Srinath Sridhar

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Professional Experience

Sep 2020– **Assistant Professor of Computer Science, Brown University**, *Providence, USA*.

Oct 2020– **Visiting Academic, Amazon Robotics LLC**, *USA*.

2017–2020 **Postdoctoral Researcher, Stanford University**, *Stanford, USA*.
Advisor: Leonidas Guibas. Stanford Artificial Intelligence Laboratory (SAIL).

2015–2016 **Research Intern, Microsoft Research Redmond**, *Seattle, USA*.
Mentor: Shahram Izadi. Interactive 3D Vision (i3D) Group.

May–Dec 2011 **Research Intern, Honda Research Institute Inc.**, *Mountain View, USA*.
Mentor: Victor Ng-Thow-Hing.

Education

2012–2016 **Max Planck Institute for Informatics / Saarland University**, *Saarbruecken, Germany*.

Dec 2016 Ph.D. in Computer Science.
Dissertation: "Tracking Hands in Action for Gesture-based Computer Input."
Advisors: Christian Theobalt, Antti Oulasvirta.
Committee: Bernt Schiele, Hao Li, Hans-Peter Seidel (Chair).

2010–2012 **University of Michigan**, *Ann Arbor, USA*.

Apr 2012 M.S.E. in Electrical Engineering: Systems.
Major: Computer Vision, Minor: Computer Science.

2006–2010 **College of Engineering Guindy, Anna University**, *Chennai, India*.

May 2010 B.E. in Geoinformatics.

Awards & Fellowships

2022 **NSF CAREER** award.

2021 **Judith H. Zern 1964 Endowed Teaching Fund** for course development.

2021 **Outstanding Reviewer**, CVPR 2021.

2021 **Google Research Scholar** Award 2021. The only recipient worldwide in augmented/virtual reality category.

2019 **Best Paper Honorable Mention** at Eurographics 2019.

2018 Selected as a young researcher to participate in the **Heidelberg Laureate Forum 2018**.

2017 **Best Poster Award**, ICCV HANDS Workshop 2017.

2016 Selected to participate in the doctoral consortium and received a **travel grant for CVPR 2016**.

2013 **ACM Student Travel Grant** for CHI 2013.

2012–2016 **Max Planck Fellowship** for PhD studies.

2011–2012 **Rackham International Student Fellowship**, University of Michigan, Ann Arbor.

2009 **Best Project Award**, *Single View Reconstruction of Buildings*, IIT Delhi. ▶

Publications Google Scholar

Ⓟ Ph.D. advisee, Ⓤ Masters/Undergraduate advisee, Ⓥ Visiting Graduate/Undergraduate advisee. Icons (▶, 🗎, g) are hyperlinks to webpages or explanatory videos.

Conference Papers (Peer-reviewed)

2023

[P.30] Qiuhong Anna Wei Ⓤ, Sijie Ding Ⓤ, Jeong Joon Park, Rahul Sajnani Ⓟ, Adrien Poulenard, **Srinath Sridhar**, Leonidas Guibas. *LEGO-Net: Learning Regular Rearrangements of Objects in Rooms*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2023. 🗎

[P.29] Rohith Agaram Ⓥ, Shaurya Dewan, Rahul Sajnani Ⓟ, Adrien Poulenard, Madhava Krishna, **Srinath Sridhar**. *Canonical Fields: Self-Supervised Learning of Pose-Canonicalized Neural Fields*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2023. 🗎

[P.28] Aditya Sanghi, Rao Fu Ⓟ, Vivian Liu, Karl Willis, Hooman Shayani, Amir Hosein Khasahmadi, **Srinath Sridhar**, Daniel Ritchie. *CLIP-Sculptor: Zero-Shot Generation of High-Fidelity and Diverse Shapes from Natural Language*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2023.

