

# NAGA VS RAVITEJA CHAPPA

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## SUMMARY

A highly motivated and aspiring doctoral student with a focus on Computer Vision/ Machine Learning/ Autonomous Embedded Systems, eagerly looking for an opportunity to tackle challenges in all aspects of computer vision applications including human behavior analysis and group activity recognition.

## EDUCATION

Doctor of Philosophy, Computer Engineering  
University of Arkansas Fayetteville -GPA: 3.76

Jan 2021 - May 2025    Fayetteville, Arkansas

Masters of Science, Electrical and Computer Engineering

Purdue School of Engineering and Technology -GPA: 3.47

August 2018 - May 2020    Indianapolis, Indiana

## EXPERIENCE

Research Assistant

Computer Vision and Image Understanding Laboratory

January 2021 - Present    Fayetteville, Arkansas

- Working towards the development of deep learning algorithms for *behavioral analysis* in the task of *Group Activity Recognition (GAR)* which is a part of *Autism Children Group Behavior Analysis* project. Also have hands-on experience working on Image deblurring techniques, Image segmentation and domain adaptation methods.
- My work based on self-supervised approach for GAR using Volleyball and NBA datasets is accepted to CVPRW 2023, Vancouver, Canada. Currently, I have two submissions for CVPR 2024 in the topics: action retrieval and video scene graph generation.

Research Assistant

IoT Collaboratory

January 2019 - May 2020    Indianapolis, Indiana

- Worked towards the enhancement of accuracy and training speed for Neural Network Architectures using PyTorch Framework along with its implementation on NXP iMX-RT1060 EVKB and NXP BlueBox. I developed ADAS systems using this enhancements and also worked with Radar and Lidar sensors integration and simulation.

Instrumentation Engineering Intern

Defence Research Development Laboratory

May 2017 - July 2017    Hyderabad, India

- 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.

## TECHNICAL SKILLS

- Python, Pytorch, Tensorflow
- Git, Bitbucket
- NXP S32DS, MCUXpresso, Eclipse, Keil uVision, Multisim
- MATLAB and Simulink- MBDD Toolbox
- Microsoft Visual Studio, MS Office
- Xilinx SDK, Vivado, ISE
- LabView, MentorGraphics, Solidworks
- Linux OS (Fedora/Ubuntu/CentOS)
- Verilog/System Verilog, VHDL

## PUBLICATIONS

**SPARTAN: Self-Supervised Spatiotemporal Transformers Approach to Group Activity Recognition** (CVPRW 2023)

**SoGAR: Self-supervised Spatiotemporal Attention-based Social Group Activity Recognition** (Under review for PR journal)

**REACT: Recognize Every Action Everywhere All At Once** (Under review for ISVC journal)

**HAtt-Flow: Hierarchical Attention-Flow Mechanism for Group Activity Scene Graph Generation in Videos** (Under review for Sensors journal)

Please visit <https://nchappa.github.io/publications/> for more information about each publication.

## PROJECTS

**Alexa Controlled Drone Using Amazon Web Services**

- Used NXP LPC54018 IoT module and iMX-RT1060 microcontrollers for reading the voice input and controlling the drone respectively.

**Implementation of YOLOv3 using Bluebox and RTMaps**

- Built and tested YOLOv3 using Tensorflow framework on RTX 2080Ti GPU.

**Design and Implementation of Music Synthesizer**

- Built a music keyboard on Zynq-7000 board with different buttons assigned with different audio frequencies using channel equalization.
- Controlled the gains of audio inputs from multiple sources using Xilinx Vivado and Xilinx SDK.

**EMC Testing for an Automotive ECU**

- Built a testing unit using modeling of signal processing and digital communications in Matlab. Later, developed the same unit in C++ using Keil uVision.