Gopal **Sharma**

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Education

University of Massachusetts, Amherst — *Amherst, MA, USA*
PhD in Computer Science (GPA: 3.95 / 4.0) — *2016 - PRESENT*

Indian Institute of Technology (IIT), Roorkee — *Roorkee, India*
B.Tech. in Electrical Engineering (GPA: 8.6 / 10.0) — *2012 - 2016*

Skills

- **Programming Languages:** Python, C++, Matlab
- **Scientific Computing:** Pytorch, TensorFlow, Keras, Scipy, Scikit-Learn, OpenCV, Eigen, OpenMP
- **Tools:** Git, Emacs, LaTeX, Visual Studio
- **Courses:** Machine Learning, Intelligent Visual Computing, Probabilistic Graphical Models, Deep Learning, Reinforcement Learning, Mathematical Statistics, Convex Optimization.

Publications

Conference Papers

- SurFit*: : Learning to Fit Surfaces Improves Few Shot Learning on Point Clouds* **Sharma, Gopal**, Dash, Bidya, Gadelha, Matheus, Roy-Chowdhury, Aruni, Loizou, Marios, Kalogerakis, Evangelos, Cao, Liangliang, Learned-Miller, Erik, Wang, Rui, and Subhransu, Maji. Under review 3DV 2021.
- *ParSeNet: A Parametric Surface Fitting Network for 3D Point Clouds* . **Sharma Gopal**, Liu Difan, Kalogerakis Evangelos, Maji Subhransu, Chaudhuri Siddhartha and Měch Radomír. In 2020 IEEE/CVF European Conference on Computer Vision (ECCV).
- *Label-Efficient Learning on Point Clouds using Approximate Convex Decompositions* . Gadelha Matheus, RoyChowdhury Aruni, **Sharma Gopal**, Kalogerakis Evangelos, Cao Liangliang, Learned-Miller Erik, Wang Rui and Maji Subhransu. In 2020 IEEE/CVF European Conference on Computer Vision (ECCV).
- *Search-Guided, Lightly-supervised Training of Structured Prediction Energy Networks.* Amirmohammad Rooshenas, Dongxu Zhang, **Sharma Gopal** and Andrew McCallum. In 2019 Conference on Neural Information Processing Systems (NeurIPS).
- *Learning Point Embeddings from Shape Repositories for Few-Shot Semantic Segmentation.* **Sharma Gopal**, Kalogerakis Evangelos and Maji Subhransu. In 2019 International Conference on 3D Vision (3DV).
- *CSGNet: Neural Shape Parser for Constructive Solid Geometry.* **Sharma Gopal**, Goyal Rishabh, Liu Difan, Kalogerakis Evangelos and Maji Subhransu. In 2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR).
- *Persistent Aerial Tracking system for UAVs.* Mueller Matthias, **Sharma Gopal**, Smith Neil and Ghanem Bernard. In 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

Journal Paper

- *Neural Shape Parsers for Constructive Solid Geometry.* **Sharma Gopal**, Goyal Rishabh, Liu Difan, Kalogerakis Evangelos and Maji Subhransu. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).

Research Experience

Self-supervised learning for 3D shape segmentation — *Nvidia, Toronto*
Research Internship — *May-Sep 2021*
- Worked on self-supervised learning for 3D shape segmentation using contrastive learning for fine-grained semantic segmentation.

Parametric Surface Fitting — *Adobe, San Jose, CA*
Research Internship — *May-Aug 2019*
- Worked on parametric surface fitting for 3D point cloud. Developed differentiable pipeline to fit bspline surface patches to point cloud.

Learning Visual Programs — *UMass*
Research Assistantship — *2018*
- The aim of the project is to induce programs using neural networks for visual softwares like Photoshops, Blender, Maya etc. We have done preliminary expriments for Constructive Solid Geometry that can generate programs of large lengths.

Exploring LSTMs for shape recognition *UMass*

Research Assistantship *Sep 2016 Feb 2017*

- The aim of the project is to exploit the sequential information present in uniformly rendered images from 3D shapes. We used LSTMs for processing sequentially rendered images for 3D shape recognition and retrieval tasks.

Activity recognition and Object tracking *KAUST*

Summer Internship *May July 2015*

- **Persistent Object tracking:** Experimentally demonstrated persistent object tracking methodology for swarm of UAVs. Developed a novel algorithm (C++ and python) to use object proposals (BING) for object tracking, based on the existing object trackers.

Word recognition in natural scene images *IIIT*

Summer Internship *May July 2016*

- Developed algorithms based on CNNs and bidirectional LSTMs to detect and recognize words in unconstrained natural scenes.

References

- Subhransu Maji (smaji@cs.umass.edu)
- Evangelos Kalogerakis (kalo@cs.umass.edu)

More references available upon request.

