

Devendra Singh Chaplot

CONTACT INFORMATION	Address: GHC 8229, 5000 Forbes Ave, Pittsburgh, PA 15213 Website: https://devendrachaplot.github.io/	E-mail: chaplot@cs.cmu.edu Phone: + 1-415-910-1302
INTERESTS	Deep Reinforcement Learning, Computer Vision, Robotics.	
EDUCATION	<u>Carnegie Mellon University</u> Ph.D. in Machine Learning, Machine Learning Dept., School of Computer Science • Advisor: Prof. Ruslan Salakhutdinov Aug 2017 - Mar 2021	
	<u>Carnegie Mellon University</u> Master's of Language Technology, Language Technologies Inst., School of Computer Science • CGPA: 4.04/4.0 • Advisor: Prof. Kenneth R. Koedinger Aug 2015 - Aug 2017	
	<u>Indian Institute of Technology, Bombay</u> Bachelor of Technology (B.Tech.) in Computer Science & Engineering with Honours • CGPA: 9.51/10.0 (core) , 9.34/10.0 (overall) • Minor in Applied Statistics and Informatics • Advisor: Prof. Pushpak Bhattacharyya Jul 2010 - Aug 2014	
PROFESSIONAL EXPERIENCE	<u>Facebook AI Research, Menlo Park, CA</u> Research Scientist, FAIR Since April '21	
	<u>Facebook AI Research, Menlo Park, CA</u> Research Intern, FAIR May '20 - Aug '20 <i>Jitendra Malik, Deepak Pathak</i>	
	<u>Facebook AI Research, Pittsburgh, PA</u> Research Intern, FAIR May '19 - Aug '19 <i>Abhinav Gupta, Saurabh Gupta</i>	
	<u>Facebook AI Research, Menlo Park, CA</u> Research Intern, FAIR May '18 - Aug '18 <i>Dhruv Batra, Devi Parikh</i>	
	<u>Apple, CA</u> Research Intern, Special Projects Group Jun '17 - Aug '17 <i>Ruslan Salakhutdinov</i>	
	<u>Samsung Electronics HQ, South Korea</u> Research Associate, Software R&D Center Sep '14 - Aug '15 <i>Jihie Kim</i>	
AWARDS & ACHIEVEMENTS	<ul style="list-style-type: none">• Winner CVPR 2020 Habitat ObjectNav Challenge• Facebook Graduate Fellowship 2020• Nvidia Graduate Fellowship 2020 (declined)• Facebook Research Award on PyRobot: Democratizing Robotics (2020)• Winner CVPR 2019 AI-Habitat Navigation Challenge: Winner in both RGB and RGB-D tracks• Best Paper Award, CVPR 2018 Deep Learning for Visual SLAM Workshop• Best Demo Award, AAAI 2017• Visual Doom AI Competition, 2017: Winner in Full Deathmatch• Research Fellowship with full tuition waiver and stipend for Master's in LTI at CMU (2015-2017)• All India Rank 25 in IITJEE-2010 (amongst 0.5 million students)• All India Rank 96 in AIEEE-2010 (amongst 1.1 million students)• CBSE Merit Scholar [2010-2014]: Awarded to 300 students amongst 1.1 million candidates• NTSE Scholar [2008-2014]: Awarded to 775 students amongst 0.3 million candidates• International Rank 5 in 3rd International Mathematics Olympiad, Science Olympiad Foundation• Gold Medal at 2nd International Young Mathematicians Convention (IYMC)	

