Allen Y. Yang, PhD

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RESEARCH EXPERTISE

Computer Vision: Augmented Reality, Natural Human Interface, Simultaneous Localization & Mapping

Robotics: Autonomous Driving, Autonomous Racing, Off-Road Robotics

Machine Learning: Pattern Recognition, Reinforcement Learning, Language Models

ACADEMIC BACKGROUND

NSF/Berkeley Haas Business School Innovation Corps   Summer 2015
Entrepreneurship/Entrepreneurial Studies.

Ph.D. in Electrical and Computer Engineering   October 2006
University of Illinois at Urbana-Champaign, Urbana, IL.
Dissertation: *Estimation of Subspace Arrangements: Its Algebra and Statistics*.
Advisor: Yi Ma (ECE). Co-advisor: Robert M. Fossum (Math).

M.S. in Mathematics   August 2005
University of Illinois at Urbana-Champaign, Urbana, IL.

M.S. in Electrical Engineering   August 2003
University of Illinois at Urbana-Champaign, Urbana, IL.
Thesis: *Geometric Segmentation of Perspective Images based on Symmetry Groups*. Advisor: Yi Ma (ECE).

B.E. in Computer Science   May 2001
Special Class for the Gifted Young, University of Science and Technology of China, Hefei, China.

SELECTED HONORS AND AWARDS

1. **Third Place, Indy Autonomous Challenge at CES**   2023
   AI Racing Tech, University of California, Berkeley
2. **Second Place, Indy Autonomous Challenge at Dallas**   2022
   AI Racing Tech, University of California, Berkeley
3. **Second Place, evGrandPrix Autonomous Racing**   2022
   University of California, Berkeley
4. **Gold Medal, China Internet+ Innovation and Entrepreneurship Competition** 2018
   OpenARK, University of California, Berkeley
5. **Mixed Reality Award, Microsoft Imagine Cup World Finals**   2018
   Pengram & University of California, Berkeley
6. **First Place, Microsoft Imagine Cup US Finals**   2018
   Pengram & University of California, Berkeley

7. **First Microsoft HoloLens Research Award**   2015
8. **IEEE Senior Member**   2013
9. **IEEE Readers' Choice Top Download List**   2012
   "Robust Face Recognition via Sparse Representation"
   Top 50 among all IEEE papers, 10000+ citations on Google.
10. **Most Remembered Poster Award**   2011
   "Informative Feature Selection for Object Recognition via Sparse PCA"
   International Conference on Computer Vision.
11. **Best Student Paper Award, Honorable Mention**   2010
   "Towards an Efficient Distributed Object Recognition System in Wireless Smart Camera Networks"
   IEEE International Conference on Information Fusion.
12. **Best Student Paper Award**   2009
   "Natural Image Segmentation with Adaptive Texture and Boundary Encoding"
   The Ninth Asian Conference on Computer Vision.
13. **Best Paper Award**   2009
   "Distributed Compression and Fusion of Nonnegative Sparse Signals for Multiple- View Object Recognition"
   IEEE International Conference on Information Fusion.
14. **Computational Science and Engineering Fellowship**   2004
   Selected to fund an interdisciplinary and computationally oriented research project: Robust Generalized Principal Component Analysis.
   CSE Division, University of Illinois at Urbana-Champaign.
15. **Henry Ford II Scholar Award**   2003
   Awarded to two outstanding engineering students in their second year study based on grade-point average and initiating research or contributing directly to practice.
   College of Engineering, University of Illinois at Urbana-Champaign.
16. **Distinguished Graduate Award**   2001
   Special Class for the Gifted Young, University of Science and Technology of China.
17. **Best Bachelor's Thesis**   2001
   Institute of Automation, Chinese Academy of Sciences & University of Science and Technology of China.

ACADEMIC EMPLOYMENTS

Executive Director, FHL Vive Center for Enhanced Reality   2018 onwards
University of California, Berkeley, CA.

Chief Scientist, Fung Institute for Engineering Leadership 2016 – 2017
University of California, Berkeley, CA.

