

# DEMI GUO

[dguo@college.harvard.edu](mailto:dguo@college.harvard.edu)

## EDUCATION

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**Harvard University, Cambridge, MA**

*M.S. in Computer Science*

*B.A. in Mathematics*

[2018-2019]: Joined Facebook AI Research for a gap year as the youngest full-time employee.

Sep 2016 ~ May 2021

## EXPERIENCE

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**Research Assistant, Harvard University**

Present

**Research Engineer, Facebook AI Research**

Oct 2018 ~ Sep 2019

**SWE Intern, Google Brain**

Summer 2018

**Trading Algorithm Developer, Hudson River Trading**

Winter 2018

**SWE Intern, Microsoft Bing**

Summer 2017

**SWE Intern, Quora ML/Infrastructure**

Spring 2016

## HONORS

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- **Silver Medal**, International Olympiad in Informatics (**IOI**) (2015)
- **1<sup>st</sup> Place**, USA Computing Olympiad National Open (**USACO Open**) (2014, 2015)
- **Gold Medal**, Math Prize for Girls Olympiad (2015)
- National Selection Team (**top 20**) for International Math Olympiad (**IMO**) (2015)
- **1<sup>st</sup> Place Team**, OpenBracket Hackathon, awarded \$15k (2017)
- **1<sup>st</sup> Place**, Women Codesprint on HackerRank, awarded \$2k (2017)
- Honorable Mention (**top 20**), National Center for Women & Information Technology Award, awarded \$10k (2018)
- **Finalist**, CRA Outstanding Undergraduate Researcher Award (2020)

## PUBLICATIONS & SUBMISSIONS

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[\[1\] Parameter-Efficient Transfer Learning with Diff Pruning](#)

**Demi Guo**, Alexander M. Rush, Yoon Kim

Arxiv 2020. Preprint.

[\[2\] Sequence-Level Mixed Sample Data Augmentation](#)

**Demi Guo**, Yoon Kim, Alexander M. Rush

Empirical Methods in Natural Language Processing (**EMNLP**), 2020.

[\[3\] Learning Algorithms for Automated Data Structure Designs](#)

**Demi Guo**, Subarna Chatterjee, Stratos Idreos

ACM Special Interest Group on Management of Data (**SIGMOD**) SRC, 2021. In Review.

[\[4\] Analyzing Machine-learned Representations: A Natural Language Case Study](#)

Ishita Dasgupta, **Demi Guo**, Samuel J Gershman, Noah D Goodman

*Cognitive Science* journal. In Press, 2020.

[\[5\] PointContrast: Unsupervised Pre-training for 3D Point Cloud Understanding](#)

Saining Xie, Jiatao Gu, **Demi Guo**, Charles Qi, Leonidas Guibas, Or Litany

European Conference on Computer Vision (**ECCV**) Spotlight, 2020.

[\[6\] Order-aware Generative Modeling Using the 3D-Craft Dataset](#)

Zhuoyuan Chen\*, **Demi Guo**\*, Xiao Tong\*, Saining Xie, Xinlei Chen, ..., Lawrence C. Zitnick (\*equal contribution)

International Conference on Computer Vision (**ICCV**), 2019.

[\[7\] Evaluating Compositionality in Sentence Embeddings](#)

Ishita Dasgupta, **Demi Guo**, Andreas Stuhlmüller, Samuel J Gershman, Noah D Goodman

Annual Meeting of the Cognitive Science Society (**CogSci**), 2018.

[\[8\] Latent Alignment and Variational Attention](#)

Yuntian Deng\*, Yoon Kim\*, Justin Chiu, **Demi Guo**, Alexander M. Rush

Conference on Neural Information Processing Systems (**NeurIPS**), 2018.

[\[9\] The Data Calculator: Data Structure Design and Cost Synthesis from First Principles and Learned Cost Models](#)

Stratos Idreos, Kostas Zoumpatianos, Brian Hentschel, Michael S. Kester, **Demi Guo**

The ACM Special Interest Group on Management of Data (**SIGMOD**), 2018.

## WORKSHOP & MANUSCRIPTS

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### [\[1\] MicroNet Submission for Efficient Language Modeling](#)

**Demi Guo\***, Hanrui Wang\*, Zhongxia Yan\*, Philip Isola, Song Han (\*equal contribution)  
*Conference on Neural Information Processing Systems (NeurIPS) MicroNet Competition (1st Place), 2019.*

### [\[2\] Biological Structure and Function Emerge from Scaling Unsupervised Learning to 250 Million Protein Sequences](#)

Alex Rives\*, Sidharth Goyal\*, Joshua Meier\*, **Demi Guo\***, Myle Ott, ..., Rob Fergus (\*equal contribution)  
*BioRxiv 2019. Most Downloaded BioRxiv Paper in Synthetic Biology Category of All Time.*

### [\[3\] CraftAssist: A Framework for Dialogue-enabled Interactive Agents](#)

Jonathan Gray\*, Kavya Srinet\*, et al (\*equal contribution)  
*Arxiv 2019. With an additional position paper and a blog post.*

### [\[4\] Evaluating Compositionality in Sentence Embeddings](#)

Ishita Dasgupta, **Demi Guo**, Andreas Stuhlmuller, Samuel J Gershman, Noah D Goodman  
*North American Chapter of the Association for Computational Linguistic (NAACL) Gen-Deep Workshop, 2018.*

### [\[5\] Past and Future Steps for Adaptive Storage Data Systems: From Shallow to Deep Adaptivity](#)

Stratos Idreos, M. Athanassoulis, Niv Dayan, **Demi Guo**, Michael Kester, Lukas Maas, Kostas Zoumpatianos  
*International Conference on Very Large Data Bases (VLDB) workshop, 2016*

## LEADERSHIP AND SERVICES

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### **Team USA Coach member, USA Computing Olympiad**

- Coach for Team USA at International Olympiad in Informatics (IOI). Team USA won 1st place.

### **Co-President, Women Engineers Code Conference**

- Led 20+ Harvard students to run the largest student-run women in computer science conference (600+ attendees)

### **Board Member, Harvard Women in Computer Science**

- Served as alumni relations chair to organize mentorship programs for younger female CS majors

### **Director, Harvard-MIT Math Tournament (HMMT)**

- Helped to set up problems and organize onsite rounds.

### **Algorithm Coach, Alpha Star Academy**

- Taught high school students about algorithms and data structures

## PROGRAMMING SKILLS

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Experienced with *Python* (including *PyTorch*, *Tensorflow*, *Pandas* and *Numpy*), *C/C++* (for systems and high performance code), and *LaTeX*. Familiar with *JavaScript*, *Java*, *HTML*, *CSS*, *MySQL*, *Redshift*, *Hive*.