Michael Cogswell

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Education

Georgia Institute of Technology (Georgia Tech) — **May 2020**
Ph.D., Computer Science
Advised by Dhruv Batra

Virginia Polytechnic Institute and State University (Virginia Tech) — **March 2016**
M.S., Computer Science
Advised by Dhruv Batra

Virginia Polytechnic Institute and State University (Virginia Tech) — **December 2013**
B.S., Computer Science, Honors Scholar
B.S., Mathematics, Honors Scholar

Experience

Advanced Computer Scientist – Center for Vision Technologies at SRI International — June 2020 - Present
Research in applied deep learning
– Interpretability, conceptual consistency of LLMs, video retrieval, trojans
Application prototyping
– Designing and training neural networks, user interface integration
Proposal development
– Concept development, drafting, reviewing
Team leadership
– Intern projects, mentoring, team lead, computational resource organization

Graduate Research/Teaching Assistant – Georgia Tech — January 2017 - May 2020
PhD research advised by Dhruv Batra
– Deep learning for vision and language, interpretability of neural networks
TA deep learning courses, design and build deep learning infrastructure

Research Intern – Microsoft Research Cambridge, UK — Summer 2016
Research project supervised by Yoram Bachrach involving automated conversational agents

Graduate Research Assistant – Virginia Tech — May 2014 - May 2016; August 2016 - December 2016
Machine Learning & Perception Group, advised by Dhruv Batra

Research Intern – Photokharma — July 2015 to August 2015
Research and implement face recognition software supervised by Abner Guzmán-Rivera

Intern – IBM, Raleigh, NC — June 2012 - December 2012
Intern for data analytics team, developed machine learning features and data visualizations

Service

Area Chair for NeurIPS 2023 (Datasets and Benchmarks Track)

Reviewer (program committee) for
– Computer Vision and Pattern Recognition (CVPR) — 2015 - 2020
– European Conference on Computer Vision (ECCV) — 2014, 2016, 2020
– International Conference on Computer Vision (ICCV) — 2015, 2017, 2019
– Neural Information Processing Systems (NIPS) — 2017 - 2019
– International Conference on Learning Representations (ICLR) — 2017 - 2020, 2023
– International Conference on Machine Learning (ICML) — 2019, 2020

Honors & Awards

Outstanding Reviewer Awards (Recognition from areas chairs for quality reviewing)
  – IEEE Conference on Computer Vision and Pattern Recognition (CVPR)   2017, (top 1% of reviewers) 2019
  – Neural Information Processing Systems (NeurIPS)   2017 - 2019
  – International Conference on Machine Learning (ICML)   (top 5% of reviewers) 2019
  – International Conference on Learning Representations (ICLR)   2019
Bradley Fellowship – Virginia Tech ECE   **Fall 2015**
  – Tuition and stipend for 3 years (ended with transfer to Georgia Tech with advisor)
Scholarships
  – Pratt Engineering Scholarship, $5000, 2009 - 2010
  – AFCEA NOVA Scholarship, $4000
  – Gilbert L & Lucille C Seay Scholarship, $2000, 2010 - 2011
  – Computer Science Resource Consortium Scholarship, $1500, 2011 - 2012, 2013 - 2014

Publications

Pre-Prints

16. Yangyi Chen, Karan Sikka, **Michael Cogswell**, Heng Ji, and Ajay Divakaran. "Measuring and Improving Chain-of-Thought Reasoning in Vision-Language Models". In: *ArXiv* abs/2309.04461 (2023).

Journals

15. Ramprasaath R. Selvaraju, **Michael Cogswell**, Abhishek Das, Ramakrishna Vedantam, Devi Parikh, and Dhruv Batra. "Grad-CAM: Visual Explanations from Deep Networks via Gradient-based Localization". In: *International Journal of Computer Vision (IJCV)*. 2019.

