Swabha Swayamdipta

GABILAN ASSISTANT PROFESSOR OF COMPUTER SCIENCE, UNIVERSITY OF SOUTHERN CALIFORNIA

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Research Interests _

NATURAL LANGUAGE PROCESSING AND MACHINE LEARNING

- · Generative Evaluation: Evaluation of generated language via distributional effects or along specific axes
- Data Interpretability: Estimating the usefulness of data sources for model training and evaluation
- Model (Mechanistic) Interpretability: Understanding predictive behavior and properties of models that uniquely identify them
- Language Generation: Improved theory behind inference and algorithms for inference with and without linguistic constraints
- · Language and Society: Language technologies to study societal biases in humans and models

Professional Experience _____

University of Southern California

GABILAN ASSISTANT PROFESSOR OF COMPUTER SCIENCE

• Associate Director of the Center for AI and Society, since Fall 2023

Allen Institute for AI Seattle, WA, USA Aug 2019 - June 2022

POSTDOCTORAL INVESTIGATOR

· Advisor: Yejin Choi • Project Team: MOSAIC

Oracle Server Technologies

MEMBER TECHNICAL STAFF

• Project: Unified messaging for Fusion Middleware

Bangalore, India

Pittsburgh, PA, USA

2010 - 2011

2013 - 2019

2011 - 2012

Los Angeles, CA, USA

Aug 2022 - PRESENT

Education

Carnegie Mellon University

PhD in Language and Information Technologies

· Advisors: Noah A. Smith, Chris Dyer

• University of Washington, Seattle, WA — Visiting PhD student Fall 2015 - Summer 2019

• Thesis: Syntactic Inductive Biases in NLP

Columbia University City of New York, NY, USA

MASTERS IN COMPUTER SCIENCE

· Advisors: Owen Rambow, Michael Collins

• Specialization: Natural Language Processing

National Institute of Technology

BACHELORS OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING

Calicut, Kerala, India

2006 - 2010

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Awards and Honors _____

2023	Rising Stars Award, Intel	
2022	Young Investigators Award, Allen Institute for Al	
2022	Gabilan Assistant Professor Fellowship, Women in Science and Engineering	USC
2022	Outstanding Paper Award, Understanding Dataset Difficulty with V-Usable Information	ICML
2021	Outstanding Paper Award, MAUVE: Measuring the Gap Between Neural Text and Human	NeurIPS
2021	Text using Divergence Frontiers	Neurips
	Best Paper: Honorable Mention, Don't Stop Pretraining: Adapt Language Models to	ACL
2014	Domains and Tasks	ACL
	Best Student Presentation, Diversity in Dependency Parsing	CMU LTI Student Research
2014	best student Fresentation, Diversity in Dependency Farsing	Symposium
2009	Sun Campus Ambassador Scholarship, Bangalore, India	Sun Microsystems
2003	National Talent Search Scholarship, Rourkela, India	NCERT, India

Mentorship _____

Spring 2024-Present	Brihi Joshi, PhD, USC	
Fall 2023-Present	Matthew Finlayson, PhD, USC	
Fall 2022-Present	Sayan Ghosh, PhD, USC	
Fall 2023-Present	Jaspreet Ranjit, PhD, USC	
Spring 2024-Present	Shauryasikt Jena, Masters, USC	
Spring 2024-Present	Xingjian Dong, Masters, USC	
Spring 2023-Present	Xinyue Cui, Masters, USC	
Summer 2023-Present	Yoonsoo Nam, Masters, USC	
Summer 2023	Ruyuan Zuo, Masters, USC	Now at Google
Spring 2022	Hanjie Chen / Junlin Wang / Abdallah Bashir, PhD, UVA / Masters, UCI /	Al2 Intern
3pmig 2022	Masters, Saarland Universit	AlZilitelli
Fall 2021	Jillian Fisher / Liwei Jiang, PhD, UW	
Summer 2021	Kawin Ethayarajh, PhD, Stanford University	Al2 Intern
Summer 2021	Sarah Wiegreffe, PhD, George Institute of Technology	Al2 Intern
Summer 2021	Ximing Liu, BS, UW CSE	Al2 Intern
Fall 2020-2023	Alisa Liu, PhD, UW CSE	
Fall 2020	Alon Jacovi, PhD, Bar Ilan University	Al2 Intern
Summer 2020-1	Jenny Liang, BS, UW CSE	Al2 Intern
Summer 2020	Jize Cao, BS, UW CSE	Al2 Intern
Spring 2020-2023	Xuhui Zhou, CLMS, UW Linguistics	
Fall 2019 - Spring 2020	Yiben Yang, PhD, Northwestern University	
Fall 2019 - Spring 2020	Chaitanya Malaviya, PYI, Allen Institute for AI	
2018 - 2019	Ron Fan / Karishma Mandyam, MS, UW CSE / BS, UW CSE	

