# DeepRob

**Discussion 3**
**How to Read Deep Learning Research Papers**
**University of Michigan and University of Minnesota**

# Today's Agenda

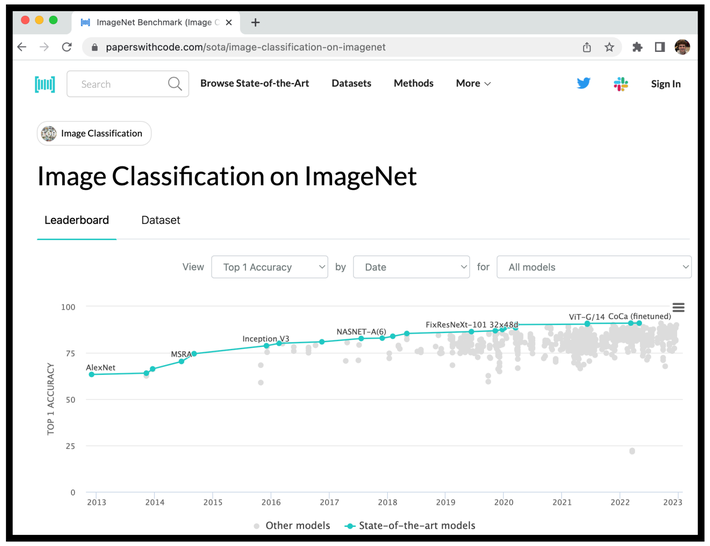
- The importance of reading papers
- How to approach research papers in deep learning
- Discussion of AlexNet, PoseCNN and NeRF

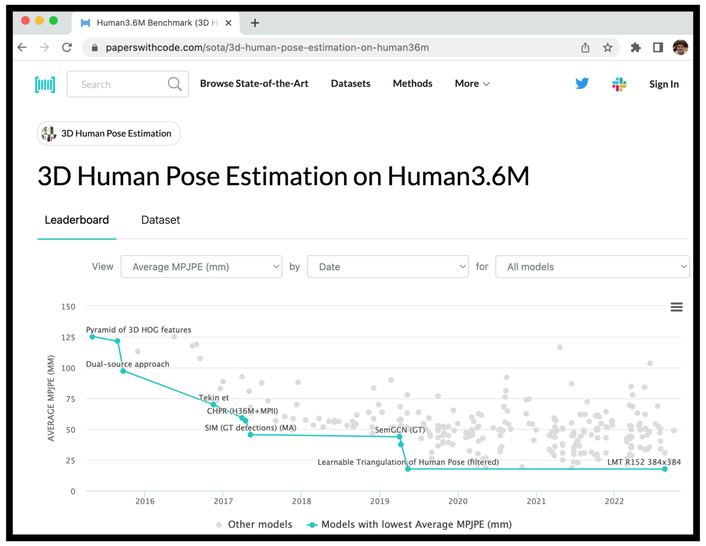
# Reading Papers is an Important Skill

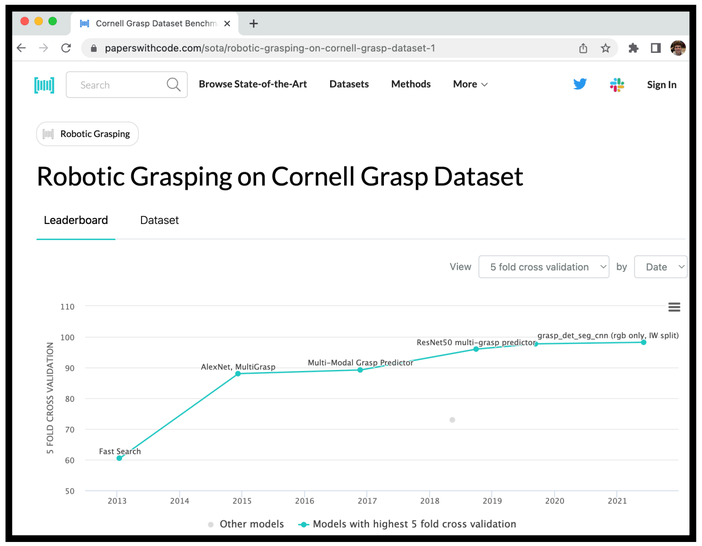
- Applied Side
  - Practitioners want state of the art performance
  - Look to academia for what exists and how it can be replicated