[P.27] Bipasha Sen*, Aditya Agarwal*, Gaurav Singh*, Brojeshwar B., **Srinath Sridhar**, Madhava Krishna. *SCARP: 3D Shape Completion in ARbitrary Poses for Improved Grasping*. IEEE International Conference on Robotics and Automation (**ICRA**) 2023. 🗎

2022

[P.26] Rao Fu Ⓟ, Xiao Zhan Ⓤ, Yiwen Chen Ⓤ, Daniel Ritchie, **Srinath Sridhar**. *ShapeCrafter: A Recursive Text-Conditioned 3D Shape Generation Model*. Conference on Neural Information Processing Systems (**NeurIPS**) 2022. 🗎

[P.25] Xianghao Xu, Yifan Ruan, **Srinath Sridhar**, Daniel Ritchie. *Unsupervised Kinematic Motion Detection for Part-segmented 3D Shape Collections*. ACM Transactions on Graphics (**SIGGRAPH**) 2022. 🗎

[P.24] Rahul Sajnani Ⓥ, Adrien Poulenard, Jivitesh Jain, Radhika Dua, Leonidas J. Guibas, **Srinath Sridhar**. *ConDor: Self-Supervised Canonicalization of 3D Pose for Partial Shapes*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2022. 🗎 ▶

[P.23] Yiheng Xie Ⓤ, Towaki Takikawa, Shunsuke Saito, Or Litany, Shiqin Yan, Numair Khan, Federico Tombari, James Tompkin, Vincent Sitzmann^{+}, **Srinath Sridhar**$^{+}$. *Neural Fields in Visual Computing and Beyond*. Eurographics State of the Art Report (**Eurographics STAR**) 2022 [$^{+}$ indicates equal advising]. 🗎

2021

[P.22] Davis Rempe Ⓟ, Tolga Birdal, Aaron Hertzmann, Jimei Yang, **Srinath Sridhar**, Leonidas J. Guibas. *HuMoR: 3D Human Motion Model for Robust Pose Estimation*. International Conference on Computer Vision (**ICCV**) 2021 [**oral presentation**]. 🗎 ▶

[P.21] Rahul Sajnani Ⓥ, AadilMehdi Sanchawala Ⓥ, Krishna Murthy Jatavallabhula, **Srinath Sridhar**, K. Madhava Krishna. *DRACO: Weakly Supervised Dense Reconstruction and Canonicalization of Objects*. International Conference on Robotics and Automation (**ICRA**) 2021.

[P.20] Zhangsihao Yang Ⓥ, Or Litany, Tolga Birdal, **Srinath Sridhar**, Leonidas J. Guibas. *Continuous Geodesic Convolutions for Learning on 3D Shapes*. Winter Conference on Applications of Computer Vision (**WACV**) 2021.

[P.19] Or Litany, Ari Morcos, **Srinath Sridhar**, Leonidas J. Guibas, Judy Hoffman. *Representation Learning Through Latent Canonicalizations*. Winter Conference on Applications of Computer Vision (**WACV**) 2021.

2020

[P.18] Davis Rempe Ⓟ, Tolga Birdal, Yongheng Zhao, Zan Gojcic, **Srinath Sridhar**, Leonidas J. Guibas. *CaSPR: Learning Canonical Spatiotemporal Point Cloud Representations*. Conference on Neural Information Processing Systems (**NeurIPS**) 2020.

[P.17] Jiahui Lei Ⓥ, **Srinath Sridhar**, Paul Guerrero, Minhyuk Sung, Niloy Mitra, Leonidas J. Guibas. *Pix2Surf: Learning Parametric 3D Surface Models of Objects from Images*. European Conference on Computer Vision (**ECCV**) 2020.

[P.16] Davis Rempe Ⓟ, **Srinath Sridhar**, He Wang, Leonidas J. Guibas. *Predicting the Physical Dynamics of Unseen 3D Objects*. Winter Conference on Applications of Computer Vision (**WACV**) 2020.

2019

[P.15] **Srinath Sridhar**, Davis Rempe Ⓟ, Julien Valentin, Sofien Bouaziz, Leonidas J. Guibas. *Multiview Aggregation for Learning Category-Specific Shape Reconstruction*. Conference on Neural Information Processing Systems (**NeurIPS**) 2019.

[P.14] He Wang Ⓟ, **Srinath Sridhar**, Jingwei Huang, Julien Valentin, Shuran Song, Leonidas J. Guibas. *Normalized Object Coordinate Space for Category-Level 6D Object Pose and Size Estimation*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2019 [**oral presentation**].

[P.13] Davis Rempe Ⓟ, **Srinath Sridhar**, He Wang, Leonidas J. Guibas. *Learning Generalizable Physical Dynamics of 3D Rigid Objects*. Workshop on 3D Scene Understanding for Vision, Graphics and Robotics, **CVPRW** 2019.

