

# Ragav Venkatesan

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LINKS	<a href="#">LinkedIn</a>	<a href="#">Homepage</a>	<a href="#">Google Scholar</a>	<a href="#">GitHub</a>	<a href="#">Amazon Books</a>
SUMMARY	Principal Engineer with a decade of experience in delivering enterprise and consumer-grade, computer vision products and a breadth of R&D experience spanning from neural network training infrastructure such as MLops, data governance and management, inference APIs, distributed micro services and NIMs, gRPC APIs, and NIM blueprints to cutting-edge learning techniques such as generative AI and computer vision model development such as object detection, semantic-segmentation, domain adaptation. video-enhancement, generative animation, multiple-instance learning, distillation, neural-network compression and more.				
PROFESSIONAL EXPERIENCE	<div>(E1) NVIDIA<div>(N1) <i>Principal Engineer - <a href="#">Maxine</a> and <a href="#">Broadcast</a></i><div>March 2025 – Present</div></div><div>(N2) <i>Senior Software Engineer - <a href="#">Maxine</a></i><div>August 2021 – March 2025</div><div><ul style="list-style-type: none"><li>• Maxine NVIDIA Inference Microservices (NIMs), NIM blueprints.</li><li>• AI-based video-enhancement features (webcam-denoising, artifact-reduction).</li><li>• Generative AI-based video animation models and NIMs - eye-contact, live-portrait, audio2face2d, studio voice, speech live-portrait, lipsync.</li><li>• Generative 2D Digital human technology.</li></ul></div></div></div> <div>(E2) Amazon<div>(A1) <i>Applied Scientist - Amazon Alexa AI</i><div>November 2019 – August 2021</div></div><div>(A2) <i>Applied Scientist - Amazon Web Services, AI Labs</i><div>May 2019 – November 2019</div></div><div>(A3) <i>Research Scientist - Amazon Web Services, Sagemaker</i><div>November 2017 – May 2019</div><div><ul style="list-style-type: none"><li>• Architected Alexa AI workloads for AWS sagemaker platform.</li><li>• <a href="#">Shipped ENAS for Alexa voice training.</a></li><li>• <a href="#">Amazon SageMaker Reinforcement Learning Service.</a></li><li>• <a href="#">Amazon SageMaker Object Detection Algorithms.</a></li><li>• <a href="#">Amazon SageMaker Semantic Segmentation Algorithms.</a></li><li>• <a href="#">Bring your own Tensorflow and MXNet models to SageMaker.</a></li><li>• <a href="#">Neural Network Compression using AWS SageMaker RL.</a></li></ul></div></div></div> <div>(E3) Intel<div>(I1) <i>Researcher (Intern)</i><div>December 2013 – August 2014</div><div><ul style="list-style-type: none"><li>• Vehicle and lane detection for automated driver assistance systems.</li></ul></div></div></div>				
EDUCATION	<div><div><div><b>Doctor of Philosophy</b> - Computer Science<div>Advisor: <a href="#">Professor Baoxin Li</a></div>Arizona State University, Tempe, Arizona, USA</div><div>October 2017</div></div><div><div><b>Master of Science</b> - Electrical Engineering<div>Advisor: <a href="#">Professor David Frakes</a></div>Arizona State University, Tempe, Arizona, USA</div><div>August 2012</div></div><div><div><b>Bachelor of Engineering</b> - Electronics and Communication Engineering<div>Anna University, Chennai, Tamil Nadu, India</div></div><div>June 2010</div></div></div>				
BOOKS	<div>(B1) <b>Ragav Venkatesan</b>, Baoxin Li, “ <a href="#">Convolutional Neural Networks in Visual Computing: A Concise Guide</a> ”, CRC Press, a Tyler &amp; Francis company, 2017.</div> <div><b>Ragav Venkatesan</b>, Baoxin Li, “ <a href="#">卷积神经网络与视觉计算</a> ”, 机械工业出版社, 2019.</div>				

- BOOK CHAPTERS (Bc1) Xiang Xu, Xiong Zhou, **Ragav Venkatesan**, Gurumurthy Swaminathan, Orchid Majumdar, “*d-SNE: Domain Adaptation using Stochastic Neighborhood Embedding*. ” in *Domain Adaptation in Computer Vision With Deep Learning*, edited by Hemanth Venkateswara, Sethuraman Panchanathan, in *Springer Nature*, 2020.
- (Bc2) Parag Chandakkar, **Ragav Venkatesan**, Baoxin Li, “Feature Extraction and Learning for Visual Data” in “*Feature Engineering for Machine Learning and Data Analytics* , *CRC Press*, a *Tyler & Francis company*, 2017.