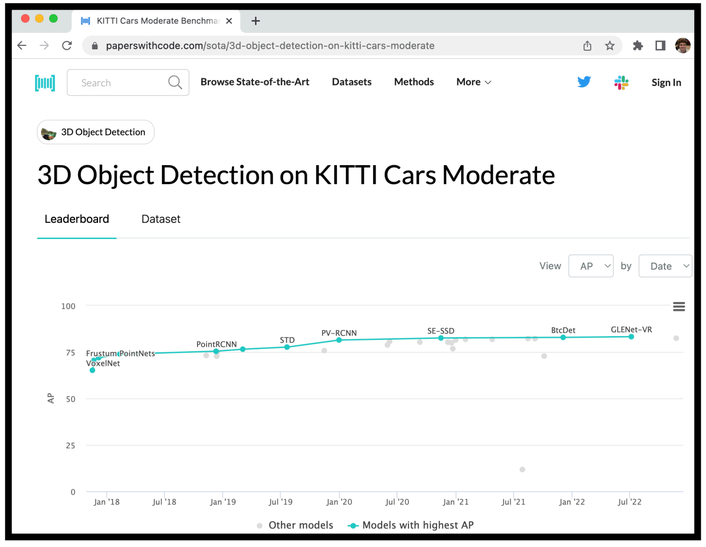
- Research Side
  - Understand the field as a way to find ideas for contributing
  - New datasets, techniques, methods defined by research community

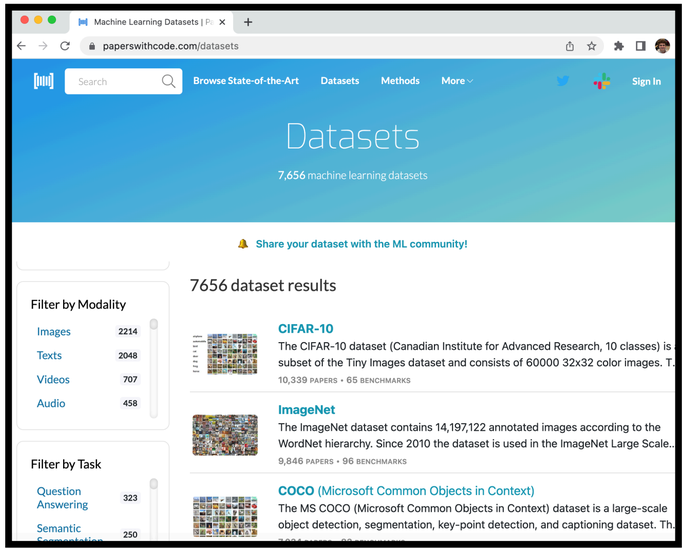
# State of the Art is Always Changing



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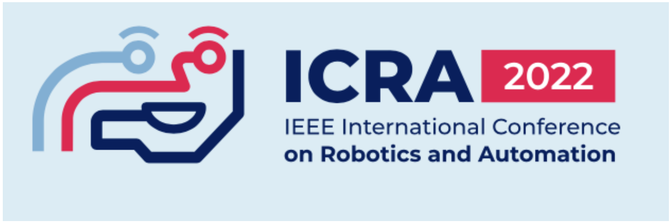



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**iROS is in Detroit this year!**