[P.12] He Wang* Ⓟ, Soeren Pirk*, Ersin Yumer, Vladimir Kim, Ozan Sener, **Srinath Sridhar**, Leonidas J. Guibas. *Learning a Generative Model for Multi-Step Human-Object Interactions from Videos*. **Eurographics** 2019. (* equal contribution) [**best paper honorable mention**]

2018

[P.11] Dushyant Mehta, Oleksandr Sotnychenko, Franziska Mueller Ⓟ, Weipeng Xu, **Srinath Sridhar**, Gerard Pons-Moll, Christian Theobalt. *Single-Shot Multi-Person 3D Body Pose Estimation From Monocular RGB Input*. **3DV** 2018.

[P.10] Franziska Mueller Ⓟ, Florian Bernard, Oleksandr Sotnychenko, Dushyant Mehta, **Srinath Sridhar**, Dan Casas, Christian Theobalt. *GANerated Hands for Real-time 3D Hand Tracking from Monocular RGB*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2018.

2017

[P.9] Franziska Mueller Ⓟ, Dushyant Mehta, Oleksandr Sotnychenko, **Srinath Sridhar**, Dan Casas, Christian Theobalt. *Real-time Hand Tracking under Occlusion from an Egocentric RGB-D Sensor*. International Conference on Computer Vision (**ICCV**) 2017.

[P.8] Dushyant Mehta, **Srinath Sridhar**, Oleksandr Sotnychenko, Helge Rhodin, Mohammad Shafiei, Hans-Peter Seidel, Weipeng Xu, Dan Casas, Christian Theobalt. *VNect: Real-time 3D Human Pose Estimation with a Single RGB Camera*. ACM Transactions on Graphics (**SIGGRAPH**) 2017.

[P.7] **Srinath Sridhar**, Anders Markussen, Antti Oulasvirta, Christian Theobalt, Sebastian Boring. *WatchSense: On- and Above-Skin Input Sensing through a Wearable Depth Sensor*. SIGCHI Conference on Human Factors in Computing Systems (**CHI**) 2017.

2016

[P.6] **Srinath Sridhar**, Franziska Mueller Ⓟ, Michael Zollhöfer, Dan Casas, Antti Oulasvirta, Christian Theobalt. *Real-time Joint Tracking of a Hand Manipulating an Object from RGB-D Input*. European Conference on Computer Vision (**ECCV**) 2016.

2015

[P.5] **Srinath Sridhar**, Franziska Mueller Ⓟ, Antti Oulasvirta, Christian Theobalt. *Fast and Robust Hand Tracking Using Detection-Guided Optimization*. Conference on Computer Vision and Pattern Recognition (**CVPR**) 2015.

[P.4] **Srinath Sridhar**, Anna Maria Feit, Christian Theobalt, Antti Oulasvirta. *Investigating the Dexterity of Multi-Finger Input for Mid-Air Text Entry*. SIGCHI Conference on Human Factors in Computing Systems (**CHI**) 2015.

2014

[P.3] **Srinath Sridhar**, Helge Rhodin, Hans-Peter Seidel, Antti Oulasvirta, Christian Theobalt. *Real-time Hand Tracking Using a Sum of Anisotropic Gaussians Model*. International Conference on 3D Vision (**3DV**) 2014 [**oral presentation**].

2013

[P.2] **Srinath Sridhar**, Antti Oulasvirta, Christian Theobalt. *Interactive Markerless Articulated Hand Motion Tracking using RGB and Depth Data*. International Conference on Computer Vision (**ICCV**) 2013.

[P.1] Victor Ng-Thow-Hing, Karlin Bark, Lee Beckwith, Cuong Tran, Rishabh Bhandari, **Srinath Sridhar**. *User-Centered Perspectives for Automotive Augmented Reality*. International Symposium on Mixed and Augmented Reality (**ISMAR**) 2013.

Other Papers, Posters, Technical Reports, and Blog Posts

[O.9] Ge Zhang, Or Litany, **Srinath Sridhar**, Leonidas J. Guibas. *StrobeNet: Category-Level Multiview Reconstruction of Articulated Objects*. **arXiv**, 2021.