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- (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]
- (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]
- (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) **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]
- (C6) **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]
- (C7) 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 Optical and Photonics*, Orlando, Florida, USA, 2013. [ORAL]
- (C8) **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]
- (C9) **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]
- (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.

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

SELECTED ARXIV AND LONGFORM	(A1) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, Xiong Zhou, Anna Luo, “Out-of-the-box channel pruned networks.”, <a href="#">arXiv: 2004.14584</a> 2020.
	(A2) <b>Ragav Venkatesan</b> , Hemanth Venkateshwara, Sethuraman Panchanathan, Baoxin Li., “A strategy for an uncompromising incremental learner.”, <a href="#">arXiv: 1705.00744</a> 2017.
	(A3) <b>Ragav Venkatesan</b> , Vijetha Gattupalli, Baoxin Li., “Neural Dataset Generality.”, <a href="#">arXiv: 1605.04369</a> 2016.
	(A4) <b>Ragav Venkatesan</b> , Baoxin Li., “Diving deeper into mentee networks.”, <a href="#">arXiv: 1604.08220</a> 2016.
	(A5) Lydia Manikonda, <b>Ragav Venkatesan</b> , Subbarao Kambhampati, and Baoxin Li., “Evolution of fashion brands on Twitter and Instagram.”, <a href="#">arXiv: 1512.01174</a> 2015.
DISSERTATION	(R1) <b>Doctoral dissertation</b> <i>Novel image features and learning techniques.</i> October 2017
	(R2) <b>Masters thesis</b> <i>Video Deinterlacing using Control Grid Interpolation Frameworks.</i> August 2012
	(R3) <b>Undergraduate thesis</b> <i>A comparative study of detection of faults and estimation of distance to faults on wired communication channels, using TDR and FDR techniques.</i> May 2010
ISSUED PATENTS	(P1) <b>Ragav Venkatesan</b> , Xiong Zhou, Gurumurthy Swaminathan, Fedor Zhadnov “ <a href="#">Zero-shot transfer of domain-adapted base networks.</a> ” US12277192
	(P2) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, Vineet Khare, Bharathan Balaji, Saurabh Gupta, Leo Parker Dirac, Sahika Genc “ <a href="#">Decoupled machine learning training.</a> ” US11861490
	(P3) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, Xiong Zhou, Anna Luo, Vineet Khare “ <a href="#">Applying compression profiles across similar neural network architectures.</a> ” US11809992
	(P4) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, Xiong Zhou, Anna Luo, Vineet Khare “ <a href="#">Searching compression profiles for trained neural networks.</a> ” US11755603
	(P5) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, Xiong Zhou, Anna Luo, Vineet Khare “ <a href="#">Reinforcement learning for training compression policies for machine learning models.</a> ” US11501173
	(P6) <b>Ragav Venkatesan</b> , Gurumurthy Swaminathan, “ <a href="#">Domain mapping for privacy preservation.</a> ” US10567334
SELECTED TALKS AND LECTURES	(L1) <b>Creating 2D Digital Humans</b> , - 2025. <i>NVIDIA GTC.</i>
	(L2) <b>Microsoft Cloud + AI, Redmond, Washington</b> , - 2020. <i>ML problems and solutions at an enterprise scale.</i>
	(L3) <b>Facebook Reality Labs, Redmond, Washington</b> , - 2020. <i>ML problems and solutions at an enterprise scale.</i>
	(L4) <b>IEEE Conference on Computer Vision and Pattern Recognition</b> , - 2019. <i>Domain Adaptation using Stochastic Neighborhood Embedding.</i>
	(L5) <b>Microsoft Research, Redmond, Washington</b> , - 2019. <i>Common Image Dataset Issues and Solutions.</i>
	(L6) <b>Amazon A9 Computer Vision Conference</b> , - 2019. <i>Workshop on Amazon SageMaker.</i>
	(L7) <b>Qualcomm</b> , San Diego, California, - 2017. <i>Tools for Measuring Image Generality in Datasets.</i>
	(L8) <b>Siemens</b> , Princeton, New Jersey, - 2017. <i>Measuring Dataset-level Image Generality.</i>
	(L9) <b>International Conference on Image Processing</b> , Phoenix, Arizona - 2016. <i>Neural Dataset Generality.</i>
	(L10) <b>International Workshop on Video Processing and Quality Metrics for Consumer Electronics</b> , Chandler, Arizona, USA - 2014. <i>Perception-Inspired Spatio-Temporal Video Deinterlacing.</i>
	(L11) <b>SPIE conference on Medical Imaging</b> , Orlando, Florida, USA - 2013. <i>Retrieving clinically relevant diabetic retinopathy images using a multi-class multiple instance framework.</i>
REFERENCES	Will be provided on request.