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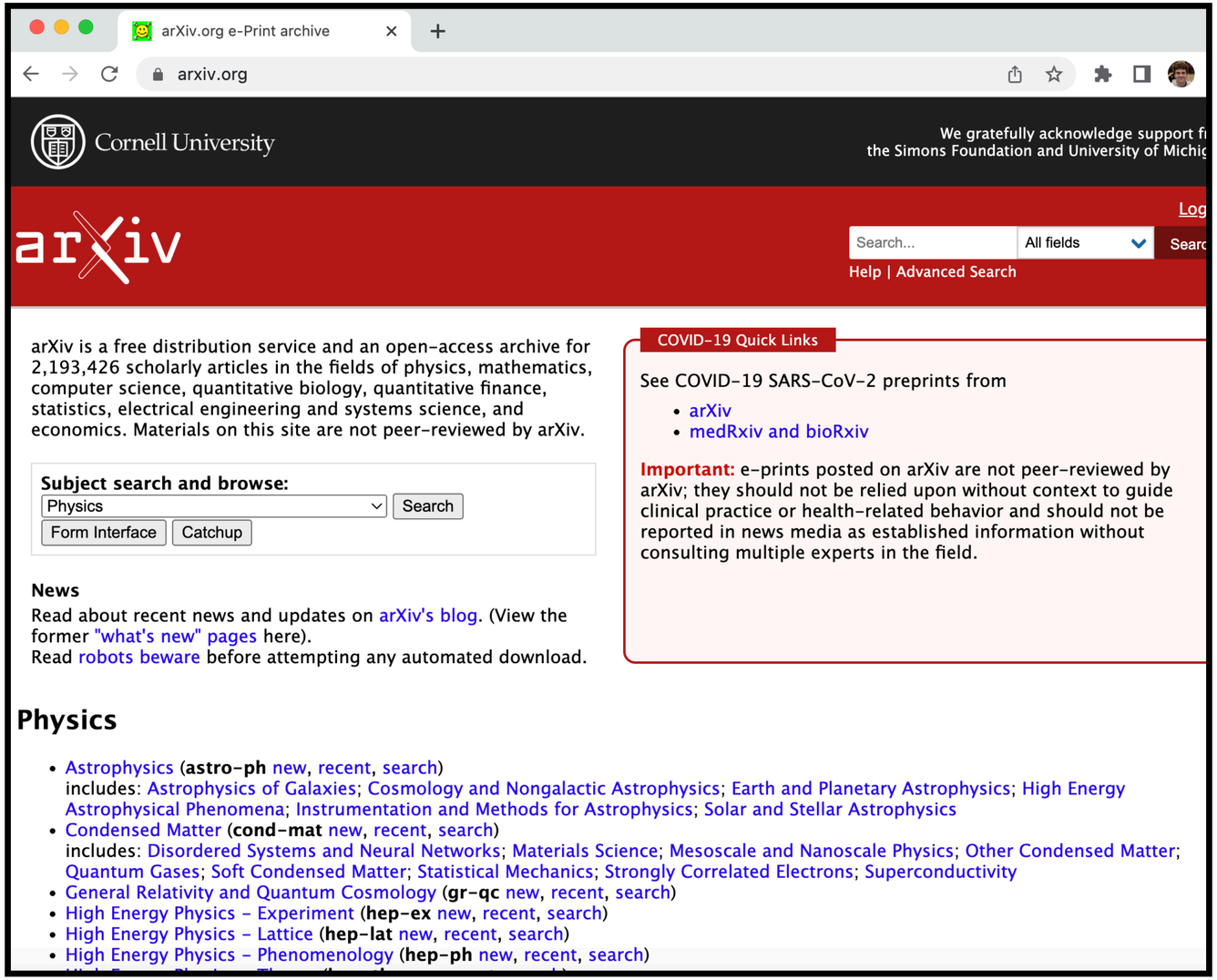

