratory

Philadelphia, PA

June 2012 - August 2020

Georgia Institute of Technology

Undergraduate Researcher, HumAnS Lab

Atlanta, GA

May - July 2010

PROFESSIONAL EXPERIENCE

BAE Systems

Software Engineering Intern

Developed software emulators for vehicle components

Santa Clara, CA

June 2009 - April 2010

Lam Research

Mechatronics Intern

Developed techniques for improved silicon wafer centering

Fremont, CA

July 2007 - August 2008

San Jose State University

Robotics Course - Curriculum Designer, Mechatronics Lab

San Jose, CA

February 2007 - January 2008

San Jose State University

Robotics Course - Software Developer, Mechatronics Lab

San Jose, CA

June - August 2006

TEACHING EXPERIENCE

University of Pennsylvania

Teaching Assistant, *CIS 580: Machine Perception*, Spring 2018

Trainee, *Course in College Teaching*, Spring 2017

Course Developer and Teaching Assistant, *edX Robotics: Vision Intelligence and Machine Learning*, Summer 2017

Lecturer, *Research Experience for Teachers (RET) - Linear Algebra*, Summer 2016

Teaching Assistant, *CIS 371: Computer Organization and Design*, Spring 2014

Teaching Assistant, *COGS001: Introduction to Cognitive Science*, Fall 2013

OUTREACH

[AMP GEM GRAD Lab](#), *Why Graduate School?* - Panelist, April 6, 2018
[Data for Black Lives Conference](#), *Ask a Data Scientist* - Panelist, November 17-19, 2017
DataRescue Philly, *Seeder/Sorter*, January 14, 2017
[Research Experience for Teachers \(RET\)](#), *Mentor*, Summer 2016
iPraxis, *Coding Scienceteer*, January 2015 - May 2015
[West Philly Tutoring Project \(WPTP\)](#), *Math Tutor (4th grade)*, September 2014 - December 2014
Google Hack212: Urban Innovation, *Hacker*, November 5-7, 2011

ACTIVITIES

Fontaine Society, *Alum*
National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM), *Alum*
National Society of Black Engineers (NSBE), *Alum*
Society of Women Engineers (SWE), *Alum*
University of Pennsylvania Womens Ice Hockey, *Alum*