Kranti Kumar Parida

CONTACT INFORMATION

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RESEARCH INTERESTS

Computer Vision, Machine Learning, Multimodal Processing

EDUCATION

Indian Institute of Technology Kanpur, India 2016 - present
PhD in Computer Science
Advisors: Dr. Gaurav Sharma, Prof. Manindra Agarwal

Indian Institute of Technology Kharagpur, India 2014-2016
Master of Technology in Medical Imaging and Informatics
Advisors: Dr. Rajiv R. Sahay, Prof. P. K. Dutta

Silicon Institute of Technology, Bhubaneswar, India
Bachelor of Technology in Electronics and Telecommunications 2009-2013

PUBLICATIONS

[**4**] **Kranti Kumar Parida**, Siddharth Srivastava, Gaurav Sharma. "Beyond Image to Depth: Improving Depth Prediction using Echoes." *IEEE/CVF Conf. on Computer Vision and Pattern Recognition (CVPR), 2021.* pdf

[**3**] Pratik Mazumder, Pravendra Singh, **Kranti Kumar Parida**, Vinay P Namboodiri. "AVGZSLNet: Audio-Visual Generalized Zero-Shot Learning by Reconstructing Label Features from Multi-Modal Embeddings." *IEEE Winter Conference on Applications of Computer Vision (WACV), 2021.* pdf

[**2**] **Kranti Kumar Parida**, Neeraj Matiyali, Tanaya Guha, and Gaurav Sharma. "Coordinated Joint Multimodal Embeddings for Generalized Audio-Visual Zeroshot Classification and Retrieval of Videos." *IEEE Winter Conference on Applications of Computer Vision (WACV), 2020.* pdf

[**1**] Latha H. Narayan, **Kranti K. Parida**, and Rajiv R. Sahay. "Simultaneous blur map estimation and deblurring of a single space-variantly defocused image." *Twenty-third National Conference on Communications (NCC), 2017.*

RESEARCH EXPERIENCE

Indian Institute of Technology Kanpur 2016-present
Graduate Research Student

- Research on multimodal AI, to help machines use different modalities for understanding the task better as done by the humans

Indian Institute of Technology Kharagpur 2015-2016
Master Research Student

- Research on optimization framework for depth and focused image estimation from a stack of microscopic images

All India Institute of Medical Sciences, New Delhi 2014-2014
Research Intern

- Worked with real clinical data to segment different layers of OCT images of a region in the foot and generate a 3D model of it.

TEACHING EXPERIENCE

Tutor, *Introduction to Programming*, IIT Kanpur 08/19-11/19

TA, *Introduction to Machine Learning*, IIT Kanpur 08/18-11/18

TA, *Introduction to Natural Language Proc.*, IIT Kanpur 01/18-04/18

TA, *Online Learning and Optimization*, IIT Kanpur 01/17-04/17

TA, *Intro. to Programming*, IIT Kanpur 08/17-11/17,01/19-04/19

WORKSHOPS & CONFERENCES

Winter Conference on Applications of Computer Vision 2020
Snowmass Village, Colorado, USA

Vision and Sports Summer School 2017
Czech Technical University, Prague, Czech Republic

Summer School on Machine Learning: Deep Learning 2017
CVIT, IIIT Hyderabad, India

Summer School on Recent Advances in Computer Vision 2017
CVIT, IIIT Hyderabad, India

Indian Conf. on Computer Vision, Graphics & Image Proc. 2016
IIT Guwhati, India

Indian Workshop in Machine Learning(IwML) 2016
IIT Kanpur, India

KEY PROJECTS

Zero-shot Audio-Visual Classification & Retrieval 04/18 - 12/18
Ph.D. Thesis, IIT Kanpur

- Extending the traditional task of zeros-shot learning to multi modal setting and examine the effect of adding the extra modality
- Proposed an approach for adaptively selecting the dominating modality out of the two

Dataset for Audio-Visual Separation & Localization 01/17 - 04/17
Course Project, Modelling and Representation of Images, IIT Kanpur

- Prepare a suitable dataset for the task of separation and localization of individual sources present in an audio mixture.
- Annotations of different object were done per frame along with the individual sources present in the mixture.

Facial Expression Recognition and Face Reconstruction 08/16-11/16
Course Project, Recent advances in Computer Vision, IIT Kanpur

- Applied different approaches of transfer learning using different loss functions, fine-tuning techniques for generalized performance on expression, age and gender recognition.
- Also used the obtained deep embedding of the face for the task of image reconstruction/ inpainting.

An Optimization Framework for Depth estimation 06/15 - 05/16
M.Tech Thesis, IIT Kharagpur

- Analyzed effects of various types of sparsity based and MRF priors on the solution of the ill-posed shape estimation problem
- Extended the optimization framework to obtain both the depth and focussed image simultaneously using alternating minimization approach

Neonatal Brain Segmentation from MR Images 01/15 - 05/15
Course Project, Medical Image Analysis, IIT Kharagpur

- Implemented a novel learning-based multi-source integration framework for automatic segmentation of brain images into six regions.
- Features were extracted from multi-source images and then random forest technique was used for tissue segmentation.

Retinal Vessel Segmentation from Fundus Images 01/15 - 05/15
Course Project, PRMI, IIT Kharagpur

- Implemented a 2 class classification problem to classify pixels in the colour fundus images into vessel and non-vessel.

Altered Fingerprint Identification 08/12 - 04/13
B.Tech Thesis, Silicon Institute of Technology, Bhubaneswar

- Obtain a computationally efficient algorithm for fingerprint recognition, i.e. to match the fingerprint with an existing one already available in the database.

AWARDS & FELLOWSHIPS

Won **Indian Driving Dataset (IDD)** challenge
ICVGIP 2020, India

Travel Grant from Research I Foundation, CSE, IIT Kanpur
Participating and presenting paper at WACV 2020, Colorado, USA

Visvesvaraya PhD Fellowship, 2016-21
Ministry of Electronics & IT, Government of India

Post Graduate Fellowship for M.Tech, 2014-16
AICTE, Govt. of India

Awarded cash prize for being in **Top 20 out of ∼150 participants**, 2017
Summer school on Machine Learning, CVIT, IIIT Hyderabad

Awarded cash prize for being in **Top 20 out of ∼150 participants**, 2017
Summer school on Computer Vision, CVIT, IIIT Hyderabad

PROFESSIONAL ACTIVITIES

Student Volunteer, International Confernece on Systems in Medicine and Biology 2016, IIT Kharagpur, India

Volunteer, Machine Vision and Learning Spring School 2016, Dept. Of Electrical Engg., IIT Kharagpur

Member, Student Activity Committee, IEEE Engineering in Medicine and Biology Student Club, IIT Kharagpur, 2015-16

TALKS & SEMINARS

Basics of PyTorch and CNN Jan. 2021
Faculty Development Programme on **Optimization and Deep Learning**
Organized by NIT Patna & Techno Main Salt Lake, Kolkata

Audio-Visual Zero-shot Learning Feb. 2020
Presented Poster and Short Talk
WACV 2020, Colorado, USA

TECHNICAL SKILLS

Python, PyTorch, C/C++, MatLab, LaTeX

REFERENCES

Available upon Request