PUBLICATIONS

- [SEAL: Self-supervised Embodied Active Learning using Exploration and 3D Consistency.](#)
Devendra Singh Chaplot, Murtaza Dalal, Saurabh Gupta, Jitendra Malik, Ruslan Salakhutdinov
 Neural Information Processing Systems (NeurIPS, 2021)
- [No RL, No Simulation: Learning to Navigate without Navigating.](#)
 Meera Hahn, **Devendra Singh Chaplot**, Shubham Tulsiani, Mustafa Mukadam, James M. Rehg, Abhinav Gupta
 Neural Information Processing Systems (NeurIPS, 2021)
- [Habitat 2.0: Training Home Assistants to Rearrange their Habitat.](#)
 Andrew Szot, Alex Clegg, Eric Undersander, Erik Wijmans, Yili Zhao, John Turner, Noah Maestre, Mustafa Mukadam, **Devendra Singh Chaplot**, Oleksandr Maksymets, Aaron Gokaslan, Vladimir Vondrus, Sameer Dharur, Franziska Meier, Wojciech Galuba, Angel Chang, Zsolt Kira, Vladlen Koltun, Jitendra Malik, Manolis Savva, Dhruv Batra
 Neural Information Processing Systems (NeurIPS, 2021)
- [Differentiable Spatial Planning using Transformers.](#)
Devendra Singh Chaplot, Deepak Pathak, Jitendra Malik.
 38th International Conference on Machine Learning (ICML, 2021)
- [Object Goal Navigation using Goal-Oriented Semantic Exploration.](#)
Devendra Singh Chaplot, Dhiraj Gandhi, Abhinav Gupta, Ruslan Salakhutdinov
 Neural Information Processing Systems (NeurIPS, 2020)
 Also presented at CVPR-20 Habitat Embodied Agents Workshop (**winning entry talk**)
- [Unsupervised Domain Adaptation for Visual Navigation.](#)
 Shangda Li*, **Devendra Singh Chaplot***, Yao-Hung Tsai, Yue Wu, LP Morency, Ruslan Salakhutdinov
 NeurIPS-20 Deep Reinforcement Learning Workshop (NeurIPS workshop, 2020)
- [Semantic Curiosity for Active Visual Learning.](#) (**spotlight**)
Devendra Singh Chaplot*, Helen Jiang*, Saurabh Gupta, Abhinav Gupta
 European Conference on Computer Vision (ECCV, 2020)
- [Neural Topological SLAM for Visual Navigation.](#)
Devendra Singh Chaplot, Ruslan Salakhutdinov, Abhinav Gupta, Saurabh Gupta
 Computer Vision and Pattern Recognition (CVPR, 2020)
 Also presented at the CVPR-20 Workshop on 3D Scene Understanding (**invited talk**)
- [Learning to Explore using Active Neural SLAM.](#)
Devendra Singh Chaplot, Dhiraj Gandhi, Saurabh Gupta, Abhinav Gupta, Ruslan Salakhutdinov
 8th International Conference on Learning Representation (ICLR, 2020)
 Also presented at CVPR-19 Habitat Embodied Agents Workshop (**winning entry talk**)
- [Embodied Multimodal Multitask Learning.](#)
Devendra Singh Chaplot, Lisa Lee, Ruslan Salakhutdinov, Devi Parikh, Dhruv Batra
 29th International Joint Conferences on Artificial Intelligence (IJCAI, 2020)
- [Gated Path Planning Networks.](#)
 Lisa Lee, Emilio Parisotto, **Devendra Singh Chaplot**, Eric Xing, Ruslan Salakhutdinov
 35th International Conference on Machine Learning (ICML, 2018)
- [Learning Cognitive Models using Neural Networks.](#) (**oral**)
Devendra Singh Chaplot, Christopher MacLellan, Ruslan Salakhutdinov, Kenneth Koedinger
 19th International Conference on Artificial Intelligence in Education (AIED, 2018)

