

Satwik Kottur

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Curriculum Vitae

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EDUCATION

Carnegie Mellon University, Pittsburgh

Ph.D., Department of Electrical and Computer Engineering **2014–2019 (Expected)**

Master of Science, Department of Electrical and Computer Engineering **2014–2017**

- Advisor: Prof. José M. F. Moura
- Interests: Computer vision, deep learning, and artificial intelligence
- GPA: 4.00/4

Indian Institute of Technology Bombay, Mumbai

Bachelor of Technology, Department of Electrical Engineering, **2010–2014**

- Advisor: Prof. Subhasis Chaudhuri
- **Honors** in Electrical Engineering, **Minor** in Computer Science and Engineering
- GPA: 9.52/10

INTERNSHIPS

Google Brain, Mountain View

Summer '18

Mentor: Prof. Gal Chechik

Worked on language emergence in a population of cooperative agents

Facebook AI Research (FAIR), Menlo Park

Summer '17

Mentors: Marcus Rohrbach, Prof. Devi Parikh, Prof. Dhruv Batra

Worked on explicit visual coreference resolution in visual dialog

Snap Research, Los Angeles

Summer '16

Mentors: Vitor Carvalho, Xiaoyu Wang

Worked on context-aware dialog models with user personalization

University of Southern California, Los Angeles

Summer '13

Mentor: Prof. Gerard Medioni

Worked on counting static cars in the scene from aerial imagery

AWARDS & ACHIEVEMENTS

- **Snap Inc. Research Fellowship** (2018), 1 of 12 students from 100+ applicants
- **Best paper award**, 1 of 4 best papers (top 0.26%) out of 1500 submissions at EMNLP 2017
- **Best reviewer award** (top 3.6%) at Neural Information Processing Systems (NIPS), 2017 as a recognition from the area chairs for quality reviewing
- **Carnegie Institute of Technology Dean's Fellowship** (2014) to pursue graduate studies
- **Viterbi-India Scholarship** (2013) to pursue research at Viterbi School of Engineering
- **Bronze medal** at International Olympiad for Astronomy and Astrophysics (2010), Beijing
- Secured AIR 6 in IITJEE - 2010 (achieved the best score in physics) among 470k students

PUBLICATIONS

- [1] **CLEVR-Dialog: A Diagnostic Dataset for Multi-Round Reasoning in Visual Dialog.** S. Kottur, J. M. F. Moura, D. Parikh, D. Batra, M. Rohrbach, *North American Chapter of the Association for Computational Linguistics (NAACL)*, 2019
- [2] **Visual Coreference Resolution in Visual Dialog using Neural Module Networks.** S. Kottur, J. M. F. Moura, D. Parikh, D. Batra, M. Rohrbach, *European Conference on Computer Vision (ECCV)*, 2018
- [3] **Natural Language Does Not Emerge ‘Naturally’ in Multi-Agent Dialog.** S. Kottur, J. M. F. Moura, S. Lee, D. Batra, *Empirical Methods in Natural Language Processing (EMNLP)*, 2017 (**Best Short Paper**)

- [4] **Deepsets.** M. Zaheer, S. Kottur, S. Ravanbakhsh, B. Póczos, R. Salakhutdinov, A. Smola, *Conference on Neural Information Processing Systems (NIPS), 2017 (Oral)*
- [5] **Learning Cooperative Visual Dialog Agents with Deep Reinforcement Learning.** A. Das*, S. Kottur*, J. M. F. Moura, S. Lee, D. Batra, *International Conference on Computer Vision (ICCV), 2017 (Oral)*
- [6] **Canopy—Fast Sampling with Cover Trees.** M. Zaheer*, S. Kottur*, J. M. F. Moura, A. Ahmed, A. Smola, *International Conference on Machine Learning (ICML), 2017 (Oral)*
- [7] **Exploring Personalized Neural Conversational Models.** S. Kottur, X. Wang, V. Carvalho, *International Joint Conference on Artificial Intelligence (IJCAI), 2017*
- [8] **Visual Dialog.** A. Das, S. Kottur, K. Gupta, A. Singh, D. Yadav, J. M. F. Moura, D. Parikh, D. Batra, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017 (Spotlight)*
- [9] **Visual Word2Vec (vis-w2v): Learning Visually Grounded Word Embeddings from Abstract Scenes.** S. Kottur, R. Vedantam, J. M. F. Moura, D. Parikh, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016*
- [10] **Comparing Gibbs, EM and SEM for MAP Inference in Mixture Models.** M. Zaheer, M. Wick, S. Kottur, J. Tristan, *OPT: NIPS Workshop on Optimization for Machine Learning, 2015*
- [11] **Traffic Flow from a Low Frame Rate City Camera.** E. Toropov, L. Gui, S. Zhang, S. Kottur, J. M. F. Moura, *Big Data Processing and Analysis (special session), IEEE International Conference on Image Processing (ICIP), 2015*

JOURNALS

- [1] **Visual Dialog.** A. Das, S. Kottur, K. Gupta, A. Singh, D. Yadav, S. Lee, J. M. F. Moura, D. Parikh, D. Batra, *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2018*
* = equal contribution

OTHER ACADEMIC & PROFESSIONAL EXPERIENCES

Reviewer, CVPR 2019, CVPR 2018, ECCV 2018, ICML 2018, NIPS 2018, NIPS 2017 (best reviewer award), NIPS 2016

Workshop Organizer

- Visually-Grounded Interaction and Language (ViGIL) Workshop, *Conference on Neural Information Processing Systems (NIPS), 2017*
- VQA Challenge and Visual Dialog Workshop, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018*

Challenge Organizer

- Visual Dialog Challenge, Workshop on Shortcomings in Vision and Language, *European Conference on Computer Vision (ECCV), 2018*

Teaching Assistant

- Convex Optimization (18-460), Carnegie Mellon University Spring '18
Instructors: Prof. Giulia Fanti
- Signals and Systems (18-290), Carnegie Mellon University Fall '17
Instructors: Prof. Aswin Sankaranarayanan and Prof. Richard Stern
- Differential Equations (MA-108), IIT Bombay Spring '14
Instructors: Prof. Akhil Ranjan