Teaching _____

CLASSES

Spring 2024	CSCI 499: Language Models in NLP, Students: 28	USC
Fall 2023	CSCI 499: Language Models in NLP, Students: 30	USC
Fall 2022	CSCI 699: Data-Centric NLP, Students: 29	USC

TUTORIALS

2019	Transfer Learning in Natural Language Processing, Attendees: 350+	NAACL
2018	Frame Semantics across Languages: Towards a Multilingual FrameNet, Attendees: 30+	CoLING

GUEST LECTURES

Spring 2024	Data-Centric NLP, Host: Xuezhe Ma	USC CSCI 544: Advanced NLP
Summer 2023	Introduction to NLP, Host: Darin Gray	Introduction to Engineering for USC
Suffiller 2023		Viterbi K-12 Discover Engineering
Spring 2023	Contextualizing Bias, Host: Maja Matarić	USC CSCI 697: Seminar in CS Research
Spring 2022	What's in a dataset?, Host: Cyrus Shahabi	USC CSCI 697: Seminar in CS Research
Spring 2022	Data-Centric NLP, Host: Dongyeop Kang	UMinn. CSCI 8980: Intro / NLP Research
Spring 2022	Annotating Ambiguous NLI, Host: Dirk Hovy	MilaNLP: Coding Aperitivo
Spring 2021	Transfer Learning, Host: Zaid Harachoui	UW DATA 598: Statistical Deep Learning
Fall 2020	Biases and Interpretability in NLP, Host: Eunsol Choi	UT-Austin CS 395T: Topics in NLP
Winter 2019	Phrase-Structure Parsing, Host: Noah A. Smith	UW CSE 447/547M: NLP
Spring 2018	Minimum Bayes Risk Decoding, Host: Waleed Ammar	UW CSE 599 D1: Advanced Topics in NLP
Spring 2018	Dependency Parsing, Host: Noah A. Smith	UW CSEP 517: NLP
Fall 2017	Unsupervised Learning, Host: Noah A. Smith	UW CSE 446: Machine Learning
Fall 2014	Dependency Parsing with Chu-Liu-Edmonds , Hosts: Chris Dyer, Alon Lavie, Bob Frederking	CMU 11-271: Algorithms for NLP