Executive Director, Center for Augmented Cognition   2016 onwards
University of California, Berkeley, CA.

Advisor, Berkeley VR Club   2015 onwards
University of California, Berkeley, CA.

Principal Investigator   2012 onwards

Department of EECS, University of California, Berkeley, CA.

Associate Research Engineer   2012 onwards
Department of EECS, University of California, Berkeley, CA.

Assistant Research Engineer   2006 -- 2012
Department of EECS, University of California, Berkeley, CA.

INDUSTRIAL EMPLOYMENTS

Co-Founder & CTO   2020 onwards
Intelligent Racing Inc., San Ramon, CA.

Co-Founder & CTO   2015 to 2020
Grafty, Inc., Sunnyvale, CA.

Executive Advisor   2017 to 2018
Immerex, Inc. Santa Clara, CA.

CTO & Acting COO   2012 to 2014
Atheer, Inc., Mountain View, CA.

Visiting Researcher   2008 to 2009
Microsoft Research Asia, Beijing, China.

RECENT PROFESSIONAL SERVICES

1. Tutorial on OpenARK – Tackling Augmented Reality Challenges via an Open- Source Software Development Kit, ISMAR 2022.
2. Tutorial on OpenARK – Tackling Augmented Reality Challenges via an Open- Source Software Development Kit, ISMAR 2020.
3. Tutorial on OpenARK – Tackling Augmented Reality Challenges via an Open- Source Software Development Kit, ISMAR 2019.
4. Area Chair, International Conference on Computer Vision, 2017.
5. Team Lead, Navy Advanced Exploration of Mixed Reality (AEMR) COI, Tech- nology Assessment Working Group since 2015.
6. Area Chair, International Conference on Computer Vision (ICCV), 2015.
7. Area Chair, International Conference on Computer Vision and Pattern Recog- nition (CVPR), 2014.
8. Tutorial on Sparse Representation and Low-Rank Representation for Biomet- rics, International Joint Conference on Biometrics, 2011.
9. Tutorial on Sparse Representation and Its Applications in High-Dimensional Pattern Recognition, IEEE Conference on Computer Vision and Pattern Recog- nition (CVPR), 2009.
10. Proposal Reviews:
    - Army Research Office, USA.
    - Office of Naval Research, USA.

DISCLOSED UTILITY PATENTS

1. **Method and apparatus for adjusting motion-based data space manipulation**

(US patent No 10,996,473)

Atheer, Inc.

2. **Method and apparatus for ego-centric 3D human computer interface** (US patent No 11,620,032)

Atheer, Inc.

3. **Content association and history tracking in virtual and augmented realities** (US patent No 11,120,627)
Atheer, Inc.

4. **Method and system for robust image detection for automatic detection of symptoms** (US patent No. 10,783,635)
Grafty, Inc.

5. **Method and system for visual pedometry** (US patent No. 9,990,857) Grafty, Inc.

6. **Method and apparatus for selectively integrating sensory content** (US patent No. 10,068,369)
Atheer, Inc.

7. **Method and apparatus for controlling a system via a sensor** (US patent No. 10,133,356)
Atheer, Inc.

8. **Method and apparatus for interface control with prompt and feed- back** (US patent No. 10,248,284)
Atheer, Inc.

9. **Method and Apparatus for Subject Identification** (US patent No. 9,576,188) Atheer, Inc.

10. **Method and Apparatus for Distinguishing Features in Data** (US patent No. 9,557,822)
Atheer, Inc.

11. **Method and Apparatus for User-Transparent System Control Using Bio-Input** (US patent No. 10045718B2)
Atheer, Inc.

12. **Method and Apparatus for Position and Motion Instruction** (US patent No.9947240B2)
Atheer, Inc.

13. **Method and Apparatus for a Three Dimensional Interface** (US patent No. 10782848B2)
Atheer, Inc.

14. **Method and Apparatus for Background Subtraction using Focus Differences** (US patent No. 9924091B2)
Atheer, Inc.

15. **Method and Apparatus for Content Association and History Tracking in Virtual and Augmented Reality** (US patent No. 10019845B2)
Atheer, Inc.

