

# Vivek Sharma

## Curriculum Vitae

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## Work Experience

3/17-Now



### DFG Funded Project: PLUMCOT.

Institute for Anthropomatics and Robotics, CV:HCI Lab, Karlsruhe Institute of Technology (KIT).  
Position: Research Assistant/ PhD Candidate. Employer: Prof. Dr. Rainer Stiefelhagen.

6/18-06/18



### Research Visit.

University of Paris-Sud and LIMSI. Position: Visiting Researcher. Employer: Prof. Claude Barras, Asst. Prof. Camille Guinaudeau, Dr. Herve Bredin.

01/15-1/17



### EU Funded Project - ROVINA.

Department of Electrical Engineering (ESAT) - Center for Processing Speech and Images (PSI), KU Leuven. Position: Research Assistant. Employer: Prof. Luc Van Gool, KU Leuven/ETH Zürich

11/11-10/12



### Project: ViMuDat.

Visual Inspection Systems (SPR), Fraunhofer IOSB. Position: Research Associate. Employer: Prof. Dr. -Ing. Thomas Längle, Head of the Research Group.

08/11-10/12



### Project: CADaVISION (BMBF 01ISO9036B), [Link-to-PDF](#).

Institute of Process Control, Automation & Robotics, Karlsruhe Institute of Technology (KIT).  
Position: Guest Researcher. Employer: Prof. Dr. -Ing. Heinz Wörn, Dean of Computer Science.

## Education

09/12-09/14



**Color in Informatics and Media Technology (CIMET): Master of Science (M.Sc.),**  
*I-Sem: University Jean Monnet, FRANCE. M.Sc. in "Optics, Image, Vision". II-Sem: University of Granada, SPAIN. M.Sc. in "Informatics & Media Technology". III-Sem: Norwegian University of Science and Technology, NORWAY. M.Sc. in "Applied Computer Science". IV-Sem: Karlsruhe Institute of Technology, GERMANY. "Master Thesis".*  
CGPA - 7.8/10 with Distinction Marks (Honours), ECTS - 120.

08/07-07/11



**Computer Science & Engineering: Bachelor of Technology (B.Tech.), B.K. Birla Institute of Engineering and Technology (BKBIET), INDIA.**  
CGPA - 7.73/10 with First Division.

## Academic Thesis & Project







### Master

01/14-06/14



### Thesis: Training and Evaluation of a Framework for Pixel-wise Object Class Segmentation based on Synthetic Depth Data, Project (KIT): AMIKA.

Karlsruhe Institute of Technology (KIT), Norwegian University of Science and Technology (NTNU), University of Oslo (UiO) and Oslo University Hospital HF. Supervisor: Prof. Dr. -Ing. Heinz Wörn (KIT) and Assoc. Prof. Dr. Şule Yildirim Yayilgan (NTNU) and Assoc. Prof. Dr. Ole Jakob Elle (UiO & Oslo University Hospital HF).

- 11/13-12/13  **Project: Hyperspectral Imaging Workflow & Encoding Standards**, *Link-to-PDF*.  
Norwegian Colour and Visual Computing Laboratory, and NTNU. Position: Student Research Assistant. Supervisor: Prof. Jon Yngve Hardeberg
- 8/13-12/13  **Industrial Project: Waste sorting by Intelligent Machine Vision**, *Link-to-PDF*.  
University of Eastern Finland (UEF), Norwegian University of Science and Technology (NTNU), and ZenRobotics (Finland). Supervisor: Prof. Markku Hauta-Kasari & Prof. Jon Yngve Hardeberg.
- 8/13-11/13  **Project: Scene Understanding using Conditional Random Fields for Safe Human Robot Collaboration**, *Link-to-PDF*.  
Norwegian Colour and Visual Computing Laboratory, UiO, and NTNU. Position: Student Research Assistant. Supervisor: Prof. Dr. Faouzi Alaya Cheikh
- 6/13-8/13  **Internship: Material identification in different weather conditions for unsupervised traffic control systems**, *Link-to-PDF*.  
Color Imaging Lab, University of Granada (UGR), and Tecnalia Robotiker (Bilbao, Spain). Supervisor: Prof. Eva M. Valero (UGR).
- 2/13-6/13  **Project: 3D cloud maps**, *Link-to-PDF*.  
Andalusian Center for Environmental Research (CEAMA), University of Granada (UGR), NASA AERONET (AErosol Robotic NETwork). Position: Student Research Assistant. Supervisor: Prof. Lucas Alados Arboledas, Head of the Atmospheric Physics Institute.
- 01/11-06/11  **Thesis: Gesture Recognition & Reproduction**.  
B.K. Birla Institute of Engineering and Technology. Supervisor: Assoc. Prof. Lovendra Solanki, Dean of Electrical & Electronics Engineering Department.

