Sunny Sanyal

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Research Interests: Foundational Models | Pretraining | Finetuning | Distillation

Education

The University of Texas at Austin 08/2020-present
PhD in Electrical and Computer Engineering
GPA: 3.81/4
Advisor: Prof. Sujay Sanghavi [Bio]

Chongqing University of Posts and Telecommunications (CQUPT)**,** China 09/2016-06/2019
M.Eng. by research in Communication and Information Systems
GPA: 92.22/100 (Top 1% in entire batch)
Dissertation: Data Aggregation Techniques for Internet of Things
Advisor: Prof. Dapeng Wu [google scholar]

Maulana Abul Kalam Azad University of Technology, India 08/2011-07/2015
(*Formerly known as West Bengal University of Technology, India***)**
B.Tech. in Electronics and Communication Engineering
DGPA: 8.23/10 (Top 10% in class)

Work Experience

Amazon Science (Alexa AI), Sunnyvale, CA Summer 2022
Applied Scientist Intern
- Worked on vision language pretraining of multimodal transformers for VQA.
- Performed knowledge distillation.

Tech Mahindra Limited, Hyderabad, India 2015-2016
Associate software engineer
- Worked within the offshore team to develop a website for ACRA government of Singapore.
- The project is based on Oracle ADF platform and uses basic Java and SQL.

Selected Publications

- **Sunny Sanyal**, Jean Kaddour, Abhishek Kumar, and Sujay Sanghavi, "Understanding the Effectiveness of Early Weight Averaging for Training Large Language Models", 5 June 2023. [pre-print]
- **Sunny Sanyal** and Animesh, "DeepMines: A fog enabled prediction platform for underground coal mines", IEEE COMSNETS 2020: MINDS Workshop, Bengaluru, India, 7-11 January 2020. **[Honorary Mention Award at IEEE ComSoc Student Competition 2018]**
- **Sunny Sanyal**, "Data Aggregation Techniques for Internet of Things", Master's Thesis, Chongqing University of Posts and Telecommunications, Chongqing, China, 24 June 2019. [link] **[Excellent Master's Thesis Award]**
- **Sunny Sanyal**, Dapeng Wu, Boubakr Nour, "A Federated Filtering Framework for Internet of Medical Things", IEEE ICC 2019 conference, Shanghai, China, 20-24 May 2019. [link] [Top ~1% conference]
- **Sunny Sanyal**, Punning Zhang, "Improving Quality of Data: IoT data aggregation using device to device communications", IEEE Access, Vol. 6, page. 1-11, Nov. 2018. [link] [IF: 4.098]
- **Sunny Sanyal**, Wu Dapeng, Junjie Yan, Xing Li, "Co-relative mobility based IoT data uploading using D2D communication", In Proc. of 10th EAI Mobimedia, Chongqing, China, 13-14 July 2017. [link]
- Dapeng Wu , Junjie Yan, **Sunny Sanyal**, Ruyan Wang, "Trust oriented partner selection in D2D cooperative communications", IEEE Access, Vol. 5, page. 3444-3453, February 2017. [link] [IF: 4.098]
- **Sunny Sanyal** , Simpy Sanyal, "Automatic switching of home appliances one sensor to many system approach", In Proc. of 6th IEEE Power India International Conference, Delhi, India, 6th Dec 2014. [link]

Selected Honors and Awards

- Ram's Horn Best Project Award in EE381K Digital Video Class, UT Austin [demo] 05/2021
- Excellent Master's Thesis Award, Chongqing Univ. of Posts and Telecom, China 06/2019
- Outstanding International Student Award, International College of CQUPT, China 06/2019
- Technology Innovation Award, International College of CQUPT, China 04/2019
- Honorary Mention Award in IEEE ComSoc Student's Competition 2018 11/2018
- Chinese Government Scholarship 2016-2019
- Selected for IEEE ComSoc summer school with IEEE accommodation grant 06/2018
- Newspaper coverage for project 'Communication system for mute people' 04/2014
- Secured 2nd position in national level embedded systems design contest at 'KSHITIJ-2013', Indian Institute of Technology, Kharagpur 02/2013

Demo, Posters and Invited Talks

- Demo at Art Gallery CVPR 2023 on Generative Masking and In-painting for Videos. [demo]
- Poster at 6G@UT symposium 2023 on Understanding the Effectiveness of Early Weight Averaging for Training LLMs.
- Poster at ML Lab Research symposium 2022 on Object masking and inpainting a.k.a Harry Potter's spell. [link]
- Invited talk (in-person) at Austin Deep learning community's main event on Do Neural Networks Overthink? [link]

Selected Professional Services

- Forum for Large Foundational Models 2023 at UT Austin. [**organizer**]
- Broadening Research Collaborations in ML, NeurIPS workshop 2022, New Orleans, US. [**organizer**]
- Peer Mentor in The LevelUp Org, volunteering to help PhD applicants for grad school apps.
- Member of Student Board, Diversity Equity and Inclusivity, Cockrell School of Engineering, UT Austin.
- IEEE Access Journal. [**reviewer**]
- IEEE VTC 2019-Fall: Recent Results track, 2019, Honolulu, Hawaii. [**reviewer**]
- IEEE International Conference on Communications: SAC E-Health Track, 2019, Shanghai, China. [**reviewer**]
- IEEE International Conf. on Computer Communications and Networks, 2019, Spain. [**reviewer**]
- ACM/SIGAPP Symposium On Applied Computing, 2019, Cyprus**.** [**program committee**]
- IEEE ComSoc Young Professionals Event, 2019, Shanghai, China. [**volunteer**]

Entrepreneurial Distinctions

- Secured 2nd position in Belt and road business innovation challenge 2017 ,China.
- Secured 2nd position in Scotia Bank data analytic Challenge 2016 hosted by Tech Mahindra, Canada.
- Participated in 'Google start up weekend 2015' organized by NASSCOM at IIM Calcutta, India.

Programming Skills: Python, Pytorch, Numpy, Pandas, Scikit learn, Deepspeed, Huggingface, SQL, Matlab, and Gephi.
Systems development Skills: Linux, AWS EC2, Cudatoolkit, Arduino, Latex, Uno and Raspberry Pi.