ONKAR KRISHNA

Curriculum Vitae

Senior Researcher
Intelligent Vision
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My Webpage

Education

2015–2018 **PhD, Information & Communication Engineering**, *The University of Tokyo*, Japan.
Thesis: Gaze Analysis and Visual Saliency Prediction Across Different Age Groups.

2010–2012 **Master of Technology, Computer Science & Engineering**, *IIIT*, Jabalpur, India.
Thesis: Noise Induced Noisy Image Segmentation and Audio Water Marking.

2005–2009 **Bachelor of Technology, Computer Science**, *CET-IILM (UPTU)*, G.B. Nagar, India.

Publications

Journal Articles

2020 **Onkar Krishna**, Kiyoharu Aizawa, and Go Irie. Computational attention model for children, adults and the elderly. *Multimedia Tools and Applications*, pages 1–20, 2020.

2018 **Onkar Krishna**, Andrea Helo, Pia Rämä, and Kiyoharu Aizawa. Gaze distribution analysis and saliency prediction across age groups. *PloS one*, page e0193149, 2018.

International Conferences

2023 **Onkar Krishna**, Hiroki Ohashi, and Sinha Saptarshi. Mila: Memory-based instance-level adaptation for cross-domain object detection. In *Proceedings of The 34th British Machine Vision Conference (BMVC) (**Oral Acceptance Rate Around 6%**)*, 2023.

2021 **Onkar Krishna**, Go Irie, Xiaomeng Wu, Akisato Kimura, and Kunio Kashino. Deep reinforcement image matching with self-termination. In *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, 2021.

2020 **Onkar Krishna**, Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino. Adaptive Spotting: Deep reinforcement object search in 3D point clouds. In *Proceedings of the Asian Conference on Computer Vision (ACCV)*, 2020.

2020 **Onkar Krishna**, Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa. Translating adult's focus of attention to elderly's. In *Proceedings of the IEEE International Conference on Pattern Recognition (ICPR) (**Oral Acceptance Rate=4.4%**)*, 2020.

2019 **Onkar Krishna**, Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino. Learning search path for region-level image matching. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 1967–1971, 2019.

2019 Jha Rajib, Pramod Kumar Tiwari, **Onkar Krishna**, Jawar Singh, and Saurabh Kumar Pandey. Dynamic stochastic resonance based blocking artifacts removal from compressed in dct domain. In *Proceedings of the 25th International Conference on Noise and Fluctuations (ICNF)*, 2019.

2018 **Onkar Krishna**, Kiyoharu Aizawa, and Saskia Reimerth. Signboard saliency detection in street videos. In *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 1917–1921, 2018.

2018 **Onkar Krishna** and Kiyoharu Aizawa. Billboard saliency detection in street videos for adults and elderly. In *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, pages 2326–2330, 2018.

2017 **Onkar Krishna**, Toshihiko Yamasaki, Andrea Helo, Rämä Pia, and Kiyoharu Aizawa. Developmental changes in ambient and focal visual processing strategies. In *Proceedings of the Electronic Imaging*, pages 224–229, 2017.

2017 **Onkar Krishna** and Kiyoharu Aizawa. Age-adapted saliency model with depth bias. In *Proceedings of the ACM Symposium on Applied Perception*, pages 1–8, 2017.

2017 Saemi Choi, **Onkar Krishna**, Wen-Yu Lee, and Kiyoharu Aizawa. Matplanner: Plan your days in conferences by resolving conflicting events. In *Proceedings of the ACM International Conference on Multimedia (ACMMM)*, pages 1231–1232, 2017.

2012 **Onkar Krishna**, Rajib Kumar Jha, and PK Biswas. Dynamic stochastic resonance-based improved watermark extraction in dwt-svd domain. In *Proceedings of the IEEE International Conference on Intelligent and Advanced Systems (ICIAS)*, pages 632–636, 2012.

2012 Rajib Kumar Jha, **Onkar Krishna**, and Kiyoharu Aizawa. Dynamic stochastic resonance-based watermark extraction from audio signals in svd domain. In *Proceedings of the European Signal Processing Conference (EUSIPCO)*, pages 2684–2688, 2012.

Domestic Conferences

2020 **Onkar Krishna**, Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino. Adaptive Spotting: 3D point cloud object search based on deep reinforcement learning. In *Proceedings of the 26th Symposium on Sensing via Image Information (SSII),* ***Best Paper Award Honorable Mention***, 2020.

2019 **Onkar Krishna**, Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino. Deep reinforcement template matching. In *Proceedings of the 22nd Meeting on Image Recognition and Understanding (MIRU)* ***(Oral Acceptance Rate=22.2%)***, 2019.