Peer-Reviewed Conference Papers

14. Xiaoling Hu, Xiaoyu Lin, **Michael Cogswell**, Yi Yao, Susmit Jha, and Chao Chen. "Trigger Hunting with a Topological Prior for Trojan Detection". In: *Proceedings of the International Conference on Learning Representations (ICLR)* (2022).

13. **Michael Cogswell**, Jiasen Lu, Stefan Lee, Devi Parikh, and Dhruv Batra. "Dialog without Dialog: Learning Image-Discriminative Dialog Policies from Single-Shot Question Answering Data". In: *Neural Information Processing Systems (NeurIPS)* (2020).

12. Ashwin K Vijayakumar, **Michael Cogswell**, Ramprasath R. Selvaraju, Qing Sun, Stefan Lee, David Crandall, and Dhruv Batra. "Diverse Beam Search: Decoding Diverse Solutions from Neural Sequence Models". In: *Proceedings of the Association for the Advancement of Artificial Intelligence (AAAI)*. 2018.

11. Ramprasaath R. Selvaraju, **Michael Cogswell**, Abhishek Das, Ramakrishna Vedantam, Devi Parikh, and Dhruv Batra. "Grad-CAM: Visual Explanations from Deep Networks via Gradient-based Localization". In: *Proceedings of the International Conference on Computer Vision (ICCV)* (2017).

10. Stefan Lee, Senthil Purushwalkam, **Michael Cogswell**, Viresh Ranjan, David Crandall, and Dhruv Batra. "Stochastic Multiple Choice Learning for Training Diverse Deep Ensembles". In: *Neural Information Processing Systems (NeurIPS)*. 2016. Similar to M Best Heads below.

9. **Michael Cogswell**, Faruk Ahmed, Ross Girshick, Larry Zitnick, and Dhruv Batra. "Reducing Overfitting in Deep Networks by Decorrelating Representations". In: *Proceedings of the International Conference on Learning Representations (ICLR)* (2016).

8. Stephen H Edwards, Zalia Shams, **Michael Cogswell**, and Robert C Senkbeil. "Running students' software tests against each others' code: new life for an old gimmick". In: *Proceedings of the 43rd ACM technical symposium on Computer Science Education*. ACM. 2012, pp. 221–226.

Technical Reports / Workshops

7. Madeline Chantry Schiappa, **Michael Cogswell**, Ajay Divakaran, and Yogesh Singh Rawat. "Probing Conceptual Understanding of Large Visual-Language Models". In: *ArXiv* abs/2304.03659 (2023).

6. Pritish Sahu, **Michael Cogswell**, Yunye Gong, and Ajay Divakaran. "Unpacking Large Language Models with Conceptual Consistency". In: *ArXiv* abs/2209.15093 (2022).

5. **Michael Cogswell**, Jiasen Lu, Stefan Lee, Devi Parikh, and Dhruv Batra. "Emergence of Compositional Language with Deep Generational Transmission". In: *ArXiv* abs/1904.09067 (2019).

4. Pritish Sahu, **Michael Cogswell**, Sara Rutherford-Quach, and Ajay Divakaran. "Comprehension Based Question Answering using Bloom's Taxonomy". In: *Workshop on Representation Learning for NLP*. 2021.

3. Kamran Alipour, Arijit Ray, Xiaoyu Lin, **Michael Cogswell**, Jürgen P. Schulze, Yi Yao, and Giedrius Burachas. "Improving Users' Mental Model with Attention-directed Counterfactual Edits". In: *Applied AI Letters* abs/2110.06863 (2021).

2. Arijit Ray, **Michael Cogswell**, Xiaoyu Lin, Kamran Alipour, Ajay Divakaran, Yi Yao, and Giedrius Burachas. "Generating and Evaluating Explanations of Attended and Error-Inducing Input Regions for VQA Models". In: *Applied AI Letters* (2021).

1. **Michael Cogswell**, Xiao Lin, Senthil Purushwalkam, and Dhruv Batra. "Combining the best of graphical models and convnets for semantic segmentation". In: *arXiv preprint arXiv:1412.4313* (2014).