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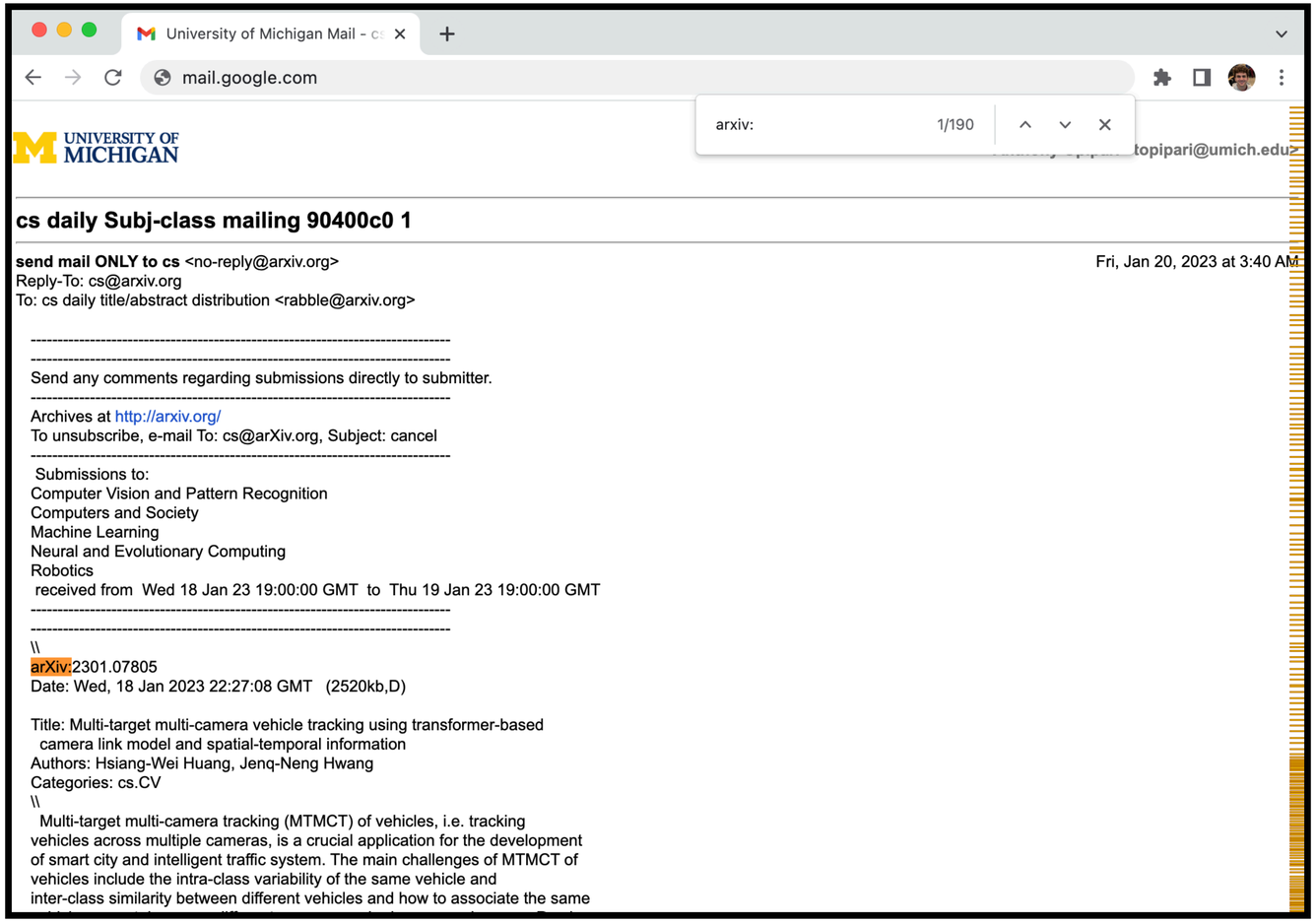