UMassAmherst

Unofficial Transcript

Name: **Gopal Sharma**
Student ID: **30522680**

Birthdate: 03-11

Beginning of Graduate Record

Fall 2016

Program: Computer Science
Major: Computer Science (MS)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	689	Machine Learning	3.000	3.000	A	12.000
COMPSCI	690IV	Intelligent Visual Computing	3.000	3.000	A	12.000
COMPSCI	696	Independent Study	3.000	3.000	A	12.000

			Attempted	Earned	GPA Units	Points
Term GPA:	4.000	Term Totals:	9.000	9.000	9.000	36.000
Cum GPA:	4.000	Cum Totals:	9.000	9.000	9.000	36.000

Spring 2017

Program: Computer Science
Major: Computer Science (MS)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	677	Distributed&Operating Systems	3.000	3.000	A	12.000
COMPSCI	688	Probabilistic Graphical Models	3.000	3.000	A-	11.100

			Attempted	Earned	GPA Units	Points
Term GPA:	3.850	Term Totals:	6.000	6.000	6.000	23.100
Cum GPA:	3.940	Cum Totals:	15.000	15.000	15.000	59.100

Fall 2017

Program: Computer Science
Major: Computer Science (MS)

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	687	Reinforcement Learning	3.000	3.000	A	12.000
STATISTC	607	Math Statistics I	0.000	0.000	AUD	0.000

			Attempted	Earned	GPA Units	Points
Term GPA:	4.000	Term Totals:	3.000	3.000	3.000	12.000
Cum GPA:	3.950	Cum Totals:	18.000	18.000	18.000	71.100

Spring 2018

Program: Computer Science
Major: Computer Science (MS)

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	701	Advanced Topics Computer Sci	6.000	6.000	A	24.000
STATISTC	608	Math Statistics II	0.000	0.000	AUD	0.000

UMassAmherst

Unofficial Transcript

Name: **Gopal Sharma**
Student ID: **30522680**

				Attempted	Earned	GPA Units	Points
	Term GPA:	4.000	Term Totals:	6.000	6.000	6.000	24.000
	Cum GPA:	3.963	Cum Totals:	24.000	24.000	24.000	95.100

Fall 2018

Program: Computer Science
Major: Computer Science (MS)

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	611	Advanced Algorithms	3.000	3.000	A-	11.100

				Attempted	Earned	GPA Units	Points
	Term GPA:	3.700	Term Totals:	3.000	3.000	3.000	11.100
	Cum GPA:	3.933	Cum Totals:	27.000	27.000	27.000	106.200

Spring 2019

Program: Computer Science
Major: Computer Science (MS)

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	690OP	Optimization for Computer Scie	3.000	3.000	A	12.000
COMPSCI	696	Independent Study	3.000	3.000	A	12.000

				Attempted	Earned	GPA Units	Points
	Term GPA:	4.000	Term Totals:	6.000	6.000	6.000	24.000
	Cum GPA:	3.945	Cum Totals:	33.000	33.000	33.000	130.200

Fall 2019

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
CICS	596T	IS- CPT	1.000	1.000	SAT	0.000

				Attempted	Earned	GPA Units	Points
	Term GPA:	0.000	Term Totals:	1.000	1.000	0.000	0.000
	Cum GPA:	3.945	Cum Totals:	34.000	34.000	33.000	130.200

Spring 2020

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	696	Independent Study	3.000	3.000	A	12.000
MATH	563H	Differential Geometry	0.000	0.000	AUD	0.000

UMassAmherst

Unofficial Transcript

Name: **Gopal Sharma**
Student ID: **30522680**

			Attempted	Earned	GPA Units	Points
Term GPA:	4.000	Term Totals:	3.000	3.000	3.000	12.000
Cum GPA:	3.950	Cum Totals:	37.000	37.000	36.000	142.200

Fall 2020

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	899	Ph D Dissertation	9.000	0.000	IP	0.000
MATH	645	Diff Eq&Dynmc Sys I	0.000	0.000	AUD	0.000
MATH	651	Int Numrcl Analys I	0.000	0.000	AUD	0.000

			Attempted	Earned	GPA Units	Points
Term GPA:	0.000	Term Totals:	9.000	0.000	0.000	0.000
Cum GPA:	3.950	Cum Totals:	46.000	37.000	36.000	142.200

Spring 2021

Program: Computer Science
Major: Computer Science (PhD)

Course		Description	Attempted	Earned	Grade	Points
COMPSCI	899	Ph D Dissertation				
MATH	652	Int Numrcl Anlys II				

Graduate Career Totals

			Attempted	Earned	GPA Units	Points
Cum Enrollment GPA:	**3.950**	**Cum Enrollment Totals:**	**46.000**	**37.000**	**36.000**	**142.200**
Transfer Cum GPA:		**Transfer Totals:**	**0.000**	**0.000**	**0.000**	**0.000**
Combined Cum GPA:	**3.950**	**Combined Totals:**	**46.000**	**37.000**	**36.000**	**142.200**

Non-Course Milestones

Program: Computer Science
Preliminary Comprehensive Exam
Status: Completed
Date Completed: 04/26/2019
Date Attempted: 04/26/2019 Completed
Exam Taken

Doctoral Candidacy Requirements Met
Status: Completed
Date Completed: 05/10/2019

Degrees Awarded

Degree: Master of Science
Confer Date: 05/10/2019
Plan: Computer Science (MS)

End of Unofficial Transcript