2019 **Onkar Krishna**, Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa. Predicting focus of attention of elderly drivers. In *Proceedings of the 18th Forum on Information and Technology (FIT)*, 2019.

2019 **Onkar Krishna**, Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa. Estimating the driving gaze map of the elderly based on image conversion. In *Proceedings of the 25th Symposium on Sensing via Image Information (SSII)*, 2019.

2013 **Onkar Krishna**, Rajib Kumar Jha, Anil Kumar Tiwari, and Badal Soni. Noise induced segmentation of noisy color image. In *Proceedings of the IEEE National Conference on Communications (NCC)*, pages 1–5, 2013.

2012 **Onkar Krishna**, Rajib Kumar Jha, PK Biswas, and MM Mushrif. Dynamic stochastic resonance-based improved watermark extraction from audio signal. In *Proceedings of the IEEE National Conference on Communications (NCC)*, pages 1–5, 2012.

Patent Applications

2020 Go Irie, **Onkar Krishna**, and Kiyoharu Aizawa, Prediction Device, Prediction Method, Prediction Program, Learning Device, Learning Method, Learning Program, Applied in 2020.

2019 **Onkar Krishna,** Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa, Predictor, Training Device, Training Method, and Program, Applied in 2019.

2019 **Onkar Krishna,** Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino, Search Device, Learning Device, Search Method, Learning Method, and Program, Applied in 2019.

2018 **Onkar Krishna,** Go Irie, Takahito Kawanishi, Kunio Kashino, and Kiyoharu Aizawa, Image Saliency Method, Apparatus, and Program, Applied in 2018.

2018 **Onkar Krishna,** Go Irie, Xiaomeng Wu, Takahito Kawanishi, and Kunio Kashino, Search Apparatus, Training Apparatus, Search Method, Training Method, and Program, Applied in 2018.

Research Experience

Work Experience

April, 2018 – present **_Research Associate_** at NTT Communication Science Laboratories, **_NTT Corporation_**.
Adaptive Spotting: Working on a project to develop a search mechanism for 3D-real world environment based on deep-reinforcement learning. (*Project Introduction*)

Research Internships

Sep., 2017 **_Research Intern_** at NTT Communication Science Laboratories, **_NTT Corporation_**.

March, 2017 **_Visiting Student_** at Dept. of Brain and Cognitive Sciences, **_Massachusetts Institute of Technology (MIT), Cambridge, MA_**.
I have gained valuable insight into the perceptual aspect of the computational modeling while working with visual statistics group.

Feb, 2016 **_Visiting Researcher_** at Laboratoire Psychologie de la Perception, *Paris Descartes University,* **_CNRS, Paris, France_**.

April, 2014 **_Researcher Student_** at Aizawa-Yamasaki Laboratory, **_The University of Tokyo, Japan_**.

Nov., 2013 **_Teaching Assistant_** at Indian Institute of Technology, Jodhpur, India.

Nov., 2011 **_Researcher Internship_** at Yokohama Research Lab, **_Hitachi Ltd., Yokohama, Japan_**.

Awards & Scholarships

2020 ***Best Paper Award Honorable Mention in SSII 2020.*** SSII is a largest image processing symposium in Japan.

2017 Received ***Electronic Imaging Travel Grant*** to attend Electronic Imaging student showcase. *17 best papers awarded with this grant* in HVEI 2017.

2014 Recipient of ***MEXT Scholarship***, Ministry of Education, Culture, Sports, Science,and Technology, Japan (for 4 years). Around 30 students are chosen for this scholarship every year from India.

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

2011 Selected for ***JENESYS programme***, Industrial visit fully supported by Government of Japan (for 2 months).

Collaboration & Talks

2018 **Talk at UC Berkely:** *Gave talk at Berkeley Artificial Intelligence Research Lab on March 2018.*

2017 **Talk at MIT:** *Gave talk on Computational Aspect of Visual Perception at Dept. of Brain and Cognitive Sciences, MIT, Cambridge, MA on Feb 2017.*

2016 **Talk at CNRS:** *Gave talk on Age-adapted Saliency Modeling at Laboratoire Psychologiede la Perception, CNRS, Paris on Feb 2016.*

2017 **NTT-UTokyo Collaboration:** *Member of NTT-The University of Tokyo research collaboration.*

Languages

Hindi, English Business level proficiency

Japanese Basic communication level

Computer skills

Programming Python, Tensorflow, PyTorch, Keras, R, C, C++

Devices and Libraries Real Sense Camera for Visual SLAM, TurtleBot Robot Kit, Point Cloud Processing Libraries and Software, RTAB-Map Real-Time Appearance-Based Mapping.

Referees

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