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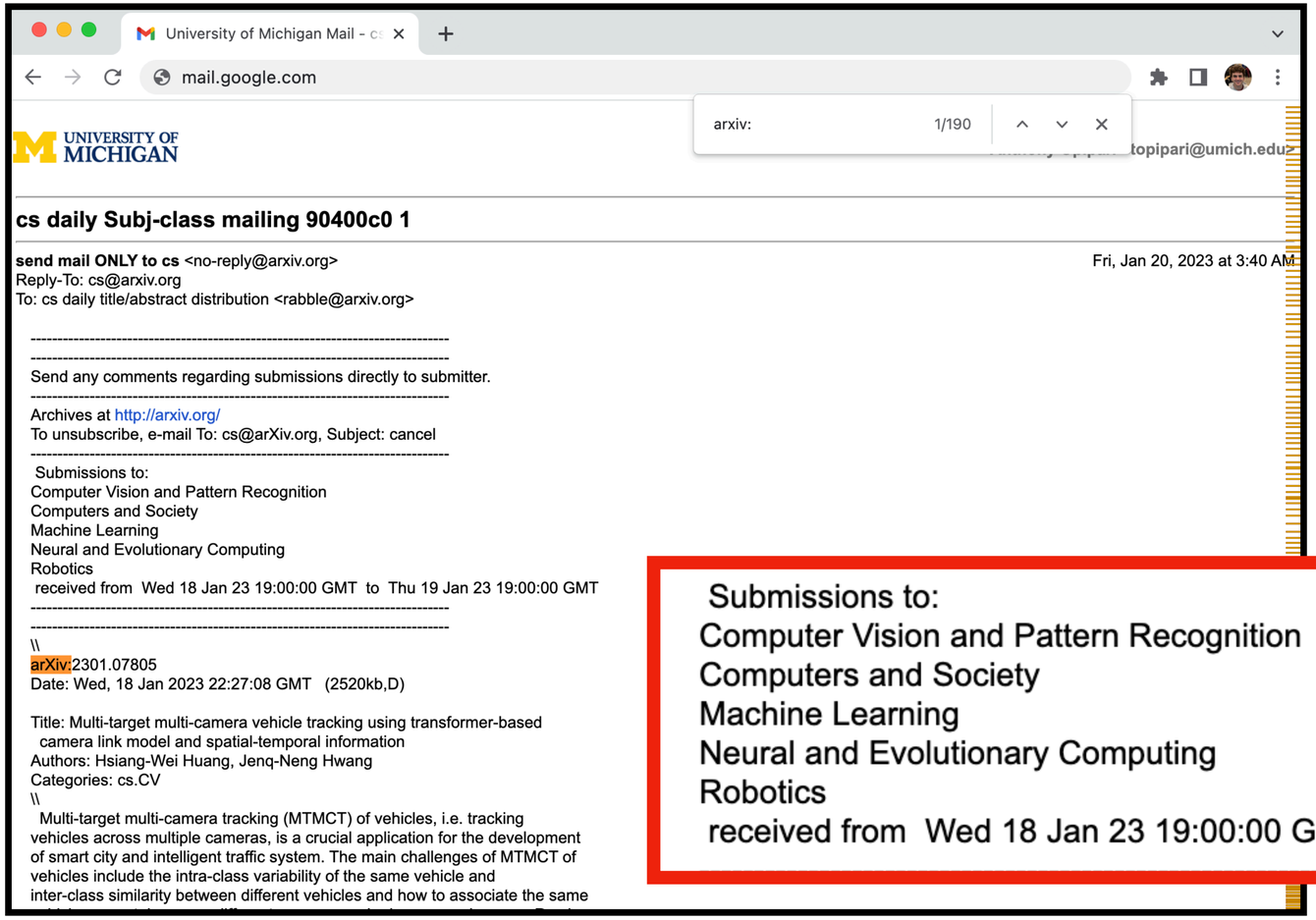


Submissions to:
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Robotics
received from Wed 18 Jan 23 19:00:00 GMT to Thu 19 Jan 23 19:00:00 GMT

