KRISHNA KANT CHINTALAPUDI, PhD.

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Goal. Leadership position to disrupt the technology status quo through innovation and drive business impact by bringing groundbreaking solutions to market.

Professional Summary. Innovator and leader with 18+ years of R&D experience in delivering innovative products and platform solutions across diverse technologies - AI/ML (GenAI, Computer Vision, Reinforcement Learning), Networking & Systems (Networking for Gaming and Real-time applications, Wireless Networking) and IoT. Published 40+ peer reviewed research publications in flagship conferences with 8500+ citations. Recipient of 30+ USPTO patents. Member of Technical Advisory Committee for the FCC, AI Working Group 2022-23.

Education

- Exec-Ed Chief Technology Officer, Technology Leadership, Haas School of Business, University of Berkeley, 2025 (expected)
- PhD in Computer Science, University of Southern California, Los Angeles, CA – 2006.
- MS in Electrical Engineering, Networking, University of Southern California, Los Angeles, CA – 2002.
- MS in Electrical Engineering, Signal Processing and Control Systems, Drexel University, Philadelphia, PA – 1999.
- BTech in Electrical Engineering, Indian Institute of Technology (IIT) Varanasi, India – 1997.

- **Principal Researcher, Microsoft Research, Redmond** **(2016-Present)**
  - **Ongoing Projects**
    - **Generative AI** – Techniques to reduce the size of LLMs for specific application domains.
  - **Xbox** – Led R&D (two teams, one with 2 researchers and another with 20 developers) to design and implement a state-of-the art communication solution (using custom ML techniques) to achieve best-in-class latency (5x reduction), power consumption (20% lower) and reliability (0.1-0.5% loss) for the next generation Xbox Console and Controllers targeting a $3.8B revenue goal with 9% CAGR. Led collaborations with other teams in Xbox through various stages of the product lifecycle including Business Opportunity Proposal, Product Definition, RFP and Vendor Selection, Architecture Specification and Product Development.
  - **Incubation, City Scale IoT -** Pitched business opportunity targeting a $10B total addressable market to Satya Nadella based on my cutting-edge research in IoT. Project entailed end-to-end incubation, from market analysis to MVP, resulting in a 30X reduction in CAPEX and OPEX for a multi-city solution to provide real time tracking, analytics and operational optimization for field service fleets. I led the business development efforts in identifying and engaging Compass Group (the nation's largest food and facilities services company) as our implementation partner to deliver a solution for their fleets covering 300 sq. km in King County, WA. Our solution helped Compass Group by reducing their fleet size by 60% through analytics insights and enabling fleet sharing. I led the cross functional collaboration of the research team with other Microsoft teams, external vendors and partners across the entire project lifecycle.
  - **Azure ML** - Pioneered the research and development of the first large-scale automated crowdsourcing based ground truth annotation service, "Satyam" to enable training and maintenance of machine vision models for video analytics,; including object classification, detection, segmentation and video tracking. Satyam's quality control, multi-annotation fusion and worker filtering algorithms allowed the use of economical untrained workers leading to 10X cost reduction over competing platforms such as Amazon Sagemaker. I led the collaboration with Azure ML to incorporate Satyam's multi-annotation fusion and quality control into the Azure machine learning labelling service within the Azure Machine Learning Platform.
  - **Video Analytics -** Delivered and deployed a solution for real time per lane car counting for the city of Bellevue as a part of the city's Vision Zero Initiative to reduce pedestrian deaths from cars. My solution resulted in up to 30% improved accuracy in overall car counts especially during rush hours, compared to the traditional magnetic loop or pressure-tube based solutions.

- **Senior Researcher, Microsoft Research, India** (**2009-2016**)
  - **Indoor Location Services -** Pioneered the first technique for large scale indoor localization by leveraging crowdsourcing on mobile phones – EZ and Zee (2500+ research citations). It used AI-based techniques to learn the radio propagation models in the indoor environment from measurements crowdsourced from multiple users. Subsequently, collaborated with product teams to deliver the Orion Indoor localization service that was deployed in over 50 malls and airports while providing an indoor location accuracy of 6-10m.