## Awards

- 2013 **Appreciation**.  
Overall topper of the 1st semester of my Master courses taken at University of Jean Monnet.
- 2012 **European Commission Scholarship**.  
Awarded an amount of 48,000 Euros for my Master program, selected among 500 candidates.
- 2011 **Appreciation**.  
Among the top 10% out of 65 students graduated B.Tech in Computer Science, BKBIET.

## Conference and Workshops Attended/Organized

### Publications

- 2018 **Vivek Sharma**, Ali Diba, Davy Neven, Michael S. Brown, Luc Van Gool, Rainer Stiefelhagen.  
CVPR Classification Driven Dynamic Image Enhancement. *In IEEE CVPR, Poster*.
- 2018 Ali Diba, Mohsen Fayyaz, **Vivek Sharma**, Amir Hossein Karami, Mohammad Mahdi Arzani, Rahman Yousefzadeh, Luc Van Gool. Temporal 3D ConvNets using Temporal Transition Layer. *In IEEE CVPR Workshop: Brave New Ideas for Video Understanding, Oral*.
- 2018 Ali Diba, **Vivek Sharma**, Rainer Stiefelhagen, Luc Van Gool. Object Discovery By Generative Adversarial and Ranking Networks. *CoRR abs/1711.08174*.
- 2018 Ali Diba, Mohsen Fayyaz, **Vivek Sharma**, Amir Hossein Karami, Mohammad Mahdi Arzani, Rahman Yousefzadeh, Luc Van Gool. Spatio-Temporal Channel Correlation Networks for Action Classification. *CoRR abs/1806.07754*.
- 2018 **Vivek Sharma** and Sule Yildirim-Yayilgan. Real-time Holistic Scene Understanding using Single Depth Images for Safe Human-Robot Collaboration. Under review.

<sup>0\*</sup> contributed equally to the work, and not in alphabetical order.

- 2018 **Vivek Sharma\***, Concong Wang\*, Yu Fan, Faouzi Alaya Cheikh, Azeddine Beghdadi, Ole Jacob Elle, and Rainer Stiefelbogen. Can Image Enhancement be Beneficial to Find Smoke Images in Laparoscopic Surgery? Under review.
- 2017 **Vivek Sharma\***, Ali Diba\*, Luc Van Gool. Deep Temporal Linear Encoding Networks. *In CVPR IEEE CVPR, Poster.*
- 2017 Ali Diba, **Vivek Sharma**, Ali Pazandeh, Hamed Pirsiavash, Luc Van Gool. Weakly Supervised Cascaded Convolutional Networks. *In IEEE CVPR, Poster.*
- 2017 **Vivek Sharma**, Saquib M. Sarfraz, Rainer Stiefelbogen. A Simple and Effective Technique for Face Clustering in TV Series. *In IEEE CVPR Workshop: Brave New Motion Representations, Poster.*
- 2017 **Vivek Sharma**, Jon Yngve Hardeberg, Sony George. RGB-NIR Image Enhancement by Fusing Bilateral and Weighted Least Squares Filters . *In Journal for Imaging, Science & Technology (JIST-First) and Color and Imaging Conference (CIC), Oral.*
- 2016 **Vivek Sharma**, Ali Diba, Tinne Tuytelaars, Luc Van Gool. Hyperspectral CNN for Image Tech. Report Classification & Band Selection, with Application to Face Recognition.
- 2016 **Vivek Sharma**, Luc Van Gool. Does V-NIR based Image Enhancement Come with Better arXiv-Link Features? *CoRR abs/1608.06521.*
- 2016 **Vivek Sharma**, Jose Antonio Oramas Mogrovejo. A Novel Approach for an Interactive Tech. Report Hyperspectral Image Segmentation.
- 2016 **Vivek Sharma**, Luc Van Gool. Image-level Classification in Hyperspectral Images using arXiv-Link Feature Descriptors, with Application to Face Recognition. *CoRR abs/1605.03428.*
- 2016 **Vivek Sharma**, Şule Yildirim-Yayilgan, Luc Van Gool. Low-Cost Scene Modeling using a RO-MAN Density Function Improves Segmentation Performance. *In IEEE RO-MAN, Oral.*
- 2015 **Vivek Sharma**, Şule Yildirim-Yayilgan, Frank Dittrich, Luc Van Gool. Efficient Real-Time ICML Pixelwise Object Class Labeling for Safe Human-Robot Collaboration in Industrial Domain. *In ICML Workshop: Machine Learning for Interactive Systems, Oral.*
- 2015 **Vivek Sharma**, Frank Dittrich, Şule Yildirim-Yayilgan, Luc Van Gool. Improving Human CVPR Pose Recognition Accuracy using CRF modeling. *In IEEE CVPR Workshops, Poster.*
- 2015 **Vivek Sharma**, Frank Dittrich, Şule Yildirim-Yayilgan, Ali Shariq Imran, Heinz Wörn. How HCI to tune a Random Forest for Real-Time Segmentation in Safe Human-Robot Collaboration? *In International Conference on HCI, Poster.*
- 2015 **Vivek Sharma**, Frank Dittrich, Şule Yildirim-Yayilgan, Heinz Wörn. How does Energy EMMCVPR Minimization Improve Recognizing Human Poses for Safe Human-Robot Collaboration? *In EMMCVPR, Poster.*
- 2014 Frank Dittrich, **Vivek Sharma**, Heinz Wörn, Şule Yildirim-Yayilgan. Pixelwise Object Class ICNSC Segmentation based on Synthetic Data using an Optimized Training Strategy. *In IEEE ICNSC, Oral.*
- 2012 **Vivek Sharma**. CADaVISION: A Gesture Recognition Simulation. *Institute of Process Tech. Report Control, Automation & Robotics, Karlsruhe Institute of Technology, Germany.*
- 2012 **Vivek Sharma**, Dario Udovicic, Stevan Dordevic, Antonio Lucio. Sensor Fusion for Pedes- Tech. Report trian Tracking. *Institute of Industrial Information Technology (IIIT), Karlsruhe Institute of Technology, Germany.*

