



Deep Learning CS60010

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Logistics

- **Course Name and code:** Deep Learning, CS60010
- **Time:** Wednesday (11:00-11:55 am), Thursday (12:00-12:55 pm), Friday (8:00-8:55 am)
- **Office Hours:** Thursday (4:00-5:00 pm) at my office [Takshashila Building second floor]
- **Venue:** NR421



Logistics

- **Course website:** http://cse.iitkgp.ac.in/~adas/courses/dl_spr2020/dl_spr2020.php
- **Moodle Classroom:** <https://10.5.18.110/moodle/login/index.php> and then the class name is – Deep Learning (Spring 2020)
- **Piazza Forum:** <https://piazza.com/iitkgp.ac.in/spring2020/cs60010/home>
- **TAs:** Buridi Sree Aditya (buridiaditya@iitkgp.ac.in), Vishal Gupta (ervishal@iitkgp.ac.in), Charugundla Sree Theerdha (sreetheerdha9@gmail.com), Vishesh Agarwal (vishesh0512@gmail.com), Subrata Chattopadhyay (subrata.ctj@gmail.com)

The Team

Instructor



Abir Das

Teaching Assistants



Buridi Aditya



Vishal Gupta



C. Sree Theerdha



Vishesh Agarwal



Subrata
Chattopadhyay

• **And YOU!!**



Course Information

- **Prerequisites:** 1. CS60050: Machine Learning
- **Python Proficiency:** Proficiency in Python and familiarity with some Deep Learning tools (Tensorflow, Pytorch etc.) is desirable. A few links to get started.
 - <https://docs.python.org/3/tutorial/>
 - <http://cs231n.github.io/python-numpy-tutorial/>



Course Information

- **Books and References:**

1. "Deep Learning", I Goodfellow, Y Bengio and A Courville, 1st Edition, Free [link](#).

- More references specific to the lectures will be added in the course website as and when needed.



Course Information

- Online lectures/Videos: The following courses will be closely followed in this course
 - Convolutional Neural Networks for Visual Recognition from Stanford University ([Link](#))
 - Deep Learning by Efstratios Gavves ([Link](#))
 - NPTEL Deep Learning by Prabir Kumar Biswas ([Link](#))



Course Information

- **Evaluation:** Homework (20%) – 2 Homeworks; mid term (30%); End-term (30%); Project (15%), Paper presentation (5%).
 - Homeworks
 - Homeworks will have a combination of Mathematical and coding problems.



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 - Project
 - Each project will be done by a 4 member team. Start forming the team.
 - We will try to assign one TA as mentor to each team. But its your project and the TAs will just oversee, nothing more than that.
 - Tentative deadline to submit project title and half a page abstract along with the team member names is **[Jan 31, 2020]**.
 - Coming up with your own project idea is highly recommended. You can discuss with the TAs and mail me if you need to discuss.
 - The project deliverable is a 4 page report plus bibliography [ICIP Style paper] at the end of the course (Pre finals week) and a poster which needs to be presented at a poster session [**The date of the poster session will be announced later**]



Course Information

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- Paper presentation
 - The whole class will be divided into 2 member teams. The team will be formed by the instructor and the Tas. Papers will be assigned to each team by the instructor and the TAs.
 - Each Friday the class will be divided into 2 halves. The first half (approx 25 minutes) will have usual lecturing. In the second half (approx 30 minutes), 3 teams will present the papers assigned to them. The duration of each presentation will be 8 minutes (+ 2 minutes Q&A).
 - Each team will have to present one paper during the whole semester.
 - Some thumbrules:
 - 10-12 slides in total, divide the presentation in problem definition (if required provide importance of the problem), approach (if you can motivate why the approach is good/novel it will be great), Results and what could have been done extra according to you.