[O.8] **Srinath Sridhar**. *Learning to Generate Human–Object Interactions*. Stanford AI Lab Blog, 2019.

[O.7] **Srinath Sridhar**, Gilles Bailly, Elias Heydrich, Antti Oulasvirta, Christian Theobalt. *FullHand: Markerless Skeleton-based Tracking for Free-Hand Interaction*. MPI-I-2016-4-002. Saarbrücken: Max-Planck-Institut für Informatik 2016.

[O.6] Anna Maria Feit, **Srinath Sridhar**, Christian Theobalt, Antti Oulasvirta. *Investigating Multi-Finger Gestures for Mid-Air Text Entry*. Womencourage 2015.

[O.5] Anna Maria Feit, Myroslav Bachynskyi, **Srinath Sridhar**. *Towards Multi-Objective Optimization for UI Design*. Workshop on Principles, Techniques and Perspectives on Optimization and HCI, **CHI** 2015.

[O.4] **Srinath Sridhar**, Antti Oulasvirta, Christian Theobalt. *Fast Tracking of Hand and Finger Articulations Using a Single Depth Camera*. MPI-I-2014-4-002. Saarbrücken: Max-Planck-Institut für Informatik 2014.

[O.3] **Srinath Sridhar**. *HandSonor: A Customizable Vision-based Control Interface for Musical Expression*. SIGCHI Conference on Human Factors in Computing Systems (**CHI**) 2013.

[O.2] **Srinath Sridhar**, Victor Ng-Thow-Hing. *Generation of Virtual Display Surfaces for In-vehicle Contextual Augmented Reality*. International Symposium on Mixed and Augmented Reality (**ISMAR**) 2012.

[O.1] **Srinath Sridhar**, Vineet Kamat. *CAMFPLAN: A Real-time Markerless Camera Pose Estimation System for Augmented Reality*. UMCEE Report No. 11-01, Department of Civil and Environmental Engineering, University of Michigan, Ann Arbor 2012.

Patents

[A.1] Victor Ng-Thow-Hing, **Srinath Sridhar**. *Method to Generate Virtual Display Surfaces from Video Imagery of Road based Scenery*. U.S. Patent, US9135754 B2, 2015. Licensed by Honda Motor Co., Ltd.

Mentorship

Doctoral Students

2022– • Kefan Chen, Computer Science, Brown University

Interned at Meta.

2022– • Rahul Sajnani, Computer Science, Brown University

2021– • Rao Fu, Computer Science, Brown University

Interned at Autodesk and Meta.

Former

2019–2020 • Davis Rempe, Stanford University (co-advised with Leo Guibas)

Resulting publications [P.22, P.18, P.16, P.13]. Received an Nvidia Graduate Fellowship, interned at Adobe Research and Nvidia Research.

2017–2019 • He Wang, Stanford University (co-advised with Leo Guibas)

Resulting publications [P.14, P.12]. Interned at Google, Facebook AI Research. Now assistant professor at Peking University.

2015–2017 • Franziska Mueller, MPI Informatics (co-advised with Christian Theobalt)

Resulting publications [P.10, P.9]. Received a Google Ph.D. Fellowship, interned at Facebook Reality Labs. Now at Google Research Zurich.

Undergraduate/Masters Students

2022– • Yiwen Chen, Computer Science, Brown University

2022– • Cheng-You Lu, Computer Science, Brown University

2022– • Rugved Mavidipalli, Computer Science, Brown University

2022– • Jacob Frausto, Brown University

2022– • Xiao (Sean) Zhan, Brown University (co-advised with Daniel Ritchie)

2022– • Theo McArn, Brown University

2021– • Qiuhong (Anna) Wei, Brown University

Former

2022 • Helen Huang, Brown University

2021–2022 • Siddharth Diwan, Brown University

2021–2022 • Trevor Houchens, Computer Science, Brown University

2021–2022 • Sijie Ding, Computer Science, Brown University
Now PhD student at Stony Brook University.

2021–2022 • Rahul Sajnani, IIIT Hyderabad
Resulting publications [P.21, P.24]. Now PhD student at Brown.

2021 • Jivitesh Jain, IIIT Hyderabad

2021 • Yiheng Xie, Brown University
Resulting publication [P.23]. Now PhD student at Caltech.

