Onkar Krishna

Personal Data

Place and Date of Birth:	Gorakhpur, India | 28 November 1988
Address:	Kanagwa, Isehara-shi, Higashi-Naruse, 42-1, 125, Japan
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Education

March 2018 — Ph.D., **The University of Tokyo**, Japan
Major: Information and Communication Engineering
Thesis: "Gaze Analysis and Visual Saliency Prediction Across Different Age Groups"
Adviser: Prof. Kiyoharu Aizawa

March 2014 — Ph.D. (Discontinued), **India Institute Technology**, Jodhpur, India
Major: Information and Communication Technology
Research Topic: "Contemporary video compression standards: H.265/HEVC, VP9"
Adviser: Prof. Tiwari Anil

July 2012 — Master of Technology, **India Institute of Information Technology**, Jabalpur, India
Major: Computer Science and Engineering
Thesis: "Noise Induced Noisy Image Segmentation and Audio Water Marking"
Adviser: Dr. Jha Rajib

July 2009 — Bachelor of Technology, **CET-IILM (UPTU)**, Greater Noida, India
Major: Computer Science and Engineering

Award and Scholarships

Jan 2017 — **Electronic Imaging Travel Grant**, Received a grant to attend EI student showcase. A Jury selected 17 best papers from applicants and awarded the grants accordingly.

Jan 2016 — **Takuetsu-daigakuin**, Graduate school of Information Science and Technology, The University of Tokyo, Japan (for a month).

April 2014 — **MONBUKAGAKUSHO**, Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan (for 4 years).

July 2012 — **MHRD**, Ministry of Human Resource Development, Government of India (for 2 years).

Dec 2011 — **JENESYS programme**, Industrial visit was fully supported- by Japan Government (for 2 months).

June 2010 — **MHRD**, Ministry of Human Resource Development, Government of India (for 2 years).

Research Experience

Current
April 2018
Research Associate at NTT Communication Science Laboratory
NTT Corporation, Japan.
Adaptive Spotting: Working on a project to develop a search mechanism for 3D-environment based on deep-reinforcement learning with application in robotics and drone-based surveillance

June 2017
September 2017
Research intern at NTT Communication Science Laboratory
NTT Corporation, Japan.

June 2017
Collaborative Research at K. Nakano Laboratory, IIS
The University of Tokyo, Japan.
Worked on a project titled as "Age-related differences in gaze landings of adult and elderly drivers".

March 2017
Visiting Student at Dept. of Brain and Cognitive Sciences
Massachusetts Institute of Technology, Cambridge, MA.
I have gained valuable insight into the perceptual aspect of the computational modeling while working with visual statistics group.

February 2016
Visiting Researcher at Laboratoire Psychologie de la Perception
Paris Descartes University, CNRS, Paris, France.

March 2014
Researcher Student at Aizawa-Yamasaki Laboratory
The University of Tokyo, Japan.
I worked on optimization of video compression standard H.265.

November 2013
Teaching Assistant at Indian Institute of Technology
Indian Institute of Technology Jodhour, India
I worked as teaching assistant for subjects; multimedia compression and pattern recognition

November 2011
Researcher Internship at Yokohama Research Lab
Hitachi Ltd., Yokohama, Japan

Research Interest

Computer Vision
Image, video and point cloud processing more specifically reward based learning for different applications such as searching in a 3D real world by using hierarchical reinforcement learning.

Attention
Interested in psychological aspect of human visual system in order to make human like search/scene viewing behavior.

Publications

Journals

Feb 2018 — Krishna Onkar, Andrea Helo, Pia Rämä, and Kiyoharu Aizawa, *Gaze Distribution Analysis and Saliency Prediction Across Age Groups*, PloS one, vol. 13, pp. e0193149, 2018

July 2020 — Krishna Onkar, Kiyoharu Aizawa, and Go Irie, *Computational Attention Model for Children, Adults and Elderly*, Multimedia Tools and Application (MTAP), 2020.

Conferences

Sept 2020 — Krishna Onkar, Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa, *Adaptive Spotting: Deep Reinforcement Object Search in 3D Point Clouds*, ACCV, 2020 (*Accepted*).

June 2020 — Krishna Onkar, Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa, *Translating Adult'S Focus of Attention To Elderly's*, IEEE International Conference on Pattern Recognition (ICPR), 2020 (*Accepted*).

