

# Karteek Alahari

Inria Grenoble - Rhône-Alpes, Thoth project-team, LJK

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## EMPLOYMENT **Inria**, Grenoble, France

Inria / LJK / CNRS UMR 5224 / Université Grenoble Alpes

In the Thoth project-team (previously known as LEAR)

*Permanent Research Scientist (chargé de recherche Inria)*

Oct 2015 -

*Researcher (CDD Scientifique)*

Sep 2013 - Sep 2015

**Inria & École Normale Supérieure**, Paris, France

Sep 2010 - Aug 2013

Inria / CNRS UMR 8548 / École Normale Supérieure

*Postdoctoral Fellow in the WILLOW project-team*

**Oxford Brookes University**, Oxford, UK

Apr - Aug 2010

*Postdoctoral Research Assistant (part-time)*

**Oxford Brookes University**, Oxford, UK

Nov 2005 - Mar 2010

*Postgraduate Student Researcher*

**Microsoft Research**, Redmond, USA

May - Aug 2004

*Research Intern*

## EDUCATION

*Habilitation à diriger des recherches (HDR)*, January 2019

“Human, Motion and Other Priors for Partially-Supervised Recognition”

Reviewers: K. Grauman (UT Austin), V. Lepetit (U. Bordeaux), A. Zisserman (U.

Oxford), Examiners: A. Efros (UC Berkeley), D. Ramanan (CMU), C. Schmid (Inria),

President: J. Ponce (Inria)

Université Grenoble Alpes, Grenoble, France

*Ph.D., Computing*, July 2010

“Efficient Inference and Learning for Computer Vision Labelling Problems”

Adviser: Philip H. S. Torr

Oxford Brookes University, Oxford, UK

*M.S. by Research, Computer Science*, July 2005

International Institute of Information Technology (IIIT), Hyderabad, India

*B.Tech. (Hons.), Computer Science and Engineering*, July 2004, GPA: 9.86/10

International Institute of Information Technology (IIIT), Hyderabad, India

## SELECTED AWARDS

Best paper runner-up award, ICVGIP 2022.

Winning submission to the video pentathlon challenge held at CVPR 2020.

Outstanding reviewer award at NeurIPS 2020: awarded to the top 10% reviewers.

Inria award for research and doctoral training (formerly known as scientific excellence award) 2016, 20.2. Each award is granted for a 4-year period.

Promoted senior member of IEEE in 2017: According to IEEE, only 10% of over 420,000 members hold this grade.

Winner of the visual object tracking challenge (VOT-TIR track) held at ICCV 2015.

**Google Research Award 2015:** One of the 12 awardees in machine perception worldwide.

Member of the team ranked 1st out of 11 participants in one of the competitions in the TRECVID 2014 challenge (video retrieval evaluation).

**GE Foundation Scholar (2004 - 2005):** One of the 73 postgraduate students in India to have received this scholarship awarded by The GE Foundation.

**Dean's List I** for academic excellence (2001 - 2004): Awarded to the top 5% of the class. I received this award for 7 consecutive semesters, from when it was introduced, until the end of my undergraduate. Ranked first in the graduating class of 144 students.

## RESEARCH GROUP

*Postdocs (2 current, 2 former):*

- Heeseung Kwon, Inria, since 2021
- D. Khuê Lê-Huu, Inria, since 2020
- Henrique Morimitsu, Inria, with Cordelia Schmid, 2016 - 2018
- Anoop Cherian, Inria, with Julien Mairal and C. Schmid, 2013 - 2015

*Research Engineer*

- Loïc Arbez, Inria, since 2022

*PhD students (7 current, 9 former):*

- Zhiqi Kang, Inria, since 2021
- Jules Bourcier, Preligens/Inria, with Jocelyn Chanussot, since 2021
- Mert Bulent Sariyildiz, NaverLabs Europe/Inria, since 2020
- Florent Bartoccioni, Valeo AI/Inria, since 2019
- Lina Mezghani, Facebook AI Research/Inria, since 2019
- Hubert Leterme, Univ. Grenoble Alpes, with Valérie Perrier, since 2019
- Avijit Dasgupta, *Google India PhD Fellow*, IIIT Hyderabad, India, with C. V. Jawahar, since 2017
- Ekaterina Iakovleva, Univ. Grenoble Alpes, 2019 - 2022, defended: 7/12/2022
- Valentin Gabeur, Google/Inria, 2019 - 2022, defended: 5/10/2022
- Vladyslav Sydorov, Inria, with C. Schmid, 2016 - 2020, defended: 10/05/2021
- Thomas Lucas, Univ. Grenoble Alpes, with Jakob Verbeek, 2018 - 2020, defended: 25/09/2020
- Konstantin Shmelkov, Inria, with C. Schmid, 2017 - 2019, defended: 29/03/2019
- Nicolas Chesneau, Inria, with C. Schmid, 2014 - 2017, defended: 23/02/2018
- Pavel Tokmakov, Inria, with C. Schmid, 2014 - 2018, defended: 04/06/2018
- Yang Hua, Inria, with C. Schmid, 2013 - 2016, defended: 10/06/2016
- Anand Mishra, *Microsoft Research India PhD Fellow 2012, first runner-up for the Xerox Research India Doctoral Dissertation award 2015*, IIIT Hyderabad, India, with C. V. Jawahar, 2011 - 2016, defended: 18/11/2016