#### Invited Talks

- 2018 Unsupervised Feature Learning for Person Identification. Hosted by Herve Bredin, Camille Guinaudeau, and Claude Barras. *University of Paris-Sud and LIMSI, Paris, France.*
- 2018 The Choice is Yours: To Enhance or not To Enhance. Hosted by Florent Perronnin and Naila Murray. *NAVER Labs (previously Xerox R&D) , Grenoble, France.*

- 2017 Multi/Hyper-Spectral Imaging Applications in Computer Vision. *3rd Global Summit and Expo on Multimedia & Applications*, Lisbon, Portugal.
- 2016 Pose Estimation & Recognition. Hosted by Daniel Veithen. *Sony Depthsensing Solutions (previously SoftKinetic)*, Brussels, Belgium.
- 2015 Multi/Hyper-Spectral Imaging Applications. *SpectroNet International Collaboration Forum*, Jena, Germany.
- 2015 Efficient Real-Time Pixelwise Object Class Labeling for Safe Human-Robot Collaboration in Industrial Domain. *KU Leuven*, Leuven, Belgium.
- 2014 Scene Understanding using Conditional Random Fields for Safe Human Robot Collaboration. Hosted by Ole Jakob Elle. *University of Oslo and Oslo University Hospital*, Ullevål, Norway.
- 2010 Radio Frequency & Identification. *Institute of Electronics & Telecommunication Engineers (IETE), BKBIET*, India.

#### Reviewer

- CVPR ('18), ECCV ('18), ICPR('18), FG ('17), GRSL ('16, '17)

#### Conferences Organized

- 08/02/16 **Annual Symposium in Optics.**  
OSA SPIE SPIE/OSA KU Leuven Student Chapter to be held on 8-9th Feb. 2016 in Leuven.
- 16/03/12 **IONS-Germany.**  
OSA SPIE Under the OSA KIT CHAPTER Student Branch OSKAR.
- 5/09/10 **Green Earth.**  
IEEE Under the IEEE BKBIET CHAPTER.
- 15/03/10 **Talk on Chandrayan II (Space Vehicle Flight & Launch).**  
IEEE Under the IEEE BKBIET CHAPTER Student Branch (Region 10).

### Member of Organizations

- 01/15-Now **Student Member**, CVF, Member of Computer Vision Foundation.
- 07/15-1/17 **Representated KU Leuven**, SpectroNet Cross-clustering Collaboration Forum.
- 03/15-09/16 **Vice-President**, SPIE, OSA, KU Leuven Chapter.
- 02/14-09/14 **Student Member**, TEKNA, NTNU Chapter.
- 11/11-10/14 **Technical Leader**, OSKAR(Optics Students Karlsruhe) KIT Chapter OSA, SPIE.
- 03/10-06/11 **Secretary**, IEEE BKBIET CHAPTER.
- 06/08-06/11 **Co-Founder, President**, TECHNORATS, TECHNICAL CLUB, BKBIET.

### Languages

English	<b>Advanced</b>	
German	<b>Intermediate Level B1</b>	<i>Conversationally fluent</i>
Norwegian	<b>Basic</b>	<i>Basic words and phrases only</i>

### Letter of References

NTNU	<b>Assoc. Prof. Dr. Şule Yildirim-Yayilgan</b>	<a href="#">Link-to-PDF</a>
Fraunhofer	<b>Prof. Dr. -Ing. Thomas Längle</b>	<a href="#">Link-to-PDF</a>
KIT	<b>Prof. Dr. -Ing. Heinz Wörn</b>	<a href="#">Link-to-PDF</a>
BKBIET	<b>Assoc. Prof. Lovendra Solanki</b>	<a href="#">Link-to-PDF</a>
BKBIET	<b>Assoc. Prof. Shridhar B. Dandin</b>	<a href="#">Link-to-PDF</a>