16. **Method and Apparatus for Identifying Input Features for Later Recognition** (US patent No. 9,747,306)
Atheer, Inc.

17. **Method and Apparatus for Ego-Centric 3D Human Computer Inter- face** (US patent No. 10423296B2)
Atheer, Inc.

18. **Method and Apparatus for Searching Images** (US patent 9,020,193). Atheer, Inc.
19. **System for Detection of Body Motion** (US patent 9,060,714). University of Texas System, TX.
20. **Recognition via High-Dimensional Data Classification** (US patent 8,406,525). University of California, Berkeley, CA.
21. **Interface for Robot Motion Control** (US Patent 8,060,251). Honda Research USA, Mountain View, CA

PUBLICATIONS

Books & Chapters

1. Henrik Ohlsson, **Allen Y. Yang**, Roy Dong, Michel Verhaegen, and Shankar Sastry. *Quadratic Basis Pursuit*. Regularization, Optimization, Kernels, and Support Vector Machines, Chapman & Hall, 2014.
2. Arvind Ganesh, Andrew Wagner, John Wright, **Allen Y. Yang**, Zihan Zou, and Yi Ma. *Face recognition by sparse representation*. Compressed Sensing: Theory and Applications, Cambridge University Press, 2011.
3. **Allen Y. Yang**, Subhransu Maji, Mario Christoudias, Trevor Darrell, Jitendra Malik, and Shankar Sastry. *Multiple-view object recognition in smart camera networks*. Distributed Video Sensor Networks, Springer, 2010.
4. **Allen Y. Yang**. *Estimation of Subspace Arrangements: Its Algebra and Statis- tics*. VDM Verlag, Germany, 2009.

Journals (Refereed)

1. X. Zhuang, Y. Ju, **Allen Y. Yang**, L. Caldas. *Synthesis and Generation for 3D Architecture Volume with Generative Modeling*. International Journal of Architectural Computing, 2023.
2. P. Dayani, N. Orr, V. Saran, N. Hu, S. Krishnaswamy, A. Thomopoulos, E. Wang, J. Bae, E. Zhang, D. McPherson, J. Menke, A. Moran, B. Quiter, A. Yang, K. Vetter. *Immersive Operation of a Semi-Autonomous Aerial Platform for Detecting and Mapping Radiation*, IEEE Transactions on Nuclear Science, 2021.
3. Liansheng Zhuang, Jingjing Wang, Zhouchen Lin, **Allen Y. Yang**, Yi Ma, and Nenghai Yu. *Locality-Preserving Low-Rank Representation for Graph Construction from Nonlinear Manifolds*. Journal on Neurocomputing, 2015.
4. Liansheng Zhuang, Tsung-Han Chan, **Allen Y. Yang**, S. Shankar Sastry, and Yi Ma. *Sparse Illumination Learning and Transfer for Single-Sample Face Recognition with Image Corruption and Misalignment*. International Journal on Computer Vision, 2014.
5. Henrik Ohlsson, Yonina C. Eldar, **Allen Y. Yang**, and S. Shankar Sastry.
   Compressive Shift Retrieval. IEEE Transactions on Signal Processing, 2014.
6. **Allen Y. Yang**, Zihan Zhou, Arvind Ganesh, S. Shankar Sastry, and Yi Ma. *Fast ℓ^1-minimization algorithms for robust face recognition*. IEEE Transactions on Image Processing, 2013.

7. **Allen Y. Yang**, Parvez Ahammad, Lung-Chung Chang, Phoebus Chen, Kirak Hong, Leon Lin, Edgar Lobaton, Nikhil Naikal, Songhwai Oh, Simon Wang, Posu Yan, Doug Tygar, and Shankar Sastry. *A low-bandwidth camera sensor platform with applications in smart camera networks*. ACM Transactions on Sensor Networks, 2012.

8. Hossein Mobahi, Shankar Rao, **Allen Y. Yang**, Shankar Sastry, and Yi Ma. *Natural image segmentation with adaptive texture and boundary encoding*. International Journal of Computer Vision, 2011.