TEACHING ASSITANTSHIP

Invited Talks _____

	LLM Inference for Scaling Data Creation, Intel Rising Stars Talk Understanding LLMs via their Generative Successes and Shortcomings, LTL Seminar	Intel Labs University of Cambridge
Dec 15, 2023	Understanding LLMs via their Generative Successes and Shortcomings, Keynote	ATTRIB Workshop @ NeurIPS 2023
Nov 16, 2023	Understanding Online Discourse through Social Context and Structured Pragmatics, UCLA Communications Symposium	UCLA
Oct 3, 2023	Understanding Data with $\mathcal V$ -Information, Keynote	Towards the Next Generation of Computer Vision Datasets Workshop @ ICCV 2023
Sep 22, 2023	The Role of Language Models in Natural Language Processing, Los Angeles County of Education Computer Science Speaker Series	Los Angeles
Aug 24, 2023	$ \begin{tabular}{ll} \textbf{Understanding Datasets and Explanations through \mathcal{V}-Information, Alumni Keynote: CMU LTI Student Research Symposium \\ \end{tabular} $	CMU, Pittsburgh
Jul 13, 2023	Contextualizing Representations in Varied Annotator Perspectives, Rep4NLP Workshop	ACL Toronto
Jun 14, 2023	Contextualizing Data in Varied Annotator Perspectives, Responsible Machine Learning	Google Brain
Mar 14, 2023	Understanding Dataset Difficulty with V-Usable Information, Cohere for AI Reading Group	Cohere for Al
Feb 28, 2023	Designing Controls and Filters for Dataset Generation , Spotify Research Seminar	Spotify Research Labs
Feb 03, 2023	What's in a Dataset? Interpreting datasets to enable better data creation, Amazon Data-Centric AI Seminar	Amazon
Feb 01, 2023	Contextualizing Bias in Hate Speech Detection, CAIS++ Seminar	USC
Nov 18, 2022	Generating Datasets for Robust Generalization, SoCal NLP Symposium	UC Santa Barbara
Nov 09, 2022	Contextualizing Bias in Hate Speech Detection through Annotator Perspectives, Center for Al in Society (CAIS) Seminar	usc
May 23, 2022	The Devil's in the Data: Mapping and Generating Datasets for Robust Generalization, ACL Spotlight Talks for Young Rising Stars	Dublin, Ireland
May 13, 2022	Mapping and Generating Datasets for Robust Generalization, CS Seminar	UC Irvine
Mar 16, 2022	Rethinking Dataset Construction: : The Role of Generative Modeling and Annotator Perspectives, IFDS Ethics Seminar	UC Santa Cruz
Oct 20, 2021	What's in your Data? Mapping Datasets and Exploring Data Usability, Machine Learning Research Group Talks	Oracle
Feb 24, 2020	Addressing Biases for Robust, Generalizable AI, NERT Seminar	Georgetown University
Feb 12, 2020	Addressing Biases for Robust, Generalizable AI, NLP Seminar	Georgia Tech
Nov 02, 2020	Responsible AI: Addressing Biases in Datasets and Models, E+D Product Leads	Microsoft
Oct 30, 2019	Biases and Learning Challenges in Natural Language Processing, Rising Stars in EECS	UIUC
Oct 18, 2019	Sprucing up a Dataset: Adversarially Filtering Dataset Artifacts, Linguistics Colloquium	UW Linguistics
Apr 08, 2019	Learning Challenges in Natural Language Processing, AI2 Seminar	Allen Institute for AI
Apr 04, 2019	Learning Challenges in Natural Language Processing, NLP Seminar	Stanford University
	Learning Challenges in Natural Language Processing, CLSP Seminar	Johns Hopkins University
	Learning Challenges in Natural Language Processing, CILVR Seminar	New York University
Jan 22, 2019	Learning Challenges in Natural Language Processing, MSR Seminar	Microsoft Research, New York
Sep 15, 2018	Representation Learning with Linguistic Structure, MSR AI Breakthroughs Workshop	Microsoft Research, Redmond
Apr 27, 2018	Syntactic Scaffolds for Semantic Structures, NorthWest NLP	Microsoft Research, Redmond

