

# Ragav Venkatesan

---

CONTACT	<b>Email:</b> ragav.venkatesan@gmail.com <b>Mobile:</b> 480-414-1164 <b>Homepage:</b> <a href="https://ragav.net">https://ragav.net</a>		
SUMMARY	Applied Scientist with experience in engineering enterprise-level, cost-efficient distributed machine learning and computer vision platforms and a breadth of research areas spanning multiple-instance learning, domain adaptation, neural network compression and network architecture search.		
PROFESSIONAL EXPERIENCE	(E1) Amazon		
	(A1) <i>Applied Scientist - Amazon Alexa AI</i>	November 2019 – Present	
	(A2) <i>Applied Scientist - Amazon Web Services, AI Labs</i>	May 2019 – November 2019	
	(A3) <i>Research Scientist - Amazon Web Services, Sagemaker</i>	November 2017 – May 2019	
	<i>Publicly Available Artifacts:</i>		
	<ul style="list-style-type: none"><li>• Open Source: Amazon SageMaker Reinforcement Learning.</li><li>• Launch Announcement: Amazon SageMaker Object Detection Algorithms.</li><li>• Launch Announcement: Amazon SageMaker Semantic Segmentation Algorithms.</li><li>• Launch Announcement: Bring your own Tensorflow and MXNet models to SageMaker.</li><li>• Open Source: Neural Network Compression using AWS Sagemaker RL.</li></ul>		
	(E2) <i>Research Assistant - Arizona State University.</i> August 2011 – October 2017		
	<ul style="list-style-type: none"><li>• The Diabetic Retinopathy project</li><li>• The MIDAS project</li></ul>	<ul style="list-style-type: none"><li>Funding Agency: National Institutes of Health.</li><li>Funding Agency: National Science Foundation.</li></ul>	
	(E3) <i>Computer Vision Research Intern - Intel</i> December 2013 – August 2014		
	<ul style="list-style-type: none"><li>• Built vehicle and lane detection for automated driver assistance systems applications.</li></ul>		
EDUCATION	<b>Doctor of Philosophy</b> - Computer Science October 2017 Advisor: Professor Baoxin Li Arizona State University, Tempe, Arizona, USA		
	<b>Master of Science</b> - Electrical Engineering August 2012 Advisor: Professor David Frakes Arizona State University, Tempe, Arizona, USA		
	<b>Bachelor of Engineering</b> - Electronics and Communication Engineering June 2010 Anna University, Chennai, Tamil Nadu, India		
ISSUED PATENTS	(P1) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, “ Domain mapping for privacy preservation.” US10567334B1		
BOOKS	(B1) <b>Ragav Venkatesan</b> , Baoxin Li, “ Convolutional Neural Networks in Visual Computing: A Concise Guide ”, CRC Press, a Tyler & Francis company, 2017. <b>Ragav Venkatesan</b> , Baoxin Li, “ 卷积神经网络与视觉计算 ”, 机械工业出版社, 2019.		
BOOK CHAPTERS	(Bc1) Xiang Xu, Xiong Zhou, <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, Orchid Majumdar, “ <i>d</i> -SNE: Domain Adaptation using Stochastic Neighborhood Embedding. ” in <i>Domain Adaptation in Computer Vision With Deep Learning</i> , edited by Hemanth Venkateswara, Sethuraman Panchanathan, in <i>Springer Nature</i> , 2020.		
	(Bc2) Parag Chandakkar, <b>Ragav Venkatesan</b> , Baoxin Li, “Feature Extraction and Learning for Visual Data” in “ <i>Feature Engineering for Machine Learning and Data Analytics</i> , edited by Guozhu Dong, Huan Liu , <i>CRC Press, a Tyler &amp; Francis company</i> , 2017.		

- (R1) **Doctoral dissertation** *Novel image features and learning techniques.* October 2017
- (R2) **Masters thesis** *Video Deinterlacing using Control Grid Interpolation Frameworks.* August 2012
- (R3) **Undergraduate thesis** *A comparative study of detection of faults and estimation of distance to faults on wired communication channels, using TDR and FDR techniques.* May 2010

### Multiple-Instance Learning

- (J1) Parag Shridhar Chandakkar, **Ragav Venkatesan**, Baoxin Li, “ MIRank-KNN: Multiple Instance Retrieval of Clinically-Relevant Diabetic Retinopathy Images ”, in *SPIE Journal of Medical Imaging*, 2017.

### Image Interpolation

- (J2) **Ragav Venkatesan**, Christine Zwart, David Frakes, Baoxin Li “ Spatio-temporal Video Deinterlacing using Control Grid Interpolation ”, in *SPIE Journal of Electronic Imaging*, 24(2), 023022. 2015.
- (J3) Christine Zwart, **Ragav Venkatesan**, David Frakes, “ Decomposed Multidimensional Control Grid Interpolation for Common Interpolation-Based Image Processing Applications in Consumer Electronics ”, in *SPIE Journal of Electronic Imaging*, vol. 24, no.4, pp.43012-1 to 43012-12. 2012.