9. **Allen Y. Yang**, Michael Gastpar, Ruzena Bajcsy, and Shankar Sastry. *Distributed sensor perception via sparse representation*. Proceedings of the IEEE Special Issue on Applications of Sparse Representation and Compressive Sensing, 2010.

10. Shankar Rao, **Allen Y. Yang**, Shankar Sastry, and Yi Ma. *Robust algebraic segmentation of mixed rigid-body and planar motions from two views*. International Journal of Computer Vision (IJCV), 2010.

11. **Allen Y. Yang**, Roozbeh Jafari, Shankar Sastry, and Ruzena Bajcsy. *Distributed recognition of human actions using wearable motion sensor networks*. Journal of Ambient Intelligence and Smart Environments (JAISE), 2009.

12. John Wright, **Allen Y. Yang**, Arvind Ganesh, Shankar Sastry, and Yi Ma. *Robust face recognition via sparse representation*. IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2009. **(Google: 4924 citations. Top 50 IEEE Download)**

13. **Allen Y. Yang**, John Wright, Yi Ma, and Shankar Sastry. *Unsupervised segmentation of natural images via lossy data compression*. Computer Vision and Image Understanding (CVIU), 2008.

14. Yi Ma, **Allen Y. Yang**, Harm Derksen, and Robert Fossum. *Estimation of subspace arrangements with applications in modeling and segmenting mixed data*. SIAM Review, 2008.

15. **Allen Y. Yang**, Shankar Rao, Kun Huang, Wei Hong, and Yi Ma. *Symmetry-based 3-D reconstruction from perspective images*. Computer Vision and Image Understanding (CVIU), 2005.

16. Wei Hong, **Allen Y. Yang**, and Yi Ma. *On symmetry and multiple-view geometry: structure, pose, and calibration from a single image*. International Journal of Computer Vision (IJCV), 2004.

Conferences (Refereed)

1. W. Feng, SZ Zhao, C. Pan, A. Chang, Y. Chen, Z. Wang, **Allen Y. Yang**. *Digital Twin Tracking Dataset (DTTD): A New RGB+Depth 3D Dataset for Longer-Range Object Tracking Applications*. CVPR Workshop, 2023.

2. M. Keshavarzi, M. Zollhoefer, Allen Y. Yang, P. Peluse, L. Caldas. Synthesizing Novel Spaces for Remote Telepresence Experiences. IEEE ISMAR Conference, 2022.

3. Joe Menke, Allen Y. Yang. *Graduated Assignment Graph Matching for Realtime Matching of Image Wireframes*. IEEE IROS Conference, 2020.

4. P. Dayani, N. Orr, A. Thomopoulos, V. Saran, S. Krishnaswamy, E. Zhang,
N. Hu, D. McPherson, J. Menke, **A. Yang**, K. Vetter. *Immersive Operation of a Semi-Autonomous Aerial Platform for Detecting and Mapping Radiation*. IEEE Nuclear Science Symposium and Medical

Imaging Conference, 2020

5. Mohammad Keshavarzi, **Allen Y. Yang**, Woojin Ko, Luisa Caldas. *Optimization and Manipulation of Contextual Mutual Spaces for Multi-User Virtual and Augmented Reality Interaction*, IEEE VR, 2020.

6. Yu Zhang, Zhijiong Huang, Kathryn C. Quigley, Ramya Sankar, **Allen Y. Yang**. *A User Experience Study of Locomotion Design in Virtual Reality Be- tween Adult and Minor Users*, ISMAR, 2019.

7. Bill Zhou, Alex Yu, Joseph Menke, **Allen Y. Yang**. *Real-Time Hand Model Estimation from Depth Images for Wearable Augmented Reality Glasses*, ISMAR, 2019.

8. Jesse Rawlins Paterson, Jiwoong Han, Tom Cheng, Paxtan Huish Laker, David Livingston McPherson, Joseph Menke, **Allen Y. Yang**. *Improving Usability, Efficiency, and Safety of UAV Path Planning through a Virtual Reality Interface*, SUI, 2019.