2021 • Shivam Duggal, CMU

2020–2021 • Radhika Dua, KAIST

2021 • Aparna Natarajan, Computer Science, Brown University

2021 • Eliza Macneal, Computer Science, Brown University

2021 • Daniel Masotti, Computer Science, Brown University

2020–2021 • Farnaz Nouraei, Engineering, Brown University
Now PhD student at Northeastern University.

2020–2021 • Qimin Chen, UCSD
Now PhD student at Simon Fraser University.

2020–2021 • Ge Zhang, ShanghaiTech (co-advised with Leo Guibas and Or Litany)
Resulting report [O.9]. Now graduate student at the University of Michigan, Ann Arbor.

2019–2020 • Jiahui Lei, Zhejiang University (co-advised with Leo Guibas)
Resulting publication [P.17]. Now PhD student at UPenn.

2019 • Zhangsihao Yang, CMU
Resulting publication [P.20].

Ph.D. Committee

Aug 2022 • Hongyi Fan, Engineering, Brown University

Aug 2022 • Matthew Corsaro, Computer Science, Brown University

Teaching

At Brown

Spring 2022, 2023 **A Practical Introduction to Advanced Robot Perception (CSCI 2952-O).**
Enrollment: 19 (2022), 18 (2023). Designed and taught a graduate-level course on 3D computer vision and machine learning for robotics.

Fall 2021, 2022 **Introduction to Computer Vision (CSCI 1430).**
Enrollment: 103 (2021), 99 (2022). Taught undergraduate course on computer vision.

Spring 2021 **Introduction to Computer Vision (CSCI 1430)**.
Enrollment: 218. Co-taught (with James Tompkin) undergraduate course on computer vision.

Fall 2020 **Topics in 3D Computer Vision and Machine Learning (CSCI 2952-K)**.
Enrollment: 18. Designed and taught a graduate-level course on 3D computer vision and machine learning.

Before Brown

2013–2016 **Course Assistant, Graduate Seminar on Computer Vision for Computer Graphics**, *Saarland University*.
Graded student work, participated in all discussions, held office hours, and provided individual feedback.

2013 **Lecturer, EIT ICT Smart Spaces Summer School**, *INRIA, Grenoble*.
Day-long workshop on "3D Interaction using Hand Motion Tracking" for advanced graduate students.

Service

Service to the Field

Area Chair ICCV (2023), IEEE VR Conference Track (2020)

Panelist NSF (2021, 2022)

Program Committee SIGGRAPH Posters Jury (2022), Eurographics Short Papers (2018), Graphics Replicability Stamp Initiative (2019–2021), and various workshops at CVPR (2015–2016, 2018–2019), ICCV (2017, 2019) and ECCV (2018).

Organizer Workshop on Neural Fields across Fields: Methods and Applications of Implicit Neural Representations (ICLR 2023), Tutorial on Neural Fields in Computer Vision at CVPR 2022, 3DReps Workshop at ECCV (2020), ICCV (2021)

Mentor Summer Geometry Initiative (2022)

Reviewer CVPR, ICCV, ECCV, NeurIPS, TMLR, AAAI, BMVC, TPAMI, SIGGRAPH Asia, Eurographics, CHI, UIST, IMWUT/Ubicomp, IROS, ICRA, CVIU, 3DV, FG, Computer, IEEE VR, ACM ISS, Computing Surveys, IEEE CGA, ICLR.

Service to Brown

Member Ph.D. Admissions Committee (2021–)

Mentor exploreCSR/NSF REU, a semester-long research experience program for underrepresented undergraduates (exploreCSR: 2021–, NSF REU: 2022–).

Judge Hack@Brown 2021

Selected Press

Robin.ly CVPR 2019 Paper Discussion, Robin.ly, July 30, 2019.

Samsung "Here's how to design a robot that can cook", Samsung NEXT Blog, April 30, 2019.

SR TV "VNect", Saarländischer Rundfunk (German State TV), June 21, 2017.

SR TV "WatchSense", Saarländischer Rundfunk (German State TV), May 21, 2017.

IEEE "Control Your Smartwatch without Touching It", IEEE Electronics 360, May 4, 2017.

ECE News "Student teams earn prizes in EECS 556: Image Processing", Michigan EECS, April 29, 2011.

References

Available on request.