- [Global Pose Estimation with an Attention-based Recurrent Network](#). (**Best Paper Award**)
Emilio Parisotto*, **Devendra Singh Chaplot***, Jian Zhang, Ruslan Salakhutdinov
CVPR-18, Deep Learning for Visual SLAM workshop (CVPR workshop, 2018)
- [Active Neural Localization](#).
Devendra Singh Chaplot, Emilio Parisotto, Ruslan Salakhutdinov
6th International Conference on Learning Representation (ICLR, 2018)
Also presented at the NIPS-17 Deep RL Symposium (**contributed talk**)
- [Gated-Attention Architectures for Task-Oriented Language Grounding](#). (**oral**)
Devendra Singh Chaplot, Kanthashree Mysore Sathyendra, Rama Kumar Pasumarthi,
Dheeraj Rajagopal, Ruslan Salakhutdinov
32nd AAAI Conference on Artificial Intelligence (AAAI, 2018)
- [Knowledge-based Word Sense Disambiguation using Topic Models](#). (**oral**)
Devendra Singh Chaplot, Ruslan Salakhutdinov
32nd AAAI Conference on Artificial Intelligence (AAAI, 2018)
- [Playing FPS Games with Deep Reinforcement Learning](#).
Guillaume Lample*, **Devendra Singh Chaplot***
31st AAAI Conference on Artificial Intelligence (AAAI, 2017)
- [Arnold: An Autonomous Agent to play FPS Games](#). (**Best Demo Award**)
Devendra Singh Chaplot*, Guillaume Lample*
31st AAAI Conference on Artificial Intelligence (AAAI 2017, demo)
- [Transfer Deep Reinforcement Learning in 3D Environments: An Empirical Study](#).
Devendra Singh Chaplot, Guillaume Lample, Kanthashree Mysore Sathyendra, Ruslan Salakhutdinov
30th Neural Information Processing Systems, Deep RL Workshop (NIPS workshop, 2016)
- [Data-driven Automated Induction of Prerequisite Structure Graphs](#).
Devendra Singh Chaplot, Yiming Yang, Jaime Carbonell, Kenneth Koedinger
9th International Conference on Educational Data Mining (EDM, 2016)
- [Personalized Adaptive Learning using Neural Networks](#).
Devendra Singh Chaplot, Eunhee Rhim, Jihie Kim
3rd ACM Conference on Learning at Scale (L@S, 2016)
- [Predicting Student Attrition in MOOCs using Sentiment Analysis and Neural Networks](#).
Devendra Singh Chaplot, Eunhee Rhim, Jihie Kim
17th International Conference on Artificial Intelligence in Education, 4th Workshop on Intelligent Support for Learning in Groups (AIED workshop, 2015)
- [SAP: Student Attrition Predictor](#)
Devendra Singh Chaplot, Eunhee Rhim, Jihie Kim
8th International Conference on Educational Data Mining (EDM-15, demo), Madrid, Spain.
- [Unsupervised Word Sense Disambiguation using Markov Random Field and Dependency Parser](#).
Devendra Singh Chaplot, Pushpak Bhattacharyya, Ashwin Paranjape
29th AAAI Conference on Artificial Intelligence (AAAI, 2015)
- [IndoWordnet Visualizer](#).
Devendra Singh Chaplot, Sudha Bhingardive, Pushpak Bhattacharyya. (2014)
In Proceedings of 7th Global WordNet Conference (GWC-14), Tartu, Estonia.