9. David L. McPherson, Dexter R.R. Scobee, Joseph Menke, **Allen Y. Yang**, S. Shankar Sastry, *Modeling Supervisor Safe Sets for Improving Collaboration in Human-Robot Teams*, IROS, 2018.

10. Yifei Liu, Nancy Yang, Alyssa Li, Jesse Paterson, David McPherson, Tom Cheng, **Allen Y. Yang**, *Usability evaluation for drone mission planning in virtual reality,* HCII Conference, 2018.

11. David Anton, Gregorij Kurillo, **Allen Y. Yang**, Ruzena Bajcsy. *Augmented telemedicine platform for real-time remote medical consultation.* International Conference on Multimedia Modeling, 2017.

12. Gregorij Kurillo, **Allen Y. Yang**, Victor Shia, Aaron Bair, Ruzena Bajcsy. *New emergency medicine paradigm via augmented telemedicine.* HCI, 2016.

13. Chi Pang Lam, **Allen Y. Yang**, Katherine Driggs-Campbell, Ruzena Bajcsy, and Shankar Sastry. *Improving Human-In-The-Loop Decision Making in Multi-Mode Driver Assistance Systems Using Hidden Mode Stochastic Hybrid Systems*. IROS, 2015.

14. Chi-Pang Lam, **Allen Y. Yang**, and S. Shankar Sastry. *An efficient algorithm for discrete-time hidden mode stochastic hybrid systems*. ECC, 2015.

15. Carsten Gottschlich, Emanuela Marasco, **Allen Y. Yang**, and Bojan Cukic. *Fingerprint Liveness Detection based on Histograms of Invariant Gradients*. IJCB, 2014.

16. Ehsan Elhamifar, Guillermo Sapiro, **Allen Y. Yang**, and Shankar Sastry. *A convex optimization framework for active learning.* International Conference on Computer Vision (ICCV), 2013.

17. Chi-Pang Lam **Allen Y. Yang**, Ehsan Elhamifar, and Shankar Sastry. *Multi-scale TILT feature detection with application to geometric image segmentation*. ICCV Workshop, 2013.

18. Liansheng Zhuang, **Allen Y. Yang**, Zihan Zhang, Shankar Sastry, and Yi Ma. *Single-sample face recognition with image corruption and misalignment via sparse illumination transfer*. International Conference on Computer Vision and Pattern Recognition (CVPR), 2013.

19. Henrik Ohlsson, Yonina C. Eldar, **Allen Y. Yang**, and Shankar Sastry. *Compressive Shift Retrieval*. ICASSP, 2013.

20. Henrik Ohlsson, **Allen Y. Yang**, Roy Dong, and Shankar Sastry. *CPRL – An extension of compressive sensing to the phase retrieval problem*. NIPS,

2012.

21. Chris Slaughter, **Allen Y. Yang**, Justin Bagwell, Costa Checkles, Luis Sentis, Sriram Vishwanath. *Sparse online low-rank projection and outlier rejection (SOLO) for 3-D rigid-body motion registration*. International Conference on Robotics and Automation (ICRA), 2012. **(Oral Presentation)**

22. Henrik Ohlsson, **Allen Y. Yang**, Roy Dong, and Shankar Sastry. *Compressive phase retrieval from squared output measurements via semidefinite programming*. SysID Symposium, 2012.

23. Dheeraj Singaraju, Roberto Tron, Ehsan Elhamifar, **Allen Y. Yang**, and Shankar Sastry. *On the Lagrangian biduality of sparsity minimization problems*. ICASSP, 2012.

