

# CVPR 2021 Quick Summary & Prediction

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## Top Computer Science Conferences

Ranking is based on Conference H5-index >=42 provided by Google Scholar Metrics

English - Google Scholar Metrics

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☐ Show Due only   Search by keyword

Rank	Publisher	Conference Details	H5-index	Impact Score
1	 IEEE	<b>CVPR : IEEE/CVF Conference on Computer Vision and Pattern Recognition</b> Jun 21, 2021 - Jun 24, 2021 - Nashville , United States <a href="http://cvpr2021.thecvf.com/">http://cvpr2021.thecvf.com/</a>	299	51.98
2		<b>NeurIPS : Neural Information Processing Systems (NIPS)</b> Dec 6, 2021 - Dec 14, 2021 - Online , Online <a href="https://nips.cc/">https://nips.cc/</a>	198	33.49
3	 IEEE	<b>ICCV : IEEE/CVF International Conference on Computer Vision</b> Oct 11, 2021 - Oct 17, 2021 - Montreal , Canada <a href="http://iccv2021.thecvf.com/home">http://iccv2021.thecvf.com/home</a>	176	32.51
4	 Springer	<b>ECCV : European Conference on Computer Vision</b> Oct 11, 2021 - Oct 17, 2021 - Montreal , Canada <a href="http://eccv2021.thecvf.com/">http://eccv2021.thecvf.com/</a>	144	25.91

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Categories ▾

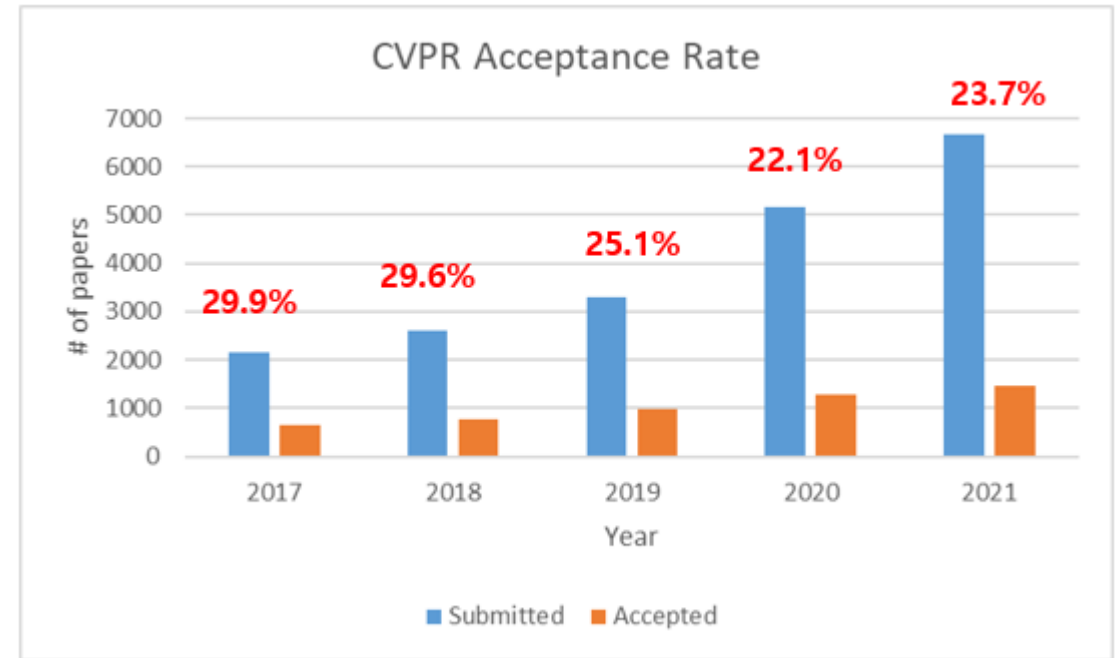
	Publication	h5-index	h5
1.	Nature	<a href="#">376</a>	
2.	The New England Journal of Medicine	<a href="#">365</a>	
3.	Science	<a href="#">356</a>	
4.	The Lancet	<a href="#">301</a>	
5.	IEEE/CVF Conference on Computer Vision and Pattern Recognition	<a href="#">299</a>	
6.	Advanced Materials	<a href="#">273</a>	
7.	Nature Communications	<a href="#">273</a>	
8.	Cell	<a href="#">269</a>	
9.	Chemical Reviews	<a href="#">267</a>	
10.	Chemical Society reviews	<a href="#">240</a>	