*Masters (6 former):*

- Arnaud Massenot (funded by ATCP), April - Sep 2020

- Hubert Leterme, with V. Perrier, Feb - June 2019
- Matthieu Toulemont, with C. Schmid, April - Sep 2019
- Vu Tuan Hung, with Remi Ronfard, Feb - June 2017
- Valentin Thomas, with C. Schmid, April - July 2016
- Vladyslav Sydorov, with Adrien Gaidon (Xerox) and C. Schmid, 2015
- Udit Roy, with C. V. Jawahar, 2014 - 2015

## TEACHING

Iberian Conf. Pattern Recognition and Image Analysis ( <b>IbPRIA</b> ), Alicante, Spain Invited tutorial on continual learning.	2023
Open Data Science Conference ( <b>ODSC</b> ) Europe Invited tutorial on continual visual learning.	2022
<b>Univ. Grenoble Alpes</b> , Grenoble, France Co-instructor, MoSIG <i>Advanced Machine Learning: Application to Vision, Audio and Text</i> course.	2022-'23
<b>Centrale Supélec Paris</b> , Gif-sur-Yvette, France Co-instructor, MVA <i>Discrete Inference and Learning</i> course.	2017-'23
<b>École Normale Supérieure</b> , Paris, France Co-instructor, M1 <i>Introduction to Computer Vision</i> course.	2017-'23
<b>Ensimag</b> , Grenoble, France Co-instructor, M2 <i>Understanding Big Visual Data</i> course.	2016-'23
Machine Learning Summer Schools ( <b>MLSS</b> ), Taipei, Taiwan Invited lecturer, part of an established series of summer schools worldwide.	2021
<b>Univ. Grenoble Alpes</b> , Grenoble, France Co-instructor, MoSIG <i>Machine Learning for Multimodal Data</i> course.	2021-'22
<b>IIT</b> , Hyderabad, India Instructor, annual school in computer vision and machine learning.	2017-'19, 2021
<b>Univ. Grenoble Alpes</b> , Grenoble, France Co-instructor, MoSIG <i>Category Learning and Object Recognition</i> course.	2018-'21
<b>École Centrale Paris</b> , Châtenay-Malabry, France Co-instructor, M1 <i>Discrete Optimization</i> course.	2015-'17
<b>Ensimag</b> , Grenoble, France Co-instructor, M2 <i>Multimedia databases</i> course.	2013-'15
<b>École Normale Supérieure</b> , Paris, France Guest lecturer, Jean Ponce's <i>computer vision</i> course.	Sep 2010 - Aug 2012
<b>ENS/Inria - WILLOW</b> , Paris, France Tutorial on combinatorial optimization in computer vision.	Mar 2011
<b>IIT</b> , Hyderabad, India Full-day tutorial on discrete optimization in computer vision.	Dec 2009

**IIIT**, Hyderabad, India  
*Teaching Assistant*: Discrete Mathematics, Computer Organization. 2004, 2002

**RESEARCH GRANTS**

- co-PI, CIFRE PhD grant with Prelegens, 2021 - 2024
- PI, CIFRE PhD grant with NaverLabs Europe, 2020 - 2023
- PI, CIFRE PhD grant with Valeo AI, 2019 - 2023
- PI, CIFRE PhD grant with Facebook AI, 2019 - 2023
- PI, ANR JCJC grant AVENUE, 2019 - 2023
- PI, CIFRE PhD grant with Google, 2019 - 2022
- PI, Inria Associate team GAYA, 2019 - 2021, co-PI: Katerina Fragkiadaki (CMU, USA)
- Member, EASYTECH PLATYPUS project, 2018 - 2019
- co-PI, PEPS AMIES AuMalis project, 2017 - 2019, PI: Valérie Perrier (UGA)
- PI, Inria Associate team GAYA, 2016 - 2018, co-PI: Deva Ramanan (CMU, USA)
- co-PI, Indo-French collaborative research program with IIIT Hyderabad, 2016 - 2018, funded by CEFIPRA, PI: C. Schmid
- PI, Google Research Award, 2015, co-PI: C. Schmid

**INVITED TALKS & PANELS** *Self-supervised models for navigation and depth estimation*  
National University of Singapore (**NUS**), Singapore Dec 2022

*Self-supervised models for exploration, navigation and continual learning*  
University of **Bristol**, Online May 2022

*Panel discussion on computer vision for India*  
**Vaibhav Summit**, Govt. of India Initiative, Online Oct 2020

*Automatic Understanding of the Visual World*  
Panel on AI and Mathematics, **Knowledge Summit**, Lyon, France Oct 2019

