

# Lucio Dery

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## EDUCATION

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### Carnegie Mellon University

PhD in Computer Science

Pittsburgh, PA

Expected Graduation: 2024

### 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

## INTERESTS

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- Transfer Learning, Pre-training, Meta-Learning, Multitasking, Natural Language Processing
- Data-efficiency, Compute-efficiency, Weak supervision

## INDUSTRY EXPERIENCE

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### Apple - AI/ML

AI/ML Research Intern

Cupertino, CA

May 2023 - August 2023

- Structured pruning of pre-trained language models under limited target data
- Artifacts: [[Paper](#)]

### Google Research

Student Researcher

Remote

March 2023 - May 2023

- Memory-efficient structured pruning of large language models
- Artifacts: [[Paper](#)]

### DeepMind

Research Scientist Intern

London, UK

May 2022 - August 2022

- Data-driven hyper-parameter optimization using transformers ([OptFormer](#))
- Focused on inference-time improvements to OptFormer
- Artifacts: [[Paper](#)]

### Google Brain - Google

Research Scientist 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
- Artifacts: [[Paper](#)][[Code](#)]

### 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
- Artifacts: [[Open-sourced Audio to Body Dynamics](#)], [[Contributed to FAIRSEQ](#)]

### Applied Machine Learning - Facebook

Software Engineering Intern

Seattle, WA

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
- Artifacts: [[Paper](#)][[Code](#)][[Press](#)]

## Terra Bella - Google

Software Engineering Intern

Mountain View, CA

June 2016 – August 2016

- Applied unsupervised learning techniques to Satellite images to cluster similar socio-economic regions and detect changing regions over time
- 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

Engineering Practicum Intern

Mountain View, CA

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) forecasting algorithm in C++. Resulting implementation was on average faster than R implementation and of comparable accuracy

## PUBLICATIONS / TALKS

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### Pre-print (Under Review).....

- Everybody Prune Now: Structured Pruning of LLMs with only Forward Passes [[Paper](#)]

### Peer Reviewed Publications.....

11. *DeMuX: Data-efficient Multilingual Learning*  
Simran Khanuja, Srinivas Gowriraj, **Lucio Dery**, Graham Neubig  
[NAACL 2024](#) [[Paper](#)][[Code](#)]
10. *Transfer learning for structured pruning under limited task data*  
**Lucio M. Dery**, Awni Hannun, David Grangier  
[Efficient NLP and Speech Processing Workshop - NeurIPS 2023](#) [[Paper](#)]
9. *Multitask learning can improve robustness to worst group outcomes*  
Atharva Kulkarni\*, **Lucio M. Dery**\*, Amrith Setlur, Aditi Raghunathan, Ameet Talwalkar, Graham Neubig  
[TMLR 2024 & SSL Theory and Practice Workshop - NeurIPS 2023](#) [[Paper](#)][[Code](#)]
8. *Cross-Modal Fine-Tuning: Align then Refine*  
Junhong Shen, Liam Li, **Lucio M. Dery**, Corey Staten, Mikhail Khodak, Graham Neubig, Ameet Talwalkar  
[ICML 2023](#) ([Oral](#)) [[Paper](#)][[Code](#)]
7. *AANG: Automating Auxiliary Learning*  
**Lucio M. Dery**, Paul Michel, Mikhail Khodak, Graham Neubig, Ameet Talwalkar.  
[ICLR, 2023](#) ([Spotlight](#)) [[Paper](#)] [[Code](#)]
6. *Multistep planning for automated hyper-parameter optimization : An exploration via OptFormer*  
**Lucio M. Dery**, Yutian Chen, Abram L Friesen, Marc'Aurelio Ranzato.  
[FMDM Workshop - NeurIPS 2022](#) [[Paper](#)]
5. *Should We Be Pre-training? An Argument for End-task Aware Training as an Alternative*  
**Lucio M. Dery**, Paul Michel, Ameet Talwalkar, Graham Neubig.  
[ICLR, 2022](#) [[Paper](#)][[Code](#)]
4. *Auxiliary task update decomposition: the good, the bad and the neutral*  
**Lucio M. Dery**, Yann Dauphin, David Grangier.  
[ICLR, 2021](#) [[Paper](#)][[Code](#)]

### 3. *Audio to Body Dynamics*

Eli Shlizerman, **Lucio M. Dery**, Hayden Schoen, Ira Kemelmacher.

**CVPR, 2018** [[Paper](#)][[Code](#)][[Press](#)]

### 2. *Finding 'It': Weakly-Supervised Reference-Aware Visual Grounding in Instructional Video*

D.A-Huang, Shyamal Buch, **Lucio M. Dery**, Animesh Garg, Li Fei-Fei, Juan Carlos Niebles.

**CVPR, 2018 (Oral)** [[Paper](#)][[Code](#)]

### 1. *Weakly supervised classification in high energy physics*

**Lucio M. Dery**, Benjamin Nachman, Francesco Rubbo, Ariel Schwartzman

**Journal of High Energy Physics (2017)**[[Paper](#)] [[Code](#)]

## Patents.....

- **Lucio M. Dery**, Yann Dauphin, David Grangier. "Training Neural Networks Using Auxiliary Task Update Decomposition" [[Patent](#)]

## Invited Talks.....

- *AANG: Automating Auxiliary Learning* [ICLR - 2023]
- *Auxiliary Task Update Decomposition* [ACMI Lab - 2021]
- *Audio to Body Dynamics* [Black In A.I Workshop @ NeurIPS - 2018 ]
- *Weakly Supervised Classification in High Energy Physics* [[ACAT](#) - 2017]

## TEACHING EXPERIENCE

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- Teaching Assistant, [Machine Learning with Large Datasets](#), Fall 2023
- Teaching Assistant, [Advanced Natural Language Processing](#), Fall 2022
- Section Leader, [Stanford Code In Place](#), Spring 2020
- 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

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- [2<sup>nd</sup> Place Two Sigma Diversity PhD Fellowship](#)
- Stanford Chapter Tau Beta Pi Honor Society
- University Distinction, top 15% of graduating class, Stanford University
- Stanford Black Community Center Award for Academic Excellence
- Stanford Center for African Studies Leadership and Service Award
- Stanford Computer Science Department TA Award  
(\$1000 awarded to top 5% of Course Assistants in Spring 2018)
- 3rd Best Student, West African Senior Secondary Certificate Examination  
(out of over 2.1 million students from Anglophone West Africa in 2013)[[Press](#)]
- 2nd Place, Ghana National Math and Science Olympiad (out of 32 Selected Schools) [[Press](#)]

## SERVICE

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- Reviewer
  - ICLR 2022,2023,2024
  - ICML 2022,2023
  - NeurIPS 2022,2023
  - TMLR 2023
- Co-Organizer ME-FoMo Workshop (ICLR 2024)
- Volunteer ICLR 2023
- Graduate School Application Mentorship - Black In AI
- Social Chair - CMU African Grad Student Association
- Mentorship Assistant Lead - CMU CSD PhD Student Council
- Mentor & Mock Interviewer - Underrepresented minorities seeking Software Engineering Roles