Naga V S Raviteja CHAPPA

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Research Interests

Human Behavior Analysis [CVPRW'23, IEEEAccess] with Multimodal Data [WACV'25] and Visual Temporal Modeling [Sensors], Vision-Language Models (VLMs) [MVA], Vision Large Language Models (VLLMs) [IVC], Gen AI, Image Analysis, and Foundational Models [IJCV, CVPR'25]

Education

University of Arkansas, Fayetteville, AR
Ph.D. in Computer Engineering *Jan 2021 - Feb 2025*
- PhD Thesis Title: "Vision-Based Multimodal Approaches in Human Behavior Analysis: Bridging Group Activity Recognition and Healthcare Monitoring" (Advisor: Asst. Prof. Khoa LUU)

Purdue University, Indianapolis, IN
M.S. in Computer Engineering *Aug. 2018 - May 2020*
- Masters Thesis Title: "Squeeze-and-Excitation SqueezeNext: An Efficient DNN for Hardware Deployment" [CCWC'20][MIC'20] (Advisor: Prof. Mohamed El-Sharkawy)

Experience

Children's Hospital of Philadelphia, Philadelphia, PA
Research Post Doc Fellow - Computational Approaches and Machine Learning *Mar 2025 - Present*
- Conducting research at Center for Autism Research (CAR) with video understanding models and developing computational approaches using computer vision and deep learning techniques.

University of Arkansas, Fayetteville, AR
Graduate Research Assistant *Jan 2021 - Feb 2025*
- Conducted research on Group Activity Recognition (Multimodal data {Image, Text and LiDAR}), and Self-supervised Learning.
- Worked on tobacco content moderation with responsible AI using VLMs, VLLMs, and Foundational Models using social media data which is under review for CVPR '25. Also, I curated two large-scale image datasets for this project.

Purdue University, Indianapolis, IN
Graduate Research Assistant *Jan. 2019 - May 2020*
- Enhanced accuracy and training speed for Neural Network Architectures using the PyTorch Framework, implemented on NXP iMX-RT1060 EVKB and NXP BlueBox.
- Developed ADAS systems based on these enhancements and contributed to Radar and Lidar sensors integration and simulation.

Defence Research Development Laboratory, Hyderabad, India
Instrumentation Engineering Intern *May 2017 - July 2017*
- Project titled "Measurement of C-type Thermocouple Using K-type Signal Conditioning Unit" is done on MATLAB by using the standard thermocouple datasheet to obtain the respective thermocouple co-efficients, which are helpful for the conversion of one thermocouple output to other. Performed Static Analysis, Unit testing and Integration testing of this software.

Selected Publication

Journal Articles

- **Chappa, Naga Venkata Sai Raviteja**, Page Daniel Dobbs, and Khoa Luu. Public health advocacy dataset: A dataset of tobacco usage videos from social media. *International Journal of Computer Vision*, 2024. **Under review**
- **Chappa, Naga VS Raviteja**, Page Daniel Dobbs, Bhiksha Raj, and Khoa Luu. Flaash: Flow-attention adaptive semantic hierarchical fusion for multi-modal tobacco content analysis. *Neorocomputing*, 2024. **Under review**
- **Chappa, Naga Venkata Sai Raviteja**, Pha Nguyen, Thi Hoang Ngan Le, Page Daniel Dobbs, and Khoa Luu. Hatt-flow: Hierarchical attention-flow mechanism for group-activity scene graph generation in videos. *Sensors*, 24(11):3372, 2024
- **Chappa, Naga VS**, Pha Nguyen, Page Daniel Dobbs, and Khoa Luu. React: Recognize every action everywhere all at once. *Machine Vision and Applications*, 35(4):102, 2024
- **Chappa, Naga VS**, Pha Nguyen, A. N., H.-S. S., Xin Li, P. D., and Khoa Luu. SoGAR: Self-supervised Spatiotemporal Attention-based Social Group Activity Recognition. *IEEE Access*, 2025
- Ibsa Jalata, **Chappa, Naga Venkata Sai Raviteja**, Thanh-Dat Truong, Pierce Helton, Chase Rainwater, and Khoa Luu. Eqadap: Equipollent domain adaptation approach to image deblurring. *IEEE Access*, 10:93203–93211, 2022