*Actions and Objects*  
**LIAMA** workshop, Paris, France Apr 2019

*Weakly-supervised and Incremental Learning*  
**IISc**, Bangalore, India Dec 2018

*Incremental Learning*  
**Valeo AI**, Paris, France Dec 2018  
Hyderabad **AI Symposium**, India Dec 2018

*Weakly-supervised and Incremental Learning*  
**Simon Fraser Univ.**, Vancouver, Canada Nov 2018  
**POSTECH**, Pohang, South Korea Oct 2018

*Actor and Observer: Joint Modeling of First and Third-Person Videos*  
**COVIEW** workshop, ACM Multimedia, Seoul, South Korea Oct 2018

*Automatic Understanding of the Visual World*  
*Le Futur des Images* workshop, **IXXI**, Lyon, France Oct 2018

*Learning Motion Patterns for Weakly-supervised Semantic Segmentation*  
 Toyota Research Institute (**TRI**), Los Altos, USA Aug 2018  
 Universidad de Málaga, **Málaga**, Spain Apr 2018

*Incremental Learning without Catastrophic Forgetting*  
**CVPR AC** Meeting, Toronto, Canada Feb 2018

*Deep Learning with Weak/Self Supervision*  
**ETH Zurich** Photogrammetry group retreat talk, Morzine, France Jan 2017

*Learning Motion Patterns and their use for Semantic Segmentation*  
**Mysore Park** Workshop on Vision, Language and AI, Mysore, India Dec 2016

*What can we do with motion cues?*  
 Carnegie Mellon University (**CMU**), Pittsburgh, USA Jul 2016

*Scene Understanding in Videos: Tracking and Pose Estimation*  
**IST Austria**, Klosterneuburg, Austria Sep 2015

*Efficient Inference Algorithms for Scene Understanding Problems*  
 5th Workshop on Algorithmic issues for Inference in Graphical Models (**AIGM**),  
 Paris, France Sep 2015

*Scene Understanding in Images and Videos: Segmentation, Recognition, Tracking and Pose Estimation*  
 Universidad de Córdoba, **Córdoba**, Spain May 2015

*Human Pose Estimation and Segmentation in Videos*  
 36th Pattern Recognition and Computer Vision Colloquium, **CTU**, Prague,  
 Czech Republic Apr 2015

*Random Field Models for Visual Scene Understanding*  
 Applied Probability & Stats. Seminar, **LJK**, St Martin d'Hères, France Feb 2015

*Scene Understanding in Videos: Segmentation, Tracking and Pose Estimation*  
 Computer Vision Center (**CVC**), Barcelona, Spain Oct 2014

*Approaches for Image Classification, and Pose Estimation and Segmentation in Videos*  
 Xerox Research Center Europe (**XRCE**), Meylan, France Oct 2014

*Scene Understanding: What more can we do with videos?*  
 University of California, **Berkeley**, USA Jul 2014

*Scene Understanding: What more can we do with videos, depth and text?*  
**KTH** Royal Institute of Technology, Stockholm, Sweden May 2014

*Learning Graphs for Matching*  
 Maori Workshop, **École Polytechnique**, Palaiseau, France Nov 2013  
 Brookes Vision Anniversary Workshop, **University of Oxford**, UK Oct 2013

*Scene Understanding: What more can we do with videos and text?*  
 A3SI group, LIGM, **ESIEE Paris**, France Jan 2013  
 Robotics Research Group, **University of Oxford**, UK Sep 2012

<i>Layered Segmentation of People in Stereoscopic Videos</i> MSR-Inria workshop, <b>Microsoft Research Cambridge</b> , UK	Apr 2012
<i>An Efficient Energy Minimization Framework for Scene Understanding</i> Toyota Technological Institute at Chicago ( <b>TTIC</b> ), USA Center for Machine Perception, <b>CTU</b> , Prague, Czech Republic	Jun 2011 Jun 2011
<i>Scene Understanding in an Energy Minimization Framework</i> <b>IIT</b> , Hyderabad, India Mitsubishi Electric Research Labs ( <b>MERL</b> ), Boston, USA <b>KTH</b> Royal Institute of Technology, Stockholm, Sweden <b>École Centrale Paris</b> , Chatenay-Malabry, France	Dec 2010 Jun 2010 May 2010 Apr 2010
<i>Reduce, Reuse &amp; Recycle: Efficient Discrete Optimization Methods</i> <b>ETH Zurich</b> , Zurich, Switzerland	Nov 2009
<i>Modelling and Recognition of Dynamic Events in Videos</i> <b>Microsoft Research India</b> , Bangalore, India	May 2005

**OTHER  
PROFESSIONAL  
ACTIVITIES**

**Lead organizer** - Summer Schools:

- PAISS: Artificial Intelligence Summer School, virtual, Jul 2021
- PAISS: Artificial Intelligence Summer School, Paris, Oct 2019
- PAISS: Artificial Intelligence Summer School, Grenoble, Jul 2018