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- **Evaluation:** Homework (20%) – 2 Homeworks; mid term (30%); End-term (30%); Project (15%), Paper presentation (5%).
- Paper presentation – **Why are we doing this?**
 - Deep Learning is a rapidly evolving field. Everyday new papers are coming out. Just check ArXiv and see (especially just after the paper submission deadlines of reputed conferences. We will see what are some good conferences in fields related to Deep Learning in a few slides).
 - Some of them are good, some are bad. If we divide and conquer the task of reading papers everybody will be benefitted.
 - Papers are BIIIIIG things. How do I get started?
 - Fantastic tips by Andrew Ng. [\[Link\]](#) (First 30 minutes)



What about Computing Resources

- We are going to use Google cloud compute services (GCP).
- Cloud computing is convenient compared to a server based approach.
- Google has been kind enough to provide a \$50 compute credit for every student enrolled in the course.
- You will be provided with instructions on how to redeem this free cloud credit.
- Try to save this for your project (\$200 in total for 4 members).
- Homeworks can be done in your PC and Google Colab (free to use)
- GCP Documentation: [Link](#)
- Further details on procedure to set up a project and deep learning libraries in the VM will be discussed in due course.



Computer Vision Conferences

- CVPR – Computer Vision and Pattern Recognition, since 1983. Held in USA (2023 is scheduled to be held in Vancouver, first time outside USA)
 - Google Scholar h-5 index, 2019 – 240 (Top 10 across any field, any conference or journal)
- ECCV – European Conference on Computer Vision, since 1990. Held every other year, in Europe.
 - Google Scholar h-5 index, 2019 – 137
- ICCV – International Conference on Computer Vision, since 1987. Held every other year, across the world.
 - Google Scholar h-5 index, 2019 – 129
- Organized under the banner of CVF (Computer Vision Foundation) - [Link](#)

Computer Vision Conferences

- ACCV – Asian Conference on Computer Vision
- BMVC – British Machine Vision Conference
- ICIP - International Conference on Image Processing
- WACV - Workshop on Applications of Computer Vision
- ICPR - International Conference on Pattern Recognition
- ICVGIP – Indian Conference on Computer Vision, Graphics and Image Processing
- NCVPRIPG - National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics



Computer Vision Journals

- PAMI – IEEE Transactions on Pattern Analysis and Machine Intelligence
 - Google Scholar h-5 index, 2019 – 127
 - Impact Factor, 2018 – 17.730
- TIP – IEEE Transactions on Image Processing
 - Google Scholar h-5 index, 2019 – 102
 - Impact Factor, 2018 – 6.79
- IJCV – International Journal of Computer Vision
 - Google Scholar h-5 index, 2019 – 66
 - Impact Factor, 2017 – 11.541



Conferences in Other Application Areas

- NeurIPS – Neural Information Processing Systems
 - Google Scholar h-5 index, 2019 – 169 (Top 30 across any field, any conference or journal)
- MICCAI – Medical Image Computing and Computer-Assisted Intervention
- ICLR - International Conference on Learning Representations
 - Google Scholar h-5 index, 2019 – 150 (Started in 2013)
- ICML – International Conference on Machine Learning
 - Google Scholar h-5 index, 2019 – 135
- IJCAI, AAAI, ACL, EMNLP, NAACL, FAT-ML, ACM-MM, ICRA



Journals Other Application Areas

- TMM – IEEE Transactions on Multimedia
 - Google Scholar h-5 index, 2019 – 64
 - Impact Factor, 2018 – 5.452
- JMLR - Journal of Machine Learning Research
 - Google Scholar h-5 index, 2019 – 81
 - Impact Factor, 2018 – 4.091
- KDE- IEEE Transactions on Knowledge and Data Engineering
 - Google Scholar h-5 index, 2019 – 77
 - Impact Factor, 2017 – 3.857
- TCSVT, CVIU, IJRR