### Deep Learning

- (C1) Ansel MacLaughlin, Jwala Dhamala, Anoop Kumar, Sriram Venkatapathy, **Ragav Venkatesan**, Rahul Gupta, “ Evaluating the Effectiveness of Efficient Neural Architecture Search for Sentence-Pair Tasks. ”, in *Workshop on Insights from Negative Results in NLP at the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2020. [ORAL]
- (C2) Xiang Xu, Xiong Zhou, **Ragav Venkatesan**, Gurumurthy Swaminathan, Orchid Majumdar “ *d*-SNE: Domain Adaptation using Stochastic Neighborhood Embedding ”, in *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, California, USA, 2019. [ORAL] (< 5.5% Acceptance Rate).
- (C3) **Ragav Venkatesan**, Jaya Vijetha Gattupalli, Baoxin Li, “ On the generality of neural image features ”, in *IEEE International Conference on Image Processing (ICIP)*, Phoenix, Arizona, USA, 2016. [ORAL]

### Multiple-Instance Learning

- (C4) **Ragav Venkatesan**, Parag Shridhar Chandakkar, Baoxin Li, “ Simpler non-parametric methods provide as good or better results to multiple-instance learning. ”, in *IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile 2015. [Spotlight]
- (C5) Parag Shridhar Chandakkar\*, **Ragav Venkatesan\***, Baoxin Li, Helen Li, “ Retrieving clinically relevant diabetic retinopathy images using a multi-class multiple-instance framework ”, in *proceedings of SPIE conference on Medical Imaging, International Society of Opticals and Photonics*, Orlando, Florida, USA, 2013. [ORAL]
- (C6) **Ragav Venkatesan\***, Parag Shridhar Chandakkar\*, Baoxin Li, Helen Li, “ Classification of Diabetic Retinopathy Images Using Multi-Class Multiple-Instance Learning Based on Color Correlogram Features ”, in *Proceedings of International Conference of the IEEE Engineering in Medicine and Biology Society 2012 (EMBC’12)*, San Diego, California, USA, 2012. [Poster]
- (C7) **Ragav Venkatesan\***, Parag Shridhar Chandakkar\*, Baoxin Li, Helen Li, “ Clinically Relevant Diabetic Retinopathy Image Retrieval Using a Multi-Class Multiple Instance Framework ”, in *proceedings of ACM conference on Bio-informatics, Computational Biology and Biomedicine (ACM-BCB’12)*. Orlando, Florida 2012. [ORAL]

### ADAS: Bayesian Modelling

- (C8) **Ragav Venkatesan**, Parag Shridhar Chandakkar, Baoxin Li, “ Video-Based Self-Positioning for Intelligent Transport Systems Applications ”, in *the Tenth International Symposium on Visual Computing (ISVC)*, Las Vegas, Nevada, USA, 2015. [ORAL]

## Image Interpolation

- (C9) **Ragav Venkatesan**, Christine Zwart, David Frakes, Baoxin Li, “ Perception-Inspired Spatio-Temporal Video Deinterlacing ”, in *the Eighth International Workshop on Video Processing and Quality Metrics for Consumer Electronics (VPQM)*, Tempe, Arizona, USA, 2014. [ORAL]
- (C10) **Ragav Venkatesan**, Christine Zwart, David Frakes, “ Video Deinterlacing with Control Grid Interpolation Frameworks ”, in *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, Orlando, Florida, USA, 2012. [Poster]

\* - Equal contribution from authors.

## SELECTED ARXIV AND LONGFORM

### Deep Learning

- (A1) **Ragav Venkatesan**, Gurumurthy Swaminathan, Xiong Zhou, Anna Luo, “Out-of-the-box channel pruned networks.”, arXiv:2004.14584, 2020.
- (A2) **Ragav Venkatesan**, Hemanth Venkateshwara, Sethuraman Panchanathan, Baoxin Li., “A strategy for an uncompromising incremental learner.”, arXiv:1705.00744, 2017.
- (A3) **Ragav Venkatesan**, Vijetha Gattupalli, Baoxin Li., “Neural Dataset Generality.”, arXiv: 1605.04369 2016.
- (A4) **Ragav Venkatesan**, Baoxin Li., “Diving deeper into mentee networks.”, arXiv: 1604.08220 2016.

### Social Media Mining

- (A5) Lydia Manikonda, **Ragav Venkatesan**, Subbarao Kambhampati, and Baoxin Li., “Evolution of fashion brands on Twitter and Instagram.”, arXiv: 1512.01174 2015.

## TEACHING EXPERIENCE

- (T1) *Instructor - Amazon Machine Learning University.*  
Convolutional Neural Networks (2018 - 2019)
- (T2) *Instructor - Arizona State University.*  
CSE 591: Introduction to deep learning for visual computing (January - May 2017)
- (T3) *Co-instructor - Arizona State University.*  
CSE 509: Digital Video Processing (August 2015 - December 2015)
- (T4) *Teaching Assistant - Arizona State University.*
- CSE 575: Statistical Machine Learning
    - Dr. Jingrui He (January 2015 - May 2015)
  - CSE 569: Fundamentals of Statistical Learning
    - Dr. Baoxin Li (August 2014 - December 2014 and August 2016 - December 2016)
  - CSE 509: Digital Video Processing
    - Dr. David Claveau (August 2012 - December 2012)
    - Dr. Hari Sundaram (August 2013 - December 2013)
  - CSE 424, 485 and 486: Capstone Projects (January 2013 - May 2013)
- (T5) *Guest Lectures - Arizona State University.*  
Duties in this position involve providing specific lectures in courses on invitation.
- CSE 569: Hidden Markov Models (September 2017)
  - CSE 569: Neural Networks (October - November 2017)

## REFERENCES

Will be provided on request.