**Co-organizer** of Workshops:

- ERC ALLEGRO Workshops on Video Recognition, Grenoble, 2014, 2015
- ECCV Workshop on Higher-Order Models and Global Constraints in Computer Vision, Florence, Oct 2012

**Co-organizer** of Tutorials:

- CVPR half-day tutorial on Annotation Efficient Learning, Virtual. Jun 2020
- ICPR half-day tutorial on discrete optimization, Stockholm, Sweden. Aug 2014

**Co-editor** - Book:

“Visual Text Interpretation - Algorithms and Applications in Scene Understanding and Document Analysis” in the Advances in Computer Vision and Pattern Recognition series, Springer, 2023 (in preparation)

**Guest Co-editor** - Journal:

Special Issue on “Higher Order Graphical Models in Computer Vision: Modelling, Inference & Learning” in IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2015

**Thesis Examiner:**

*External:*

- 2022: Fabio Pizzati, Mines Paris, Paris, France (Jury member)
- 2022: Arnaud Deleruyelle, Université de Lille, Lille, France (Reviewer)
- 2022: Rui Dai, Université Côte d’Azur, Nice, France (Reviewer)
- 2022: Arthur Douillard, Sorbonne Université, Paris, France (Jury member)
- 2022: Edward Beeching, INSA Lyon, France (Jury member)

2021: Allison Del Giorno, Carnegie Mellon University, USA (Thesis defense)  
 2021: Enzo Battistella, Université Paris-Saclay, France (Reviewer)  
 2019: Allison Del Giorno, Carnegie Mellon University, USA (Thesis proposal)  
 2019: Alessandro di Martino, University of Bath, UK (External examiner)  
 2019: Thomas Robert, Sorbonne Université, Paris, France (Jury member)  
 2019: D. Khuê Lê-Huu, Université Paris-Saclay, France (Jury member)  
 2018: Mostafa S. Ibrahim, Simon Fraser University, Canada (External examiner)  
 2017: Lukáš Neumann, CTU, Prague, Czech Republic (Jury member)  
 2017: Raghudeep Gadde, École des Ponts ParisTech, Paris, France (Jury member)  
 2016: Guillaume Seguin, École Normale Supérieure, Paris, France (Jury member)  
 2014: Jon Almazán, Universitat Autònoma de Barcelona, Spain (Jury president)  
 2014: Heydar Maboudi, KTH, Stockholm, Sweden (Jury member)

*Supervised students:*

2022: Ekaterina Iakovleva, Université Grenoble Alpes, Grenoble, France (Supervisor)  
 2022: Valentin Gabeur, Université Grenoble Alpes, Grenoble, France (Supervisor)  
 2021: Vladyslav Sydorov, Université Grenoble Alpes, Grenoble, France (Co-supervisor)  
 2020: Thomas Lucas, Université Grenoble Alpes, Grenoble, France (Co-supervisor)  
 2019: Konstantin Shmelkov, Université Grenoble Alpes, Grenoble, France (Co-supervisor)  
 2018: Pavel Tokmakov, Université Grenoble Alpes, Grenoble, France (Co-supervisor)  
 2018: Nicolas Chesneau, Université Grenoble Alpes, Grenoble, France (Co-supervisor)  
 2016: Anand Mishra, IIT Hyderabad, India (Thesis defense, Co-supervisor)  
 2016: Yang Hua, Université Grenoble Alpes, Grenoble, France (Co-supervisor)  
 2016: Anand Mishra, IIT Hyderabad, India (Thesis proposal, Co-supervisor)

**Associate editor** (Journal editorial board):

CVIU	Computer Vision and Image Understanding	since 2018
IJCV	International Journal of Computer Vision	since 2019

**Program co-chair:** BMVC 2021

**Area chair** (Senior program committee):

AAAI	2020
CVPR	2023, 2021, 2020, 2018
ECCV	2022, 2020
ICCV	2023, 2021, 2019
ICVGIP	2018
IJCAI	2020, 2019, 2018
WACV	2022

**Awards committee:** CVPR 2021 Paper Awards Committee

**Doctoral consortium co-chair,** ICCV 2023

**Reviewer** - Funding agencies:

Canada	NSERC	Natural Sciences & Eng. Research Council	2015-'16
Chile	FONDECYT	National Fund for Scientific & Tech. Dev.	2020
EU	ERC	European Research Council	2020
France	ANR	Agence Nationale de la Recherche	2016-'17, 2019-'22
Iceland	IRF	Icelandic Research Fund	2016

**Reviewer - Journals:**

CVIU	Computer Vision and Image Understanding	2014-'18
IJCV	International Journal of Computer Vision	2012–
IVC	Image and Vision Computing	2008
JMLR	Journal of Machine Learning Research	2014
PAMI	IEEE Transactions on Pattern Analysis and Machine Intelligence	2011–

*Other journals:* CVA, (IPSJ Trans. Computer Vision and Applications), JRTIP (Journal of Real-Time Image Processing), RAS (Robotics and Autonomous Systems), TVC (The Visual Computer)