Invited Panels _____

Jul 13, 2023 Limitations of Large Language Models, Rep4NLP Workshop Jun 29, 2023 Generative AI and Education, Roundtable Apr 5, 2023 Almaginings, Polymathic Pizza Jul 14, 2022 Adversarial Data Augmentations, DADC Workshop Jun 17, 2022 Role of LLMs, Responsible AI Symposium	ACL Toronto ASEE 2023 USC Sidney Harmon Academy for Polymathic Studies NAACL Seattle AILA
Publications	
Conference Papers	
Closing the Curious Case of Neural Text Degeneration • M. Finlayson, J. Hewitt, A. Koller, S. Swayamdipta , A. Sabharwal	ICLR (To Appear) 2024
Does Video Summarization Require Videos? Quantifying the Effectiveness of Language in Video Summarization • Y. Nam, A. Lehavi, D. Yang, D. Bose, S. Swayamdipta , and S. Narayanan	ICASSP (To Appear) 2023
We're Afraid Language Models Aren't Modeling Ambiguity • A. Liu, Z. Wu, J. Michael, A. Suhr, P. West, A. Koller, S. Swayamdipta , N. A. Smith, and Y. Choi	EMNLP 2023
MAUVE Scores for Generative Models: Theory and Practice K. Pillutla, L. Liu, J. Thickstun, S. Welleck, S. Swayamdipta , R. Zellers, S. Oh, Y. Choi, and Z. Harchaoui	JMLR 2023
I2D2: Inductive Knowledge Distillation with NeuroLogic and Self-Imitation • C. Bhagavatula, J. D. Hwang, D. Downey, R. Le Bras, X. Lu, K. Sakaguchi, S. Swayamdipta , P. West, and Y.	<i>ACL 2023</i> Choi
REV: Information-Theoretic Evaluation of Free-Text Rationales • H. Chen, F. Brahman, X. Ren, Y. Ji, Y. Choi, and S. Swayamdipta	ACL 2023
COBRA Frames: Contextual Reasoning about Effects and Harms of Offensive Statements • X. Zhou, H. Zhu, A. Yerukola, T. Davidson, J. D. Hwang, S. Swayamdipta , and M. Sap	ACL-Findings 2023
Investigating the Benefits of Free-Form Rationales J. Sun, S. Swayamdipta , J. May, and X. Ma	EMNLP-Findings 2022
NeuroCounterfactuals: Beyond Minimal-Edit Counterfactuals for Richer Data Augmentation P. Howard, G. Singer, V. Lal, Y. Choi, and S. Swayamdipta	EMNLP-Findings 2022
WaNLI: Worker and AI Collaboration for Natural Language Inference Dataset Creation A. Liu, S. Swayamdipta , N. A. Smith, and Y. Choi	EMNLP-Findings 2022
Reframing Human-AI Collaboration for Generating Free-Text Explanations S. Wiegreffe, J. Hessel, S. Swayamdipta , M. Riedl, and Y. Choi	NAACL 2022
Annotators with Attitudes: How Annotator Beliefs And Identities Bias Toxic Language Detection M. Sap, S. Swayamdipta , L. Vianna, X. Zhou, Y. Choi, and N. A. Smith	NAACL 2022
 Understanding Dataset Difficulty with V-Usable Information K. Ethayarajh, Y. Choi, and S. Swayamdipta Outstanding Paper Award 	ICML 2022
MAUVE: Measuring the Gap Between Neural Text and Human Text using Divergence Frontiers • K. Pillutla, S. Swayamdipta , R. Zellers, J. Thickstun, S. Wellecks, Y. Choi, and Z. Harchaoui • Outstanding Paper Award	NeurIPS 2021
Contrastive Explanations for Model Interpretability A. Jacovi, S. Swayamdipta , S. Ravfogel, Y. Elazar, Y. Choi, and Y. Goldberg	EMNLP 2021
On-the-Fly Controlled Text Generation with Experts and Anti-Experts A. Liu, M. Sap, X. Lu, S. Swayamdipta , C. Bhagavatula, N. A. Smith, and Y. Choi	ACL 2021
Challenges in Automated Debiasing for Toxic Language Detection • X. Zhou, M. Sap, S. Swayamdipta , N. A. Smith, and Y. Choi	EACL 2021

EMNLP 2020
ANLP-Findings 2020
ICML 2020
ACL 2020
ACL 2020
EMNLP 2018
NAACL 2018
NAACL 2018
ACL 2018
ICLR 2018
CoNLL 2016
EMNLP 2014
ICSC 2012
DMR @ EMNLP 2021
iML @ NeurIPS 2016
SemEval 2014
WMT 2014
Under Submission
Under Submission
Under Submission
arXiv:2305.04978

Shallow Syntax in Deep Water

arXiv:1908.11047

• S. Swayamdipta, M. Peters, B. Roof, C. Dyer and N. A. Smith

Frame-Semantic Parsing with Softmax-Margin Segmental RNNs and a Syntactic Scaffold

arXiv:1706.09528

• S. Swayamdipta, S. Thomson, C. Dyer and N. A. Smith

DyNet: The Dynamic Neural Network Toolkit

arXiv:1701.03980

• G. Neubig, C. Dyer, Y. Goldberg, A. Matthews, W. Ammar, A. Anastasopoulos, M. Ballesteros, D. Chiang, D. Clothiaux, T. Cohn, K. Duh, M. Faruqui, C. Gan, D. Garrette, Y. Ji, L. Kong, A. Kuncoro, G. Kumar, C. Malaviya, P. Michel, Y. Oda, M. Richardson, N. Saphra, **S. Swayamdipta**, P. Yin

TUTORIAL AND ORGANIZATION PAPERS

Proceedings of the 3rd Workshop on Deep Learning Approaches for Low-Resource NLP (DeepLo 2022)

NAACL 2022

· C. Cherry, A. Fan, G. Foster, G. Haffari, S. Khadivi, N. Peng, X. Ren, E. Shareghi, S. Swayamdipta