24. Nikhil Naikal, **Allen Y. Yang**, and Shankar Sastry. *Informative feature selection for object recognition via Sparse PCA*. International Conference on Computer Vision (ICCV), 2011. **(Most Remembered Poster Award)**

25. Hossein Mobahi, Zihan Zhou, **Allen Y. Yang**, and Yi Ma. *Holistic 3D reconstruction of urban structures from low-rank textures*. ICCV Workshop on 3D Representation and Recognition, 2011. **(Oral Presentation)**

26. **Allen Y. Yang**, Arvind Ganesh, Yi Ma, and Shankar Sastry. *Fast $\pounds_1$-minimization algorithms and an application in robust face recognition: A review*. International Conference on Image Processing (ICIP), 2010. **(Oral Presentation**

27. **Allen Y. Yang**, Zihan Zhou, Yi Ma, and Shankar Sastry. *Towards a robust face recognition system using compressive sensing*. InterSpeech, 2010. **(Oral Presentation)**

28. Nikhil Naikal, **Allen Y. Yang**, Shankar Sastry. *Towards an efficient distributed object recognition system in wireless smart camera networks*. International Conference on Information Fusion (FUSION), 2010. **(Oral Presentation, Best Student Paper Award Honorable Mention)**

29. Shankar Rao, Hossein Mobahi, **Allen Y. Yang**, Shankar Sastry, and Yi Ma. *Natural image segmentation with adaptive texture and boundary encoding*. Asian Conference on Computer Vision (ACCV), 2009. **(Oral Presentation, Best Student Paper Award)**

30. **Allen Y. Yang**, Subhransu Maji, Mario Christoudias, Trevor Darrell, Jitendra Malik, and Shankar Sastry. *Multiple-view object recognition in band-limited distributed camera networks*. International Conference on Distributed Smart Cameras (ICDSC), 2009. **(Oral Presentation)**

31. **Allen Y. Yang**, Subhransu Maji, Kirak Hong, Posu Yan, and Shankar Sastry. *Distributed compression and fusion of nonnegative sparse signals for multiple-view object recognition*. International Conference on Information Fusion (FUSION), 2009. **(Oral Presentation, Best Paper Award)**

32. Philip Kuryloski, Annarita Giani, Roberta Giannantonio, Katherine Gilani, Ville-Pekka Seppa, Edmund Seto, Raffaele Gravina, Victor Shia, Curtis Wang, Posu Yan, **Allen Y. Yang**, Jari Hyttinen, Shankar Sastry, Stephen Wicker, and Ruzena Bajcsy. *DexterNet: An open platform for heterogeneous body sensor networks and its applications*. Body Sensor

Networks Workshop (BSN), 2009.

33. **Allen Y. Yang**, Roozbeh Jafari, Philip Kuryloski, Sameer Iyengar, Shankar Sastry, and Ruzena Bajcsy. *Distributed segmentation and classification of human actions using a wearable sensor network*. Workshop on Human Communicative Behavior Analysis, International Conference on Computer Vision and Pattern Recognition (CVPR), 2008. **(Oral Presentation)**

34. Phoebus Chen, Parvez Ahammad, Colby Boyer, Shih-I Huang, Leon Lin, Edgar Lobaton, Marci Meingast, Songhwai Oh, Simon Wang, Posu Yan, **Allen Y. Yang**, Chuohao Yeo, Lung-Chung Chang, Doug Tygar, and Shankar Sastry. *CITRIC: A low-bandwidth wireless camera network platform*. International Conference on Distributed Smart Cameras (ICDSC), 2008. **(Oral Presentation)**

35. Shankar Rao, Harm Derksen, Robert Fossum, Yi Ma, Andrew Wagner, and **Allen Y. Yang**. *The algebra and statistics of generalized principal component analysis*. SPIE conference on Visual Communications and Image Processing (VCIP), 2007. **(Oral Presentation)**

36. **Allen Y. Yang**, Shankar Rao, and Yi Ma. *Robust statistical estimation and segmentation of multiple subspaces*. Workshop on 25 Years of RANSAC, International Conference on Computer Vision and Pattern Recognition (CVPR), 2006. **(Oral Presentation)**

37. **Allen Y. Yang**, Shankar Rao, Andrew Wagner, Robert Fossum, and Yi Ma. *Hilbert functions and applications to the estimation of subspace arrangements*. International Conference on Computer Vision (ICCV), 2005.