**Reviewer - Conferences:**

CVPR	IEEE Conf. Computer Vision & Pattern Recognition	2008, 2012-'17 2019
ECCV	European Conf. Computer Vision	2010, 2012, 2014, 2016
ICCV	IEEE Intl. Conf. Computer Vision	2011, 2013, 2015, 2017
ICML	Intl. Conf. Machine Learning	2018
NeurIPS	Neural Information Processing Systems	2009, 2012-'15, 2018, 2020

*Other conferences:* ACCV (Asian Conf. Computer Vision), BMVC (British Machine Vision Conf.), EMMCVPR (Energy Min. Computer Vision & Pattern Recog.), ICPR (IEEE Intl. Conf. Pattern Recognition), ICVGIP (Indian Conf. Vision, Graphics, & Image Proc.), IJCAI (Intl. Joint Conf. Artificial Intelligence), RFIA (Reconnaissance des Formes et l'Intelligence Artificielle), SIGGRAPH Asia

**Inria / Univ. Grenoble-Alpes service:**

Board member, Inria Alumni.	Dec 2022–
Member in-charge, Computer Science & Mathematics specialist field, École Doctorale MSTII, Université Grenoble-Alpes.	Sep 2022–
Member, <i>Commission des emplois scientifiques</i> , Inria Grenoble: Participate in recruitment campaigns of postdocs and visiting faculty.	Oct 2021–
Member, <i>Commission QVT</i> at LJK: Advise on improving the quality of work environment.	May 2021–
Member, <i>Commission prospection postes</i> : Rank the demands for faculty positions and PhD students from research teams at LJK.	March 2021–
Referent, HRS4R (Human Resources - Excellence in Research), Inria Grenoble: Advise on HR-related propositions for researchers.	Jan 2019–
Member, <i>Cellule Europe-International</i> , Inria Grenoble: I advise on potential collaborations and internship or PhD applicants from India.	Jan 2016–

**SOFTWARE & DATASETS**

In addition to participating in the development of software for our methods, I have been involved in producing datasets, to compare and evaluate approaches. These are available at <http://thoth.inrialpes.fr/people/alahari/soft.html>.

- *Software for Learning Goal-Conditioned Policies Offline* 2022
- *Software for Bird's-Eye-View Segmentation* 2022
- *VisSpeech Dataset* 2022
- *Software for Evaluating Concept Generalization* 2021
- *Software for Multimodal Transformer Model* 2020



- *Software for Motion-Augmented RGB for Action Recognition* 2019
- *Software for End-to-End Incremental Learning* 2019
- *Software for Actor-Observer Joint Learning* 2018
- *Charades-Ego Dataset* 2018
- *Software for Incremental Object Detectors* 2018
- *Software for Learning Video Segmentation with Visual Memory* 2017
- *Software for Learning Motion Patterns* 2017
- *Software for Online Object Tracking* 2017
- *Software for Weakly-supervised Semantic Segmentation* 2016
- *Software for Pose Estimation and Segmentation of Multiple People* 2015
- *Software for Human Pose Estimation in Videos* 2014
- *Poses in the Wild Dataset* 2014
- *Inria 3DMovie Dataset* 2013
- *Software and Dataset for Learning Graphs* 2013
- *IIIT-STR, Sports-10K, TV Series-1M Datasets* 2013
- *Software for Solving Detection and Segmentation Problems Jointly* 2012
- *IIIT 5K-Word Dataset* 2012
- *SVT-CHAR: Annotated Character Dataset* 2012
- *Software - Alpha-expansion Beta-shrink Moves for Markov Random Fields* 2011
- *INRIA-Video Dataset* 2011
- *Dataset for Vision Labelling Problems* 2010
- *Software - Efficient Solvers for Multi-Label MRFs* 2009

**PUBLICATIONS** IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI) and International Journal of Computer Vision (IJCV) are the main journals of computer vision. They are consistently rated as top journals in computer science (impact factor: PAMI and IJCV 24.314 (2021) and 13.369 (2021) resp.), with acceptance rate below 30%.

The main conferences in computer vision are IEEE Conference on Computer Vision and Pattern Recognition (CVPR), European Conference on Computer Vision (ECCV), and IEEE International Conference on Computer Vision (ICCV).