# CVPR21 Program Stats

- 83 workshops
- 30 tutorials
- Main conference
  - 1600+ papers in 12 sessions
  - 15 invited speakers
  - 4 live panel sessions
- 6800+ attendees
- 50+ sponsors, Futurewei is Spotlight Sponsor
  - 14 champion, 14 premium, 12 spotlight, rest standard

# Paper Submission & Acceptance rate

Nb of submissions	7093
Assigned to reviewers	7039
Accepted as poster	1366
Accepted as oral	295
Desk rejected	19
Rejected	4312
Withdrawn	1047



- The total number of papers is increasing every year and this year has increased significantly
- The acceptance rate decreased from 25% to 22%.

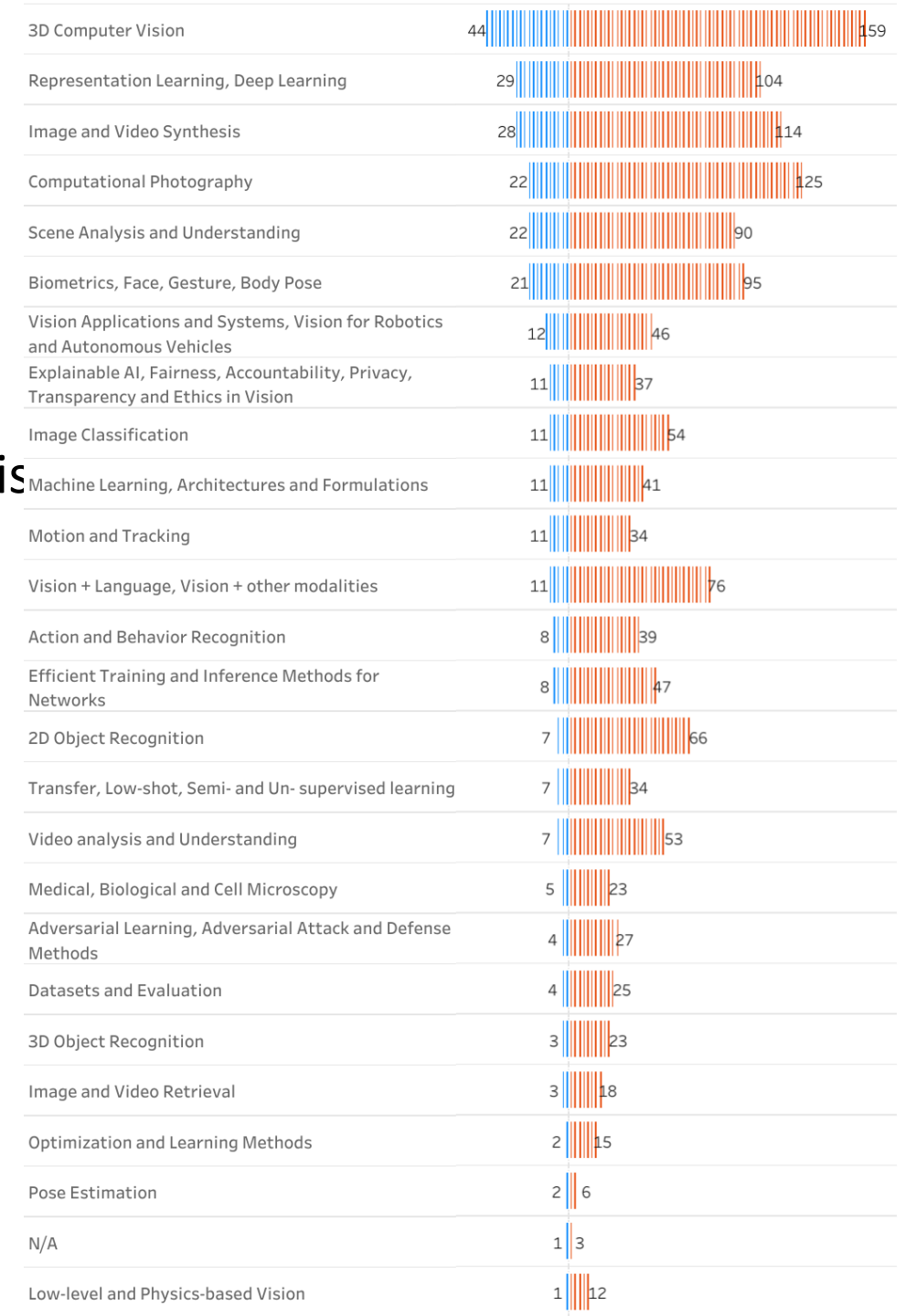
# CVPR Author Statistics

- Chinese Authors: 39%
- Asian authors: >50%
- HK/Singapore/Korea/Japan/India

Nb of authors (of submitted papers)	21036
... of which China	8203
... of which US	4628
... of which Korea	1062
... of which UK	655
... of which Germany	574
... of which Canada	517
... of which Australia	462
... of which India	429
... of which Hong Kong	406
... of which Singapore	376
... of which Japan	345
... of which France	325
... of which Switzerland	311
... of which Israel	243