Decide Where to Submit

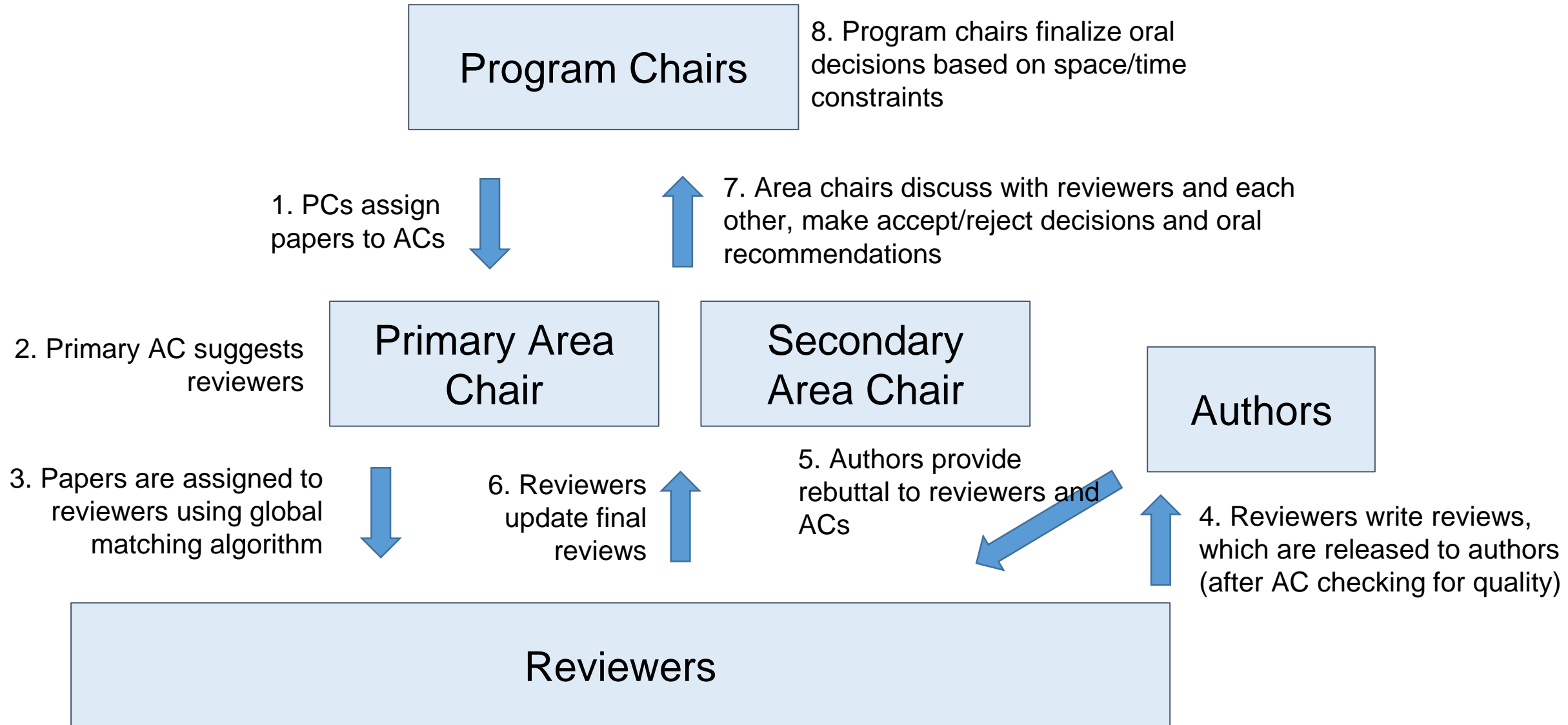


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The Decision Process: Overview



How to Write a Good Paper

CVPR18: Workshop: Part 3: Panel: How to be a Good Citizen of the CVPR Community

How to write a good paper

Jitendra Malik
UC Berkeley and Facebook AI Research



- Youtube [Link](#)



Thank You!!