They are highly selective, with around 25% acceptance rate (less than 5% for oral), and their proceedings play a role which is as important as international journals. For example, according to the latest Google scholar statistics, CVPR has h5-index of 389, compared to 165 for PAMI and 75 for IJCV. (See <http://goo.gl/0u9A7T>)

Google Scholar profile: <http://goo.gl/MWwf3E> Hal profile: <http://goo.gl/gw4PzG>

#### Refereed journal articles - 7

F. Bartoccioni, E. Zablocki, P. Pérez, M. Cord, and K. Alahari, “LiDARTouch: Monocular metric depth estimation with a few-beam LiDAR,” *Computer Vision and Image Understanding Journal*, January 2023

P. Tokmakov, C. Schmid, and K. Alahari, “Learning to Segment Moving Objects,” *International Journal of Computer Vision*, March 2019

N. Chesneau, K. Alahari, and C. Schmid, “Learning from Web Videos for Event Classification” *IEEE Transactions on Circuits and Systems for Video Technology*, October 2018

A. Mishra, K. Alahari, and C. V. Jawahar, “Unsupervised refinement of color and stroke features for text binarization,” *International Journal on Document Analysis and Recognition*, June 2017

A. Mishra, K. Alahari, and C. V. Jawahar, “Enhancing Energy Minimization Framework for Scene Text Recognition with Top-Down Cues,” *Computer Vision and Image Understanding Journal*, April 2016

G. Seguin, K. Alahari, J. Sivic, and I. Laptev, “Pose Estimation and Segmentation of Multiple People in Stereoscopic Movies,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, August 2015

K. Alahari, P. Kohli, and P. H. S. Torr, “Dynamic Hybrid Algorithms for MAP Inference in Discrete MRFs,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, October 2010

**Top refereed international conferences**  
(CVPR/ECCV/ICCV/ICLR/ICML/NeurIPS) - 29

M. B. Sariyildiz, Y. Kalantidis, K. Alahari, and D. Larlus, “Improving the Generalization of Supervised Models,” *International Conference on Learning Representations*, 2023

E. Fini, V. G. Turrisi da Costa, X. Alameda-Pineda, E. Ricci, K. Alahari, J. Mairal “Self-Supervised Models are Continual Learners,” *IEEE Conference on Computer Vision and Pattern Recognition*, 2022

D. Khuê Lê-Huu, and K. Alahari, “Regularized Frank-Wolfe for Dense CRFs: Generalizing Mean Field and Beyond,” *Advances in Neural Information Processing Systems*, 2021

M. B. Sariyildiz, Y. Kalantidis, D. Larlus, and K. Alahari, “Concept Generalization in Visual Representation Learning,” *International Conference on Computer Vision*, 2021

V. Gabeur, C. Sun, K. Alahari, and C. Schmid, “Multi-modal Transformer for Video Retrieval,” *European Conference on Computer Vision*, 2020

E. Iakovleva, J. Verbeek, K. Alahari, “Meta-Learning with Shared Amortized Variational Inference,” *International Conference on Machine Learning*, 2020

T. Lucas, K. Shmelkov, K. Alahari, C. Schmid, and J. Verbeek, “Adaptive Density Estimation for Generative Models,” *Advances in Neural Information Processing Systems*, 2019 (**spotlight**)

N. Crasto, P. Weinzaepfel, K. Alahari, and C. Schmid, “MARS: Motion-Augmented RGB Stream for Action Recognition,” *IEEE Conference on Computer Vision and Pattern Recognition*, 2019

F. M. Castro, M. J. Marín-Jiménez, N. Guil, C. Schmid, and K. Alahari, “End-to-End Incremental Learning,” *European Conference on Computer Vision*, 2018

- K. Shmelkov, C. Schmid, and K. Alahari, "How good is my GAN?" *European Conference on Computer Vision*, 2018
- G. A. Sigurdsson, A. Gupta, C. Schmid, A. Farhadi, and K. Alahari, "Actor and Observer: Joint Modeling of First and Third-Person Videos," *IEEE Conference on Computer Vision and Pattern Recognition*, 2018
- K. Shmelkov, C. Schmid, and K. Alahari, "Incremental Learning of Object Detectors without Catastrophic Forgetting," *IEEE International Conference on Computer Vision*, 2017
- P. Tokmakov, K. Alahari, and C. Schmid, "Learning Video Object Segmentation with Visual Memory," *IEEE International Conference on Computer Vision*, 2017 (**oral**)
- P. Tokmakov, K. Alahari, and C. Schmid, "Learning Motion Patterns in Videos," *IEEE Conference on Computer Vision and Pattern Recognition*, 2017
- P. Tokmakov, K. Alahari, and C. Schmid, "Weakly-Supervised Semantic Segmentation using Motion Cues," *European Conference on Computer Vision*, 2016
- Y. Hua, K. Alahari, and C. Schmid, "Online Object Tracking with Proposal Selection," *IEEE International Conference on Computer Vision*, 2015
- Y. Hua, K. Alahari, and C. Schmid, "Occlusion and Motion Reasoning for Long-term Tracking," *European Conference on Computer Vision*, 2014
- A. Cherian, J. Mairal, K. Alahari, and C. Schmid, "Mixing Body-Part Sequences for Human Pose Estimation," *IEEE Conference on Computer Vision and Pattern Recognition*, 2014
- K. Alahari, G. Seguin, J. Sivic, and I. Laptev, "Pose Estimation and Segmentation of People in 3D Movies," *IEEE International Conference on Computer Vision*, 2013
- M. Cho, K. Alahari, and J. Ponce, "Learning Graphs to Match," *IEEE International Conference on Computer Vision*, 2013 (**oral**)
- A. Gandhi, K. Alahari, and C. V. Jawahar, "Decomposing Bag of Words Histograms," *IEEE International Conference on Computer Vision*, 2013
- A. Mishra, K. Alahari, and C. V. Jawahar, "Image Retrieval using Textual Cues," *IEEE International Conference on Computer Vision*, 2013
- F. Couzinié-Devy, J. Sun, K. Alahari, and J. Ponce, "Learning to Estimate and Remove Non-uniform Image Blur," *IEEE Conference on Computer Vision and Pattern Recognition*, 2013
- A. Mishra, K. Alahari, and C. V. Jawahar, "Top-Down and Bottom-up Cues for Scene Text Recognition," *IEEE Conference on Computer Vision and Pattern Recognition*, 2012
- J. Lezama, K. Alahari, J. Sivic, and I. Laptev, "Track to the Future: Spatio-temporal Video Segmentation with Long-range Motion Cues," *IEEE Conference on Computer Vision and Pattern Recognition*, 2011