May 2019 — Krishna Onkar, Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino, *Learning Search Path for Region-Level Image Matching*, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 1967-1971, 2019.

Oct 2018 — Krishna Onkar, and Kiyoharu Aizawa, *Billboard Saliency Detection in Street Videos for Adults and Elderly*, IEEE International Conference on Image Processing (ICIP), pp. 2326-2330, 2018

May 2018 — Krishna Onkar, Kiyoharu Aizawa, and Saskia Reimerth, *Signboard Saliency Detection in Street Videos*, Acoustics, Speech and Signal Processing (ICASSP), pp. 1917-1921, 2018.

Oct 2017 — Saemi Choi, Krishna Onkar, Wen-Yu Lee and Kiyoharu Aizawa, *MatPlanner: Plan Your Days in Conferences by Resolving Conflicting Events*, Proceedings of the ACM Multimedia Conference (ACMMM), pp. 1231-1232, 2017.

Sept 2017 — Krishna Onkar, and Kiyoharu Aizawa, *Age-adapted saliency model with depth bias*, Proceedings of the ACM Symposium on Applied Perception, pp. 1-8, 2017 (*Accepted as oral*).

Dec 2016 — Krishna Onkar, Toshihiko Yamasaki, Andrea Helo, Pia Rama, and Kiyoharu Aizawa, *Developmental changes in ambient and focal visual processing strategies*, Electronic Imaging, pp. 224-229, 2017 (*Accepted as oral*).

Feb 2013 — Krishna Onkar, Rajib K. Jha, Anil K. Tiwari, Badal Soni, *Noise induced segmentation of noisy color image*, IEEE, National Conference on Communications (NCC), pp. 1-5, 2013.

Aug 2012 — Rajib K. Jha, Krishna Onkar, and Kiyoharu Aizawa, *Dynamic stochastic resonance-based watermark extraction from audio signals in SVD domain*, European Signal Processing Conference (EUSIPCO), pp. 2684-2688, 2012

June 2012 — Krishna Onkar, Rajib K. Jha, and P. K. Biswas, *Dynamic stochastic resonance-based improved watermark extraction in DWT-SVD domain*, IEEE International Conference on Intelligent and Advanced Systems (ICIAS), Vol. 2, pp. 632-636. 2012.

Feb 2012 — Krishna Onkar, Rajib K. Jha, P. K. Biswas, and M. M. Mushrif *Dynamic stochastic resonance-based improved watermark extraction from audio signal*, IEEE, National Conference on Communications (NCC), pp. 1-5, 2012

Patents

May 2019	Krishna Onkar, Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino, *SEARCH APPARATUS, TRAINING APPARATUS, SEARCH METHOD, TRAINING METHOD, AND PROGRAM*, US Patent, 2019. (*Applied*)
Dec 2019	Krishna Onkar, Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa, *IMAGE SALIENCY METHOD OPPERATUS AND PROGRAM*, US Patent, 2019. (*Applied*).

Collaborations and Talks

NTT-UTokyo	Member of NTT-University of Tokyo research collaboration.
UTokyo-CNRS	Member of research collaboration between Laboratoire Psychologie de la Perception and Aizawa-Yamsaki Laboratory.
Member	Organizing Committee Member of The National Conference on Computer Vision, Pattern Recognition, Image Processing 2013, India.
Talk at MIT	Gave talk on Computational Aspect of Visual perception at Dept. of Brain and Cognitive Sciences, MIT, Cambridge, MA on on Feb 2017.
Talk at CNRS	Gave talk on Age-adapted Saliency Modeling at Laboratoire Psychologie de la Perception, CNRS, Paris on Feb 2016.
Talk at UC Berkely	Gave talk at Berkeley Artificial Intelligence Research Lab on March 2018.

Extra-curricular Activities

Vice President	The University of Tokyo Indian Student Association (UTISA).
Senator	Senator of student counsel of India Institute of Information Technology, Jabalpur, India
Sports	Second Runner-up of the half marathon in inter-IIIT sports, India

References Available to Contact

Prof. Kiyoharu Aizawa	Ph.D. Adviser, Dept. of Information and Communication Engineering The University of Tokyo, Japan Email: aizawa@hal.t.u-tokyo.ac.jp Phone:3-5841-6761
Dr. Rajib Kumar Jha	Master's Adviser, Department of Electrical Engineering Indian Institute of Technology, Patna, India Email: jharajib@iitp.ac.in Phone:+91-612-302 8010