# Shivanand Kundargi

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## Education

**University of Maryland, Baltimore County (UMBC)** **Aug 2024 – Present**
*Ph.D. in Computer Science (Advisor: Dr. Tejas Gokhale), GPA: 3.83* *Baltimore, MD*
Relevant coursework: Robust ML, NLP, Neural Networks, Machine Learning.

**KLE Technological University** **Aug 2019 – Aug 2023**
*B.E. in Electronics and Communication, GPA: 3.68* *Hubballi, India*
Relevant coursework: Advanced Computer Vision, Signal Processing, Calculus, Algorithms.

## Research Focus

Continual Learning; Concept-based learning and interpretability; Open-world learning; Machine unlearning; Mechanistic interpretability; Robustness and calibration.

## Experience

**Lawrence Livermore National Laboratory (LLNL)** **Summer 2025**
*Research Scientist Intern, Machine Intelligence Group (Mentors: Dr. Kowshik Thopalli, Dr. Vivek) Livermore, CA*

- Developed and evaluated continual learning methods using concept-guided selection mechanisms; produced reproducible experiment pipelines and ablation suites.
- Ran controlled studies across datasets and continual learning settings; reported accuracy/forgetting/calibration trade-offs and runtime behavior.

**University of Maryland, Baltimore County (UMBC)** **Aug 2024 – Present**
*Graduate Research Assistant (Dr. Tejas Gokhale) / Teaching Assistant (CMSC 331, Fall 2024)* *Baltimore, MD*

- Proposed and implemented concept-guided continual learning pipelines; benchmarked across regularization, replay, and prompt-based baselines.
- TA responsibilities: led office hours, grading, and student support; contributed to course logistics and assessment quality.

**Indian Institute of Technology Hyderabad (IITH)** **Aug 2023 – Aug 2024**
*Research Associate, Machine Learning and Vision Group (Advisor: Dr. Vineeth Balasubramanian) Hyderabad, India*

- Worked on Novel Class Discovery / Generalized Category Discovery; implemented baselines, training protocols, and evaluations for open-world settings.
- Produced experiment reports and comparisons that informed research direction and manuscript-level positioning.

**Bosch Global Software Technologies** **May 2022 – July 2022**
*Intern (Safety-Critical Automotive Systems)* *Bengaluru, India*

- Contributed to safety-critical automotive functionality (Anti-pinch); implemented and validated components under engineering constraints.

## Publications (Selected)

- **SACK: Sequentially Acquiring Concepts to Guide Continual Learning**
  **Shivanand Kundargi**, Kowshik Thopalli, Tejas Gokhale. `Workshop on Visual Concepts @ CVPR, 2025.`
  Under submission at `IJCV (International Conference of Computer Vision) Journal`
- **A Benchmark Grocery Dataset of Real-World Point Clouds from Single View**
  Shivanand Sheshappanavar, Tejas Anvekar, **Shivanand Kundargi**, Yufan Wang, Chandra Kambhamettu.
  `International Conference on 3D Vision, 2024`
- **Novel Class Discovery for Representation of Real-World Heritage Data as Neural Radiance fields (Student Abstract)**

**Shivanand Kundargi**, Tejas Anvekar, Ramesh Tabib, Uma Mudenagudi.
`The 38th Annual AAAI Conference on Artificial Intelligence`

- **PointCLIMB: An Exemplar-Free Point Cloud Class Incremental Benchmark**
  **Shivanand Kundargi**, Tejas Anvekar, Ramesh Tabib, Uma Mudenagudi. `CLVision Workshop @ CVPR, 2023`
- **APX: Adaptive Pixel Clustering for Seamless Marine Object Detection**
  **Shivanand Kundargi**, Tejas Anvekar, Ramesh Tabib, Uma Mudenagudi. `MaCVi Workshop @ WACV, 2023`

## Other Research Projects

**Safety Alignment of Large Language Models via Mechanistic Interpretability** **UMBC, 2025**

- Built an end-to-end jailbreak analysis and steering based defence pipeline on HarmBench prompts using pretrained LLMs and Sparse Autoencoders (SAEs).
- Developed multiple steering strategies as a defence strategy against jailbreak.

**Can Unlearning Mitigate Adversaries in Continual Learning?** **UMBC, 2024–2025**

- Formulated a research question connecting unlearning and adversarial robustness in continual learning; designed initial protocol and baselines.
- Implemented early experiments to measure attack impact and potential mitigation strategies under continual data shifts.

**Non-monotonic Reasoning for Context Shift in LLM/LMM Conversations** **UMBC, 2025**

- Investigated failures under context shift; designed reasoning-chain variants to reduce over-reliance on stale conversational context.

**Can Vision Language Models Actually Walk the Talk?** **UMBC 2025**

- Conducted an interpretability study of OpenVLA-7B by building an end-to-end concept analysis pipeline (3,000+ concepts from Bridge V2; multi-layer linear probing), achieving >95

## Technical Skills

- **Languages:** Python, C++, C, MATLAB
- **ML/Research:** PyTorch, TensorFlow, Transformers, TransformerLens, SAE Lens, Detectron2
- **Tools:** LaTeX, Git/GitHub, Linux, VS Code, Zotero, Mendeley, Obsidian
- **Engineering:** Simulink, Stateflow

## Academic Service

- **Conference Program Committee:** CVPR 2025; AAAI 2025; CoLLAs 2025; ELAMI workshop @ MICCAI 2025
- **Journal Reviewer:** Pattern Recognition; Intelligent Decision Technologies; International Journal of Computer Vision (IJCV)

## Awards

- AAAI 2024 Student Scholarship / Volunteer Program: Travel Grant ($1700; declined)
- Smart India Hackathon (Senior Software Edition): Winner (2022) – Team lead (6); winners among 60+ teams
- Encode Hackathon (BOSCH, IIT Guwahati): Winner (2022) – Team lead (4); winners among 200+ teams
- MaCVi Challenge @ WACV: 12th place (2022)

## Media

Interview with Ministry of Education (Government of India): "How to ace hackathons"

## References

Available upon request.