L. Ladicky, P. Sturgess, K. Alahari, C. Russell, and P. H. S. Torr, “What, Where & How Many? Combining Object Detectors and CRFs,” *European Conference on Computer Vision*, 2010 (**oral**)

K. Alahari, C. Russell, and P. H. S. Torr, “Efficient Piecewise Learning for Conditional Random Fields,” *IEEE Conference on Computer Vision and Pattern Recognition*, 2010

K. Alahari, P. Kohli, and P. H. S. Torr, “Reduce, Reuse & Recycle: Efficiently Solving Multi-Label MRFs,” *IEEE Conference on Computer Vision and Pattern Recognition*, 2008

S. Ramalingam, P. Kohli, K. Alahari, and P. H. S. Torr, “Exact Inference in Multi-label CRFs with Higher Order Cliques,” *IEEE Conference on Computer Vision and Pattern Recognition*, 2008

#### **Other refereed international conferences - 12**

L. Mezghani, S. Sukhbaatar, P. Bojanowski, A. Lazaric, K. Alahari “Learning Goal-Conditioned Policies Offline with Self-Supervised Reward Shaping,” *Conference on Robot Learning*, 2022

F. Bartoccioni, E. Zablocki, A. Bursuc, P. Pérez, M. Cord, and K. Alahari, “LaRa: Latents and Rays for Multi-Camera Bird’s-Eye-View Semantic Segmentation,” *Conference on Robot Learning*, 2022

L. Mezghani, S. Sukhbaatar, T. Lavril, O. Maksymets, D. Batra, P. Bojanowski, K. Alahari “Memory-Augmented Reinforcement Learning for Image-Goal Navigation,” *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2022

J. Bourcier, G. Dashyan, J. Chanussot, K. Alahari “Evaluating the Label Efficiency of Contrastive Self-Supervised Learning for Multi-Resolution Satellite Imagery,” *Image and Signal Processing for Remote Sensing XXVIII*, SPIE Remote Sensing, 2022.

V. Gabeur, P. H. Seo, A. Nagrani, C. Sun, K. Alahari, C. Schmid “AVATAR: Unconstrained Audiovisual Speech Recognition,” *Conference of the International Speech Communication Association*, 2022

A. Dasgupta, C. V. Jawahar, K. Alahari “Context Aware Group Activity Recognition,” *International Conference on Pattern Recognition*, 2020

U. Roy, A. Mishra, K. Alahari, C. V. Jawahar “Scene Text Recognition and Retrieval for Large Lexicons,” *Asian Conference on Computer Vision*, 2014

V. Goel, A. Mishra, K. Alahari, C. V. Jawahar “Whole is Greater than Sum of Parts: Recognizing Scene Text Words,” *IEEE International Conference on Document Analysis and Recognition*, 2013

A. Mishra, K. Alahari, and C. V. Jawahar, “An MRF Model for Binarization of Natural Scene Text,” *IEEE International Conference on Document Analysis and Recognition*, 2011 (**oral**)

M. Schmidt and K. Alahari, “Generalized Fast Approximate Energy Minimization via Graph Cuts: Alpha-Expansion Beta-Shrink Moves,” *Conference on Uncertainty in Artificial Intelligence*, 2011

K. Alahari, S. L. Putrevu, and C. V. Jawahar, “Learning Mixtures of Offline and Online features for Handwritten,” *International Conference on Pattern Recognition*, 2006

K. Alahari, S. L. Putrevu, and C. V. Jawahar, “Discriminant Substrokes for Online Handwriting Recognition,” *IEEE International Conference on Document Analysis and Recognition*, 2005 (oral)

K. Alahari, S. Kuthirummal, C. V. Jawahar, and P. J. Narayanan, “Geometric and Stochastic Error Minimisation in Motion Tracking,” *Asian Conference on Computer Vision*, 2004

#### **Refereed national conferences - 9**

A. Dasgupta, C. V. Jawahar, K. Alahari “Overcoming Label Noise for Source-free Unsupervised Video Domain Adaptation,” *Indian Conf. Computer Vision, Graphics and Image Processing*, 2022