Conference Papers

- Naga VS Raviteja Chappa, Matthew Shepard, Connor McCurtain, Charlotte McCormick, Page Daniel Dobbs, and Khoa Luu. Defend: A large-scale 1m dataset and foundation model for tobacco addiction prevention. *arXiv e-prints*, pages arXiv–2501, 2025. **Under review**
- **Chappa, Naga Venkata Sai Raviteja** and Khoa Luu. Ligar: Lidar-guided hierarchical transformer for multi-modal group activity recognition. *In IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 2025
- **Chappa, Naga VS Raviteja**, Charlotte McCormick, Susana Rodriguez Gongora, Page Daniel Dobbs, and Khoa Luu. Advanced deep learning techniques for tobacco usage assessment in tiktok videos. In *2024 IEEE Green Technologies Conference (GreenTech)*, pages 162–163. IEEE, 2024
- **Chappa, Naga VS**, Pha Nguyen, Alexander Nelson, H.-S. S., Xin Li, Page Dobbs, and Khoa Luu. SPARTAN: Spatiotemporal Transformers Approach to Self-supervised Group Action Recognition. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2023. **3rd Place Award**
- Thanh-Dat Truong, **Chappa, Ravi Teja NVS**, Xuan-Bac Nguyen, Ngan Le, Ashley PG Dowling, and Khoa Luu. Otadapt: Optimal transport-based approach for unsupervised domain adaptation. In *2022 26th international conference on pattern recognition (ICPR)*, pages 2850–2856. IEEE, 2022
- **Chappa, Ravi Teja NVS** and Mohamed El-Sharkawy. Deployment of se-squeezenext on nxp bluebox 2.0 and nxp i. mx rt1060 mcu. In *2020 IEEE Midwest Industry Conference (MIC)*, volume 1, pages 1–4. IEEE, 2020
- **Chappa, Ravi Teja NVS** and Mohamed El-Sharkawy. Squeeze-and-excitation squeezenext: An efficient dnn for hardware deployment. In *2020 10th Annual Computing and Communication Workshop and Conference (CCWC)*, pages 0691–0697. IEEE, 2020
- **Chappa, Ravi Teja NVS**, Bhaskara Rao Jammu, Maheswari Adimulam, and Maneesh Ayi. Vlsi implementation of ltssm. In *2017 International conference of Electronics, Communication and Aerospace Technology (ICECA)*, volume 1, pages 129–134. IEEE, 2017

Technical Skills

Proficient: Computer Vision, Deep Learning, JavaScript, MATLAB, Python, C/C++, LaTeX
Familiar: React.js, Node.js, Software Deployment, Embedded Systems, Mobile App Development

Honors and Awards

UARK Doctoral Student Presentation Travel Grant *June 2023*
21st Century Research Leadership Award and Fellowship *Jan 2023, Aug 2022*
Cora E. Sanders Memorial Graduate Fellowship *Jan 2025*
Reginald R. "Barney" & Jameson A. Baxter Graduate Fellowship *Aug 2024, Jan 2024, Aug 2023*
Third Prize, CVSports Workshop at CVPR 2023 *June 2023*

Successful Grants

Arkansas Bioinformatics Institute Grant	(Budget: 35k$)	2024-2025
NSF-SCH Grant (Under Review)	(Budget: 3M$)	2025-2029
USC-TCORS Grant (Under Review)	(Budget: 50k$)	2025-2026
Blue & You Foundation Grant (Under Review)	(Budget: 200k$)	2025-2027

Teaching Experience

Computer Architecture (Instructor: *Prof. David Andrews*)
Graduate Teaching Assistant *Jan 2022 - May 2022*

Digital System Design (Instructor: *Prof. Lauren Christopher*)
Graduate Teaching Assistant *Aug 2018 - Dec 2018*

Professional Services

Conference Reviewer at CVPR 2023-2025, ICCV 2023, ECCV 2024, NeurIPS 2024, AAAI 2025, ICLR 2025, WACV 2025, ICML 2025
Journal Reviewer for IEEE Access, Multimedia Tools and Applications, IEEE Transactions on Circuits and Systems for Video Technology
Student Member at Institute of Electrical and Electronics Engineers

Invited Talks

SPARTAN: Self-supervised Spatiotemporal Transformers Approach to Group Activity Recognition, IEEE/CVF CVPR Workshop - CVSports *June 2023*