- **Senior Research Engineer, Robert Bosch, Research & Technology Centre** (**2005-2009**)
  - **Hard Real Time Industrial Control -** Designed, implemented and tested a wireless research protype communication device to deliver a reliability of 1 error in 10^{-9} (10X lower than competition) and latency bounds of 20ms for industrial control systems.

Academic Partnerships & Impact

- Mentored and managed researchers who are now faculty at universities such as UIUC, Cornell, NYU, Georgia Tech, UC Irvine. Part of Conference PC for conferences such as SIGCOMM, Mobicom. Mobisys.
- Managed research partnerships with universities such as MIT, CMU, University of Washington, University of Wisconsin Madison, Rice University etc. and co-mentored students and junior faculty.

Recent Awards and News Coverage

- **Accurate Media Time-Synchronization for Cloud Gaming (2023) –** Recent work on time-synchronization for cloud gaming published in SIGCOMM 2023, received wide news coverage including MIT news, Tech Times, Science Daily etc.
- **ACM Test of Time Award (2022) –** Awarded the ACM Test of Time Award for my pioneering work on structural health monitoring. The award is given to research that has had a significant impact on the field for over a decade.

Select Publications

- **AI/ML and Applied AI/ML**
  - **NSDI 2024 – "**Cloud-LoRa: Enabling Cloud Radio Access LoRa Networks Using Reinforcement Learning Based Bandwidth-Adaptive Compression", Muhammad Osama Shahid, Daniel Koch,Jayaram Raghuram,Bhuvana Krishnaswamy, Krishna Chintalapudi, Suman Banerjee, (**Reinforcement learning for data compression**)
  - **NSDI 2024 – "**ADR-X : ANN-Assisted Wireless Link Rate Adaptation for Compute Constrained Embedded Devices", Hao Yin, Murali Ramanujam, Joe Schaefer , Stan Adermann, Srihari Narlanka, Perry Lea, Ravi Netravalli, Krishna Chintalapudi, (**AI in real time gaming**)
  - *ICLR 2023 -* "MCAL: Minimum Cost Human Labelling", Hang Qiu, Krishna Chintalapudi, Ramesh Govindan, *ICLR 2023* (**active learning**)
  - *ASPLOS 2023 -* "Kodan: Addressing the Computational Bottleneck in Space", Brad Denby, Brandon Lucia, Shadi Noghabi, Krishna Chintalapudi, Ranveer Chandra, *ASPLOS 2023* (**AI Compute in Space**)
  - *arXiv 2018 -* "SATYAM: Democratizing Groundtruth for Machine Vision", Krishna Chintalapudi, Hang Qiu, Ramesh Govindan, (arXiv 2018) (**AI/ML, Data Labelling, Machine Vision, Video Analytics**)
  - *IEEE Computer 2017 -* "Real-time Video Analytics: the killer app for edge computing"**,** Ganesh Ananthanarayanan, Victor Bahl, Peter Bodík, Krishna Chintalapudi, Matthai Philipose, Lenin Ravindranath Sivalingam, Sudipta Sinha**,** *IEEE Computer, 2017* (**Video Analytics**)
  - *Mobicom 2014 -* Enabling Physical Analytics in Retail Stores Using Smart Glasses Swati Rallapalli, Aishwarya Ganesan, Krishna Chintalapudi, Venkat Padmanabhan, Lili Qiu, ACM Mobicom 2014 September 2014 (**Video Analytics**)
  - *IEEE SMC 1998 -* "A Novel Scheme to Reduce and Determine the Architecture of a Multilayer Perceptron Network,"**,** K.K.Chintalapudi and N.R.Pal, *Proc. of the IEEE Conference on Systems, Man, and Cybernetics, pp. 2034-2040, 1998* (**AI/ML**)
  - *INPSC 1997 -* "Feature selection in a connectionist framework", N.R Pal and K.K Chintalapudi, *International journal of Neural, Parallel and Scientific Computation. Vol.5, pp. (359-382), 1997.* (**AI/ML**)