38. Shankar Rao, **Allen Y. Yang**, Andrew Wagner, and Yi Ma. *Segmentation of hybrid motions via hybrid quadratic surface analysis*. International Conference on Computer Vision (ICCV), 2005. **(Oral Presentation)**

39. **Allen Y. Yang**, Shankar Rao, Andrew Wagner, and Yi Ma. *Segmentation of a piece-wise planar scene from perspective images*. International Conference on Computer Vision and Pattern Recognition (CVPR), 2005.

40. **Allen Y. Yang**, Hector Gonzalez-Banos, Victor Ng-Thow-Hing, and James Davis. *RoboTalk: controlling arms, bases and androids through a single motion interface*. International Conference on Advanced Robotics (ICAR), 2005. **(Oral Presentation)**

41. Kun Huang, **Allen Y. Yang**, and Yi Ma. *Sparse representation of images with hybrid linear models*. International Conference on Image Processing (ICIP), 2004.

42. Kun Huang, **Allen Y. Yang**, Wei Hong, and Yi Ma. *Large-baseline matching and reconstruction from symmetry cells*. International Conference on Robotics and Automation (ICRA), 2004.

43. **Allen Y. Yang**, Shankar Rao, Kun Huang, Wei Hong, and Yi Ma. *Geometric segmentation of perspective images based on symmetry groups*. International Conference on Computer Vision (ICCV), 2003.

44. **Allen Y. Yang**, Wei Hong, and Yi Ma. *Structure and pose from single images of symmetric objects with applications to robot navigation*. International Conference on Robotics and Automation (ICRA), 2003.

45. Yi Ma, Kun Huang, and **Allen Y. Yang**. *Classification of rank conditions for multiple views of dynamic scenes*. Workshop on Dynamic Scenes, European Conference on Computer Vision (ECCV), 2002.

Invited Papers & Technical Reports

1. Michael Wu, **Allen Y. Yang**, S. Shankar Sastry. *Full Stack Engineering in Robot Open Autonomous Racing*. UC Berkeley Technical Report, 2022.

2. Mohammad Keshavarzi, FC Reyes, R. Shrivastava, O. Afolabi, L. Caldas, **Allen Y. Yang**. *Contextual Scene Augmentation and Synthesis via GSACNet*. arXiv, 2021.

3. Alex Mai, **Allen Y. Yang**, DE Meyer. *Soft Expectation and Deep Maximization for Image Feature Detection*. arXiv, 2021.

4. Mohammad Keshavarzi, O. Afolabi, Luisa. Caldas, **Allen Y. Yang,** Avideh Zakhor. GENSCAN: A Generative Method for Populating Parametric 3D Scan Datasets. arXiv, 2020.

5. Oladapo Afolabi, **Allen Y. Yang**, S. Shankar Sastry. *DeepSDF x Sim(3): Extending DeepSDF for Automatic 3D Shape Retrieval and Similarity Transform Estimation*. arXiv, 2020.

6. Oladapo Afolabi, **Allen Y. Yang**, S. Shankar Sastry. *Extending DeepSDF for Automatic 3D shape retrieval and similarity transform estimation*. arXiv, 2020.

7. Alex Mai, Joe Menke, **Allen Y. Yang**. *Training Deep Neural Networks to Detect Repeatable 2D Features using Large Amounts of 3D World Capture Data*. arXiv, 2019.

8. Z. Huang, Y. Zhang, KC Quigley, R. Sankar, C. Wormser, X. Mo, **Allen Y. Yang**. *Accessibility of Virtual Reality Locomotion Modalities to Adults and Minors*. arXiv, 2019.

9. M. Keshavarzi, M. Wu, MN Chin, RN Chin, **Allen Y. Yang**. *Affordance Analysis of Virtual and Augmented Reality Mediated Communication*. arXiv, 2019.

10. Qianhao Zhang, Alex Mai, Joe Menke, **Allen Y. Yang**. *Loop Closure Detection with RGB-D Feature Pyramid Siamese Networks*. arXiv, 2019.

11. Henrik Ohlsson, Yonina Eldar, **Allen Y. Yang**, and Shankar Sastry. *Compressive Shift Retrieