

Lucio Dery

GHC 5101, 500 Forbes Ave, Pittsburgh PA 15213

🌐 [ldery.github.io](https://github.com/ldery)

✉ ldery@andrew.cmu.edu

🌐 <https://github.com/ldery>

EDUCATION

Carnegie Mellon University

PhD in Computer Science

Pittsburgh, PA

Expected Graduation: June 2023

Stanford University

*MS in Computer Science ** Tau Beta Pi*

Stanford, CA

Sept 2016 - June 2018

Stanford University

*BS in Physics + Minor in Computer Science ** With Distinction*

Stanford, CA

Sept 2013 - June 2018

RESEARCH INTERESTS

- Natural Language Processing, Meta-Learning, Multitasking, Weak Supervision

PUBLICATIONS / PRESENTATIONS

Journal Papers.....

- **Dery, Lucio Mwinmaarong**, et al. "Weakly supervised classification in high energy physics." Journal of High Energy Physics 2017.5 (2017): 1-11 [[Paper](#)] [[Code](#)]

Conference Papers.....

- **Lucio M. Dery**, Paul Michel, Ammeet Talwalkar, Graham Neubig. "Should We Be Pre-training? An Argument for End-task Aware Training as an Alternative" (under submission)
- **Lucio M. Dery**, Yann Dauphin, David Grangier. "Auxiliary task update decomposition: the good, the bad and the neutral". ICLR, 2021 [[Paper](#)][[Code](#)]
- D.A-Huang, Shyamal Buch, **Lucio Dery**, Animesh Garg, Li Fei-Fei, Juan Carlos Niebles. "Finding 'It': Weakly-Supervised Reference-Aware Visual Grounding in Instructional Video." CVPR, 2018 ([Oral](#))[[Paper](#)][[Code](#)]
- Eli Shlizerman, **Lucio Dery**, Hayden Schoen, Ira Kemelmacher. "Audio to Body Dynamics." CVPR, 2018 [[Paper](#)][[Code](#)][[Press](#)]

Presentations.....

- 2017 International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT), Poster Presentation
- 2017 Black In A.I Workshop. Neural Information Processing Systems (NIPS), Poster Presentation

INDUSTRY EXPERIENCE

Google Brain - Google

Research Intern

Remote

June 2020 - August 2020

- Leveraged out-of-distribution data via Gradient Alignment
- Examined auxiliary task gradients within subspace spanned by primary task gradients

Facebook A.I Research - Facebook

Research Engineer

Seattle, WA

July 2018 - July 2019

- Studied learning Neural Knowledge Graphs by Generating Wikipedia
- Probed Commonsense and World Knowledge Capabilities of State-of-the-Art Co-reference Models
- Open-sourced [Audio to Body Dynamics](#)
- Contributed to [FAIRSEQ](#)

Applied Machine Learning - Facebook

Seattle, WA

Software Engineering Intern

June 2017 – August 2017

- Worked on Audio-Visio Multimodal Learning for understanding human mannerisms
- Developed recurrent architecture for learning transformations from audio features to body key-points

Terra Bella - Google

Mountain View, CA

Software Engineering Intern

June 2016 – August 2016

- Applied unsupervised learning techniques to Satellite images to cluster similar socio-economic regions and detect changing regions over time
- Extensive feature engineering through experimentation with remote sensing signal spaces like NDVI (Normalized Difference of Vegetation Index), MSAVI and NDBI
- Built Tensor Flow model that utilized Inception V3 featurization of remote sensing signal spaces to automatically identify similar regions like Golf Courses or Airports within and across cities

Google Analytics - Google

Mountain View, CA

Engineering Practicum Intern

June 2015 – August 2015

- Conducted background experimentation and comparative performance visualizations in R on time series prediction algorithms in Analytics libraries against third party algorithms
- Implemented Autoregressive Integrated Moving Averages (ARIMA) time series forecasting. Resulting implementation was on average faster than R implementation and of comparable accuracy
- Exposed ensemble mode API that allows developers to use suite of forecasting algorithms

OTHER RESEARCH EXPERIENCE

Unsupervised Understanding of Instructional Videos

Stanford, CA

Stanford Vision and Learning Lab

March 2017 – March 2018

- Developed algorithm for unsupervised extraction of task graphs from instructional videos
- Developed a joint formulation and solution of Reference Resolution and Visual Grounding in instructional videos using extracted task graphs

Unsupervised Action Segmentation and Localization in Video Demonstrations

Stanford, CA

Stanford Vision and Learning Lab

January 2017 – March 2017

- Combined Convolutional Auto encoder with clustering algorithm to produce video segmentation proposals
- Discovered Longest Common Subsequence (LCSS) across multiple video segmentations by augmenting multidimensional LCSS algorithm with Dynamic Time Warping
- Created an End-To-End trainable unsupervised pipeline that utilized learned LCSS across videos to update representations learned by Convolutional Auto Encoder

Weakly Supervised Classification In High Energy Physics

Stanford, CA

SLAC National Accelerator Laboratory

September 2016 – February 2017

- Developed a weakly supervised deep learning algorithm whose only input is class proportions in different distribution regimes instead of individual labels.
- Matched the performance of Fully Supervised network on Quark-Gluon Tagging discrimination task
- Created an End-To-End trainable unsupervised pipeline that utilized learned LCSS across videos to update representations learned by Convolutional Auto Encoder

CNNs for Discriminating Higgs Boson Production Mechanisms

Stanford, CA

SLAC National Accelerator Laboratory

March 2016 – September 2016

- Converted Vector Boson Fusion (VBF) and Gloun-Gloun Fusion (GGF) event data into image representations that could be analyzed and fed into any computer vision-based algorithm for classification
- Designed residual convolutional network architecture to discriminate between GGF and VBF events
- Established the presence of new physics outside of current widely used HTSoft marker that can be used to discriminate the two event types

TEACHING EXPERIENCE

- Computer Vision Instructor, [African Masters in Machine Intelligence](#), Summer 2019
- Head Teaching Assistant, Deep Learning (CS230) Stanford University, Spring 2018
- Course Assistant, Deep Learning (CS230), Stanford University, Winter 2018
- Course Assistant, Machine Learning (CS229), Stanford University, Autumn 2017
- Section Leader, Programming Methodology (CS106A), Stanford University, 2014 - 2017
- Section Leader, Programming Abstractions (CS106B), Stanford University, 2014 - 2017
- Summer School Instructor, [Enza Academy](#), Summer 2015

HONORS / AWARDS

- Member, Stanford Chapter Tau Beta Pi Honor Society
- Stanford Black Community Center Award for Academic Excellence
- Stanford Center for African Studies Leadership and Service Award
- 3rd Best Student, West African Senior Secondary Certificate Examination (out of over 2.5 million students from Anglophone West Africa in 2013)
- 2nd Place, Ghana National Math and Science Olympiad (out of 32 Selected Schools)