- **Networking & Systems**
  - *SIGCOMM 2023 -* "Ekho: Synchronizing Cloud Gaming Media Across Multiple Endpoints", Pouya Hamadanian, Doug Gallatin, Mohammad Alizadeh, Krishna Chintalapudi, (**Networking, Cloud Gaming, AR/VR**)
  - *Hotnets 2021 -* "Towards a Cost vs. Quality Sweet Spot for Monitoring Networks", Nofel Yaseen, Behnaz Arzani, Krishna Chintalapudi, Vaishnavi Ranganathan, Felipe Vieira Frujeri, Kevin Hsieh, Daniel S. Berger, Vincent Liu, Srikanth Kandula, *HotNets 2021*, (**DC Networking, Telemetry**)
  - *SIGCOMM 2013-* Dhwani: Secure Peer-to-Peer Acoustic NFC, Krishna Chintalapudi, Venkat Padmanabhan, Ramarathnam Venkatesan, SIGCOMM August 2013 (**NFC, Wireless Communication**)
  - *NSDI 2012 - WiFi-NC -* WiFi Over Narrow Channels, Krishna Chintalapudi, Bozidar Radunovic, Vlad Balan, Michael Buettener, Vishnu Navda, Ramachandran Ramjee, Srinivas Yerramalli, NSDI April 2012 (**Wireless, Networking**)

- **AR/VR**
  - *HotMobile 2018 -* Creating the Perfect Illusion: What will it take to Create Life-Like Virtual Reality Headsets? Eduardo Cuervo, Krishna Chintalapudi, Manikanta Kotaru, HotMobile'18 February 2018 (**AR/VR**)

- **IoT**
  - *NSDI 2023 -* "OpenLoRa: Validating LoRa Implementations through an Extensible and Open-sourced Framework", Manan Mishra, Daniel Koch, Muhammad Osama Shahid, Bhuvana Krishnaswamy, Krishna Chintalapudi, Suman Banerjee, NSDI 2023 (**Networking, IoT**)
  - *SIGCOMM 2021 -* "Concurrent Interference Cancellation: Decoding Multi-Packet Collisions in LoRa", Muhammad Osama Shahid, Millan Philipose, Krishna Chintalapudi, Suman Banerjee, Bhuvana Krishnaswamy*, ACM SIGCOMM 2021*, (**Networking, IoT**)
  - *SIGSPATIAL 2020 -* "Optimizing Onsite Food Services at Scale", Konstantina Mellou, Luke Marshall, Krishna Chintalapudi, Patrick Jaillet, Ishai Menache, *ACM SIGSPATIAL 2020* (**IoT, Optimization**)
  - *Mobicom 2019 -* "Blind Distributed MU-MIMO for IoT Networking over VHF Narrowband Spectrum", Chuhan Gao, Mehrdad Hessar, Krishna Chintalapudi, Bodhi Priyantha, *MobiCom 2019* (**IoT, Networking**)
  - *Mobicom 2012* – Centaur: Locating Devices in an Office Environment, Krishna Chintalapudi, Venkat Padmanabhan, Mobicom August 2012 (**AI/ML, IoT**)
  - *Mobicom 2012 -* Zee: Zero-Effort Crowdsourcing for Indoor Localization, Krishna Kant Chintalapudi, Venkat Padmanabhan, Rijurekha Sen, Mobicom August 2012 (**AI/ML, IoT**)
  - *Mobicom 2010 -* Indoor Localization Without the Pain Krishna Chintalapudi, Anand Padmanabha Iyer, Venkat Padmanabhan, Mobicom September 2010 (**AI/ML, IoT**)
  - *Sensys 2004 -* Ning Xu, Sumit Rangalwala, Krishna Chintalapudi, Deepak Ganeshan, Alan Broad, Ramesh Govindan and Deborah Estrin, "A Wireless Sensor Network for Structural Monitoring," Proc. Sensys 2004. (**IoT**)