Transfer Learning in Natural Language Processing

NAACL 2019

• S. Ruder, M. E. Peters, **S. Swayamdipta**, T. Wolf

Proceedings of the 2nd Workshop on Deep Learning Approaches for Low-Resource NLP (DeepLo 2019)

EMNLP 2019

• C. Cherry, G. Durrett, G. Foster, R. Haffari, S. Khadivi, N. Peng, X. Ren, **S. Swayamdipta**

Frame Semantics across Languages: Towards a Multilingual FrameNet

CoLING 2018

• C. F. Baker, M. Ellsworth, M. R. L. Petruck, S. Swayamdipta

Professional Service _____

EXTERNAL SERVICE

Senior Area Chair

• ACL 2024: Sentence-level Semantics

Area Chair

- COLM 2024 (Upcoming)
- ICLR 2024
- EMNLP 2023: Machine Learning for NLP
- ACL 2023: Interpretability
- EMNLP 2022: Language Models
- EMNLP 2021: Machine Learning for NLP
- NAACL 2021: Sentence-Level Semantics
- EACL 2021: Sentence-Level Semantics
- ACL 2020: Semantics (Long)

Reviewer: Conferences

ACL (ARR)	2015-2022
• NAACL	2015-2022
• EMNLP	2015-2022
NeurIPS	2018-2022
• ICML	2015, 2019, 2020, 2023
• EACL	2017
• AAAI	2017-2020
• CoNLL	2017-2018, 2020

Reviewer: Workshops

NAACL Student Research Workshop	2016
Workshop for Women in Machine Learning (WiML) at NeurIPS	2016
Machine Reading for Question Answering (MRQA) Workshop	2017

Reviewer: Journals

 Transactions of ACL 	2020 - PRESENT
Computational Linguistics	2019 - 2022
 Journal of Al Research 	2019

Co-organizer

EACL 2024: Workshop on Uncertainty in NLP	2024
NAACL 2022: Workshop on Deep Learning in Low Resource NLP (DeepLo)	2022
EMNLP 2019: Workshop on Deep Learning in Low Resource NLP (DeepLo)	2019
West Coast NLP Workshop	2018
Women's Research Day	2017
UW-NLP Retreat	2015-2016

Mentorship at Conferences

• EMNLP 2020, ACL 2020, EMNLP 2018

INTERNAL SERVICE

Univeristy of Southern California	Los Angeles, CA, USA
Diversity, Equity and Inclusion Committee	2023-present
Distinguished Lectures Committee	2023-present
Annual Faculty Review Committee	2023-present
 PhD Fellowship Admissions Committee 	2022-2023
Viterbi Undergraduate Admission Scholarship	2023-2024
Allen Institute for Al	Seattle WA, USA

• Diversity, Equity and Inclusion Committee 2019-2022

AllenAl Outstanding Engineer Scholarship Committee

Paul G. Allen School of CSE, University of Washington Seattle WA, USA

Faculty Recruiting Liaison
 Graduate Student Advisory Council
 Outreach: Highline Public High School
 CS: Gradswomen

2018
2017
2016-2019

Internships _

Allen Institute for AI Seattle, WA, USA

RESEARCH INTERN, HOST: MATTHEW E. PETERS

• Project: Shallow Syntactic Priming of Large-scale Language Models

Google Inc.

New York, NY, USA

RESEARCH INTERN, **HOST**: ANKUR P. PARIKH

Project: Machine Comprehension for Google Neon

Columbia University

New York, NY, USA

RESEARCH ASSISTANT, CENTER FOR COMPUTATIONAL LEARNING SYSTEMS

Jan 2013 - May 2013

Google Inc.

Mountain View, CA, USA

SOFTWARE ENGINEER INTERN
• Information retrieval evaluation for Google TV search

Microsoft Corporation Hyderabad, India

SOFTWARE DEVELOPMENT INTERN

Summer 2009

• Project: Search functionality for customer hierarchies

References ___

Yejin Choi, yejin@cs.washington.eduUW; AI2Noah A. Smith, noah@cs.washington.eduUW; AI2Chris Dyer, cdyer@google.comGoogle DeepMindLuke Zettlemoyer, lsz@cs.washington.eduUW; FAIR

2019

Summer-Fall 2018

Summer 2017

Summer 2012