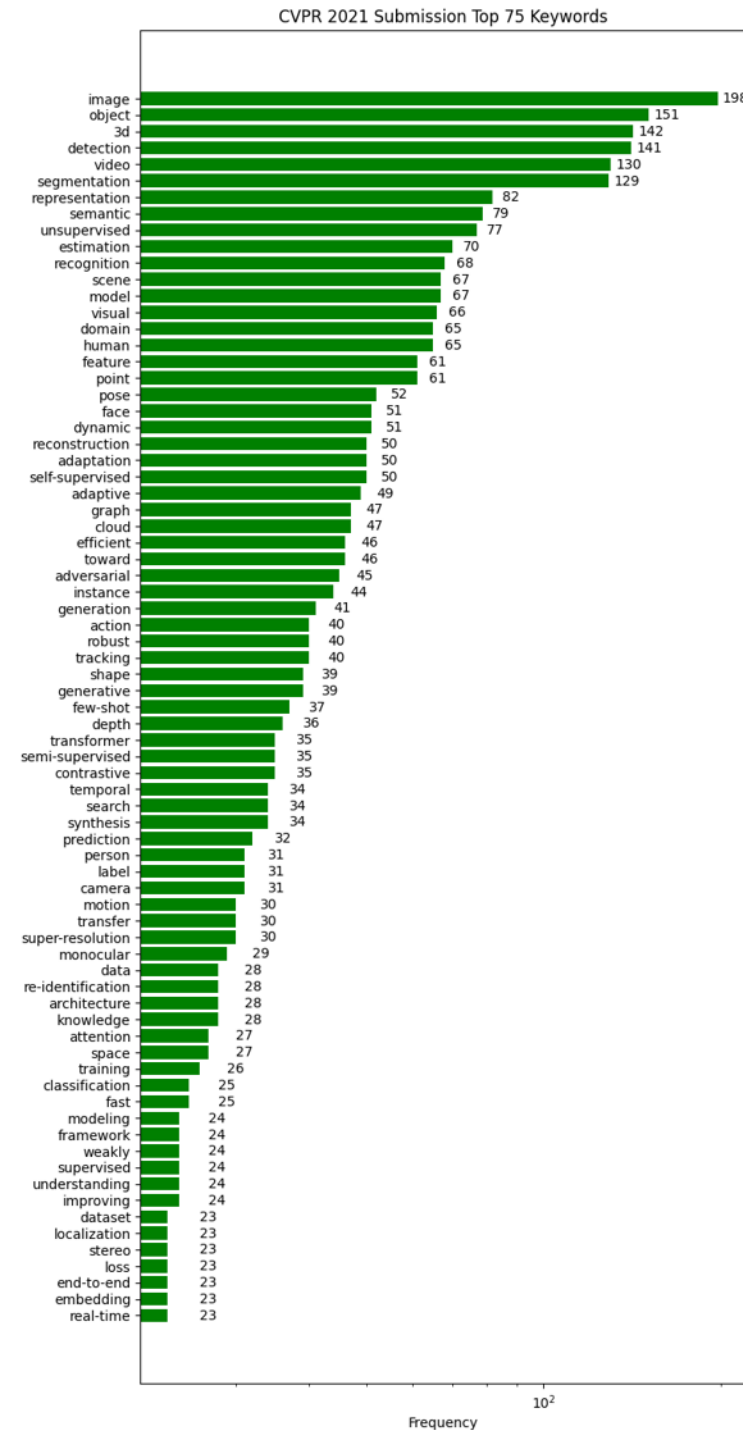
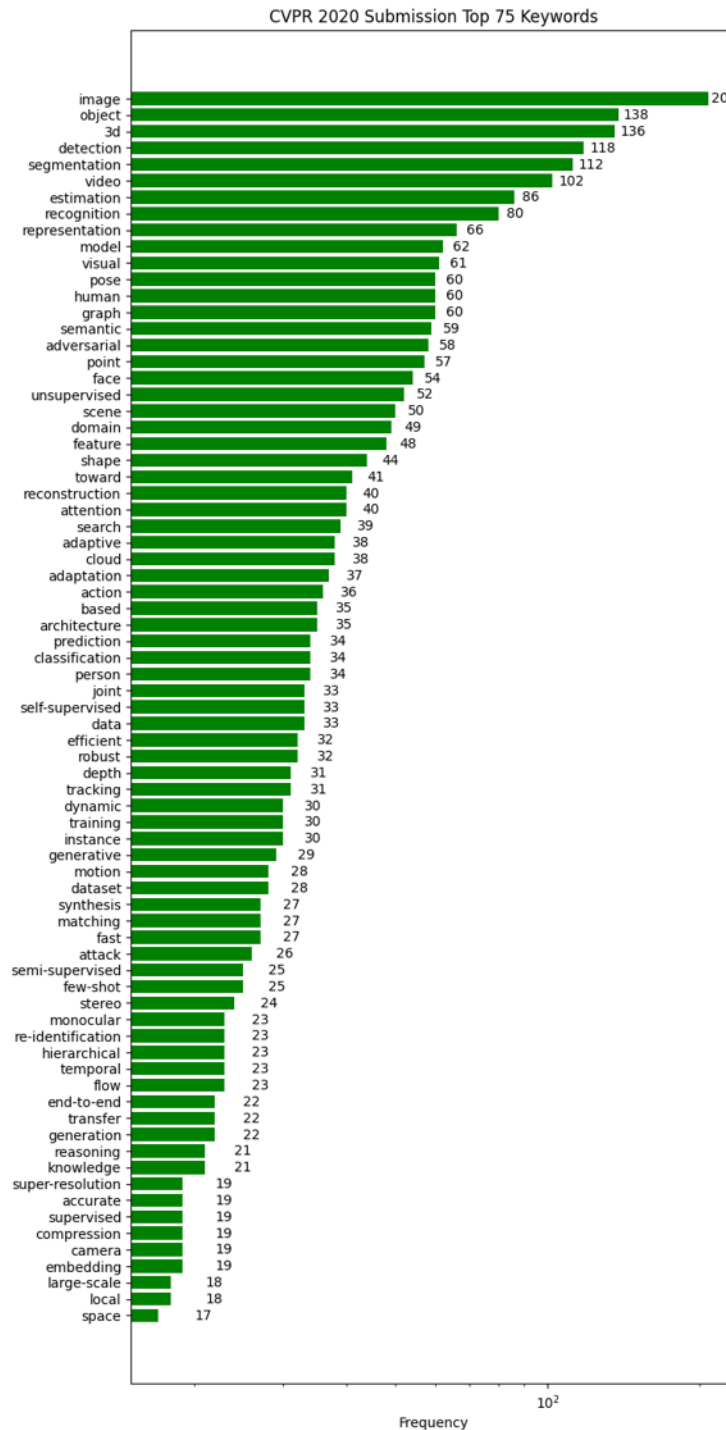
# CVPR Research Areas

- 3D/2D Image/video Understanding
  - Analysis, Processing, Enhancement, Synthesis
  - Vision for Robotics/Vehicles
- Vision+Language / Multi-Modalities
- Human Centric:
  - Face, body, gesture, action, ...
  - Explainable, Fairness, Privacy, etc.
- Learning



# Paper Keywords statistics

- Most of the top keywords were maintained
  - Image, detection, 3d, object, video, segmentation, etc.
- About x1.5 as frequent
  - unsupervised : 52 -> 77
  - self-supervised: 33 -> 50
  - semi-supervised: 25 -> 35
- New:
  - Transformer: 35
  - Contrastive: 35