V. Gabeur, A. Nagrani, C. Sun, K. Alahari, and C. Schmid, “Masking Modalities for Cross-modal Video Retrieval,” *Winter Conference on Applications of Computer Vision*, 2022

V. Sydorov, K. Alahari, and C. Schmid “Focused Attention for Action Recognition,” *British Machine Vision Conference*, 2019

N. Chesneau, G. Rogez, K. Alahari, and C. Schmid, “Detecting Parts for Action Localization,” *British Machine Vision Conference*, 2017

A. Mishra, K. Alahari, and C. V. Jawahar, “Scene Text Recognition using Higher Order Language Priors,” *British Machine Vision Conference*, 2012 (oral)

P. Sturgess, K. Alahari, L. Ladicky, and P. H. S. Torr, “Combining Appearance and Structure from Motion Features for Road Scene Understanding,” *British Machine Vision Conference*, 2009 (oral)

K. Alahari and C. V. Jawahar, “Dynamic Events as Mixtures of Spatial and Temporal Features,” *Indian Conf. Computer Vision, Graphics and Image Processing*, 2006

K. Alahari and C. V. Jawahar, “Discriminative Actions for Recognising Events,” *Indian Conf. Computer Vision, Graphics and Image Processing*, 2006

S. S. Ravi Kiran, K. Alahari, and C. V. Jawahar, “Recognizing Human Activities from Constituent Actions,” *National Conference on Communications*, 2005

#### **Editorial**

K. Alahari, D. Batra, S. Ramalingam, N. Paragios, and R. Zemel, “Guest Editors’ Introduction: Special Section on Higher Order Graphical Models in Computer Vision,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, July, 2015

#### **Research reports**

M. B. Sariyildiz, K. Alahari, D. Larlus, and Y. Kalantidis, “Fake it till you make it: Learning(s) from a synthetic ImageNet clone,” *Technical report*, 2022

Z. Kang, E. Fini, M. Nabi, E. Ricci, and K. Alahari, “A soft nearest-neighbor framework for continual semi-supervised learning,” *Technical report*, 2022

H. Leterme, K. Polisano, V. Perrier, and K. Alahari, “From CNNs to Shift-Invariant Twin Wavelet Models,” *Technical report*, 2022

H. Kwon, F. M. Castro, M. J. Marín-Jiménez, N. Guil, and K. Alahari, “Lightweight Structure-Aware Attention for Visual Understanding,” *Technical report*, 2022

H. Leterme, K. Polisano, V. Perrier, and K. Alahari, “On the Shift Invariance of Max Pooling Feature Maps in Convolutional Neural Networks,” *Technical report*, 2022

L. Mezghani, S. Sukhbaatar, P. Bojanowski, and K. Alahari, Walk the Random Walk: Learning to Discover and Reach Goals Without Supervision,” *Technical report*, presented at *ICLR workshop on Agent Learning in Open-Endedness*, 2022

P. Bideau, E. Learned-Miller, C. Schmid, and K. Alahari, “The Right Spin: Learning Object Motion from Rotation-Compensated Flow Fields,” *Technical report*, 2022

H. Leterme, K. Polisano, V. Perrier, and K. Alahari, “Sparsifying Convolutional Layers with Dual-Tree Wavelet Packets,” *Technical report*, presented at *Journées francophones des jeunes chercheurs en vision par ordinateur*, 2021

S. Albanie et al., “The End-of-End-to-End: A Video Understanding Pentathlon Challenge,” *Technical report*, 2020 (CVPR 2020 workshop report)

G. A. Sigurdsson, A. Gupta, C. Schmid, and K. Alahari, “Beyond the Camera: Neural Networks in World Coordinates,” *Technical report*, 2020

M. Felsberg et al., “The Thermal Infrared Visual Object Tracking VOT-TIR2015 Challenge Results,” *Technical report*, 2015 (presented at ICCV 2015 workshop)

M. Kristan et al., “The Visual Object Tracking VOT2015 Challenge Results,” *Technical report*, 2015 (presented at ICCV 2015 workshop)

M. Douze, D. Oneata, M. Paulin, C. Leray, N. Chesneau, D. Potapov, J. Verbeek, K. Alahari, Z. Harchaoui, L. Lamel, J.-L. Gauvain, C. A. Schmidt, C. Schmid, “The INRIA-LIM-VocR and AXES submissions to Trecvid 2014 Multimedia Event Detection,” *Trecvid submission report*, 2014

## Theses

K. Alahari, “Human, Motion and Other Priors for Partially-Supervised Recognition,” *HDR manuscript*, Université Grenoble Alpes, January 2019

K. Alahari, “Efficient Inference and Learning for Computer Vision Labelling Problems,” *Ph.D. Thesis*, Oxford Brookes University, July 2010

K. Alahari, “Modelling and Recognition of Dynamic Events in Video,” *MS Thesis*, IIT, Hyderabad, July 2005