- [Comparing Model Comparison Methods](#).
Holger Schultheis, Ankit Singhaniya, **Devendra Singh Chaplot**
35th Annual Conference of the Cognitive Science Society (CogSci, 2013)
- TECHNICAL REPORTS
- [On Evaluation of Embodied Navigation Agents](#).
Peter Anderson, Angel Chang, **Devendra Singh Chaplot**, Alexey Dosovitskiy, Saurabh Gupta, Vladlen Koltun, Jana Kosecka, Jitendra Malik, Roozbeh Mottaghi, Manolis Savva, Amir R. Zamir
arXiv preprint arXiv:1807.06757
- PATENTS
- [Method and device for improved localization and mapping](#).
Emilio Parisotto, Jian Zhang, Ruslan Salakhutdinov, **Devendra Singh Chaplot**
US Patent 10,776,948, 2020
- TALKS
- Building Intelligent Autonomous Navigation Agents**
Facebook AI Research Oct '20
 - Semantic Curiosity for Active Visual Learning**
ECCV 2020 (spotlight) Aug '20
 - Object Goal Navigation using Goal-Oriented Semantic Exploration**
CVPR 2020 Embodied AI Workshop, winning entry for Habitat ObjectNav Challenge Jun '20
 - Neural Topological SLAM for Visual Navigation**
CVPR 2020 Main Conference Jun '20
CVPR 2020 Workshop on 3D Scene Understanding (invited talk) Jun '20
 - Embodied Multimodal Multitask Learning**
Facebook FAIAR Seminar (invited talk) May '20
 - Learning to Explore using Active Neural SLAM**
ICLR 2020 Apr '20
Five.ai, Oxford (invited talk) Apr '20
CVPR 2019 Habitat Embodied Agents Workshop, winning entry Jun '19
 - Learning Cognitive Models using Neural Networks**
AIED 2018, London Jun '18
 - Playing FPS Games with Deep Reinforcement Learning**
Nvidia GTC 2018, San Jose (invited talk) Mar '18
 - Doom and Unreal Game Engines**
Embodied Agents and Environments Workshop, Facebook AI Research, Menlo Park (invited talk) Feb '18
 - Gated-Attention Architectures for Task-Oriented Language Grounding**
AAAI 2018, New Orleans Feb '18
 - Knowledge-based Word Sense Disambiguation using Topic Models**
AAAI 2018, New Orleans Feb '18
- SELECTED MEDIA COVERAGE
- Object Goal Navigation using Goal-Oriented Semantic Exploration**
TechCrunch, Gizmodo, The Hindu, The South African, CMU News
 - Learning to Explore using Active Neural SLAM**
VentureBeat, Synced, Analytics India Mag
 - Gated-Attention Architectures for Task-Oriented Language Grounding**
MIT TechReview, Inverse
 - Playing FPS Games with Deep Reinforcement Learning**
TechCrunch, Popular Science, Engadget, Daily Mail, Salon, Kotaku, Futurism, ScienceAlert, Pittsburgh Post-Gazette, Inverse, CMU News

TEACHING **Tutorial** on Deep Reinforcement Learning at the Machine Learning Summer School at the Tepper School of Business, CMU (May 2019)

Guest Lecture on Training Neural Networks in the Intro to Machine Learning class (10315), Fall 2019

Teaching Assistant

- Intermediate Deep Learning (CMU 10417/10617)
- Introduction to Machine Learning (PhD) (CMU 10701)
- Data Structures and Algorithms (IITB CS 213)
- Computer Networks & Lab (IITB CS 348 & CS 378)
- Computer Programming and Utilization (IITB CS 101)

SERVICE **Workflow Chair**, International Conference on Machine Learning (ICML) 2019

Book Reviewer, MIT Press

Conference and Journal Reviewing:

- International Conference on Learning Representations (ICLR): 2019, 2020, 2021
- Computer Vision and Pattern Recognition (CVPR): 2020, 2021
- Neural Information Processing Systems (NeurIPS): 2018 (top 30%), 2019 (top 50%), 2020, 2021
- International Conference on Computer Vision (ICCV): 2021
- International Joint Conference on Artificial Intelligence (IJCAI): 2021
- European Conference on Computer Vision (ECCV): 2020
- International Conference on Machine Learning (ICML): 2020, 2021
- IEEE Robotics and Automation Letters (RA-L) 2019, 2020, 2021
- International Conference on Intelligent Robots and Systems (IROS) 2019, 2020, 2021

Workshop Program Committee:

- NeurIPS Deep RL Workshop 2018, 2019, 2020
- NeurIPS Meta Learning Workshop, 2019
- ICLR Structures & Priors Workshop, 2019
- ICLR Beyond Tabula Rasa in Reinforcement Learning, 2020
- ACL Workshop on Advances in Language and Vision Research, 2020

Speaking Skills Committee, Machine Learning Department, CMU 2018-2020

Last updated December 26, 2021