# Outline (from CVPR2019)

- Basics about CVPR
- CV Topics
- News from CVPR 2019
  - Academic
  - Industry
  - Other
- **What's next: Trend and Predictions**

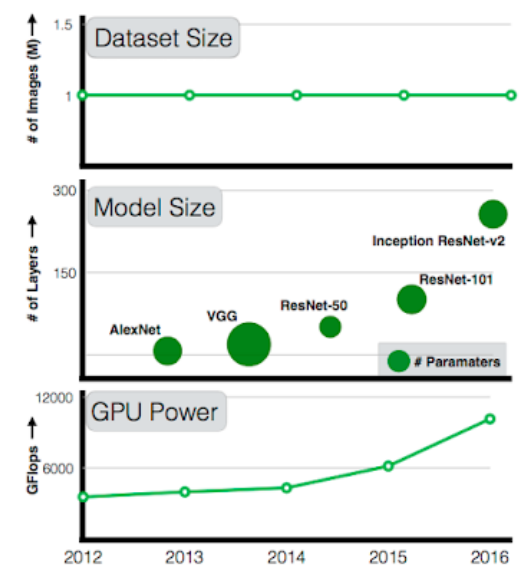


# What's Next (CV conferences)

- ~~CVPR 2019: Long Beach, California~~
- ICCV 2019: Seoul, South Korea
- **CVPR 2020: Seattle, Washington**
- CVPR 2021: Nashville, Tennessee
- ICCV 2021: Montreal, Canada
- CVPR 2022: New Orleans, Louisiana
- **CVPR 2023: Vancouver, Canada**

# Computer Vision in Next 5 years

- Data: More (real) data/ Less data
- Algorithm: Passive to Proactive /Interactive /Collective
- Compute: Hardware+Software integrated system is the Key Direction
- Applications: CV + NLP = bridge vision and natural language towards a deeper understanding of the world
  - Image/Video captioning
  - Objection localization by natural language description
  - Visual question answering
  - Visual dialogue
  - Vision language navigation



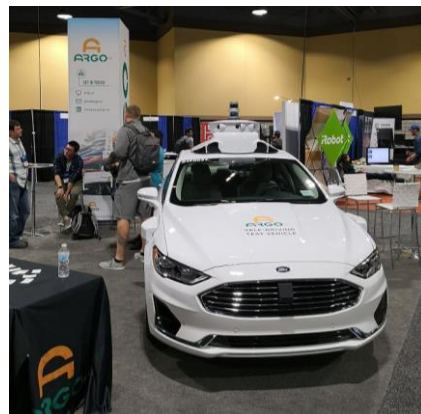
# Data Speaks

- Data dominants: Data vs Algorithm
  - Example1: Bert vs XLNet vs GPT-2
  - Example2: Landmark recognition
- Labeling efforts: Mom story → No data is better than more data
  - More data
    - Collect more and label more
    - Data generation/simulation: (e.g. autonomous driving)
  - Less data
    - Low shot learning
    - Data + knowledge
    - Unsupervised/Weak supervised learning

# Video Surveillance

- Successful practices
- Major companies and their current situations
- Privacy concerns and potential solutions
- Targets: People, Vehicle, Objects and more (animals, plants, etc.)
- Scenarios: security, IoT, operations
- Solutions: software + hardware + people in the loop

# Autonomous Driving Cars?



# Entertainment Demos

- [MatterPort](#)
- [Scene Recognition](#)
- [GAN inpainting](#) , [GauGAN](#)
- [Video inpainting](#)

# Challenges and Opportunities

- Data is the new fuel →
  - E2E data solution for AI : Collection, storage, curation, train/test, analysis, etc.
  - Tools for intelligent data generation/labeling
  - Data management (quality assessment, tracing , security, etc.)
- AI platform Competitors → Hybrid Cloud Solution
  - On Premises: Lambda, Inspur
  - Cloud Service: AWS , AzureML, GCAI
- AI Specific Challenges for Next Generation Cloud
  - Data Import/Export/Exchange
  - GPU Pool / Computation Power Virtualization
  - [Elastic GPU Service](#), [GPU Sharing](#)
  - Fast Deployment / Initialization / Monitoring / Billing
  - Model/Data Security, especially on edge