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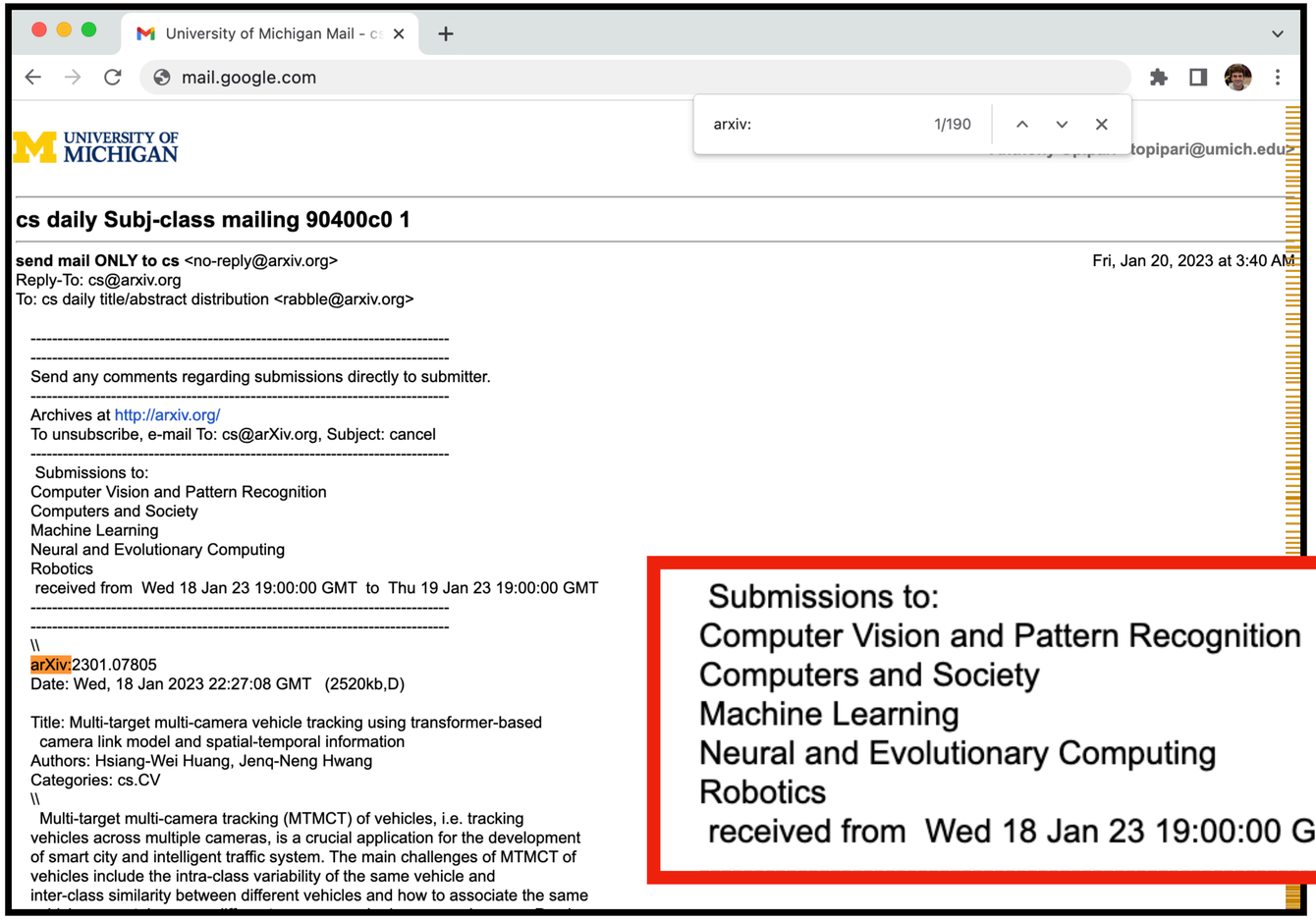



>190 new papers
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Everyone develops their own style over time

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**How were these results achieved? Using which techniques evaluated under which methods?**

**What problems, questions, or findings could be expanded on as future work?**

# Discussion: AlexNet

**ImageNet Classification with Deep Convolutional Neural Networks**


**Alex Krizhevsky**
University of Toronto
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**Ilya Sutskever**
University of Toronto
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**Geoffrey E. Hinton**
University of Toronto
hinton@cs.utoronto.ca

# Discussion: PoseCNN

PoseCNN: A Convolutional Neural Network for 6D Object Pose Estimation in Cluttered Scenes

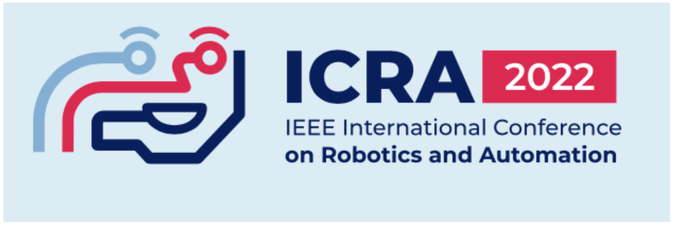
Yu Xiang[1,2], Tanner Schmidt[2], Venkatraman Narayanan[3] and Dieter Fox[1,2]
[1]NVIDIA Research, [2]University of Washington, [3]Carnegie Mellon University
yux@nvidia.com, tws10@cs.washington.edu, venkatraman@cs.cmu.edu, dieterf@nvidia.com

# Discussion: NeRF

**NeRF: Representing Scenes as Neural Radiance Fields for View Synthesis**

Ben Mildenhall[1⋆] Pratul P. Srinivasan[1⋆] Matthew Tancik[1⋆]
Jonathan T. Barron[2] Ravi Ramamoorthi[3] Ren Ng[1]

[1]UC Berkeley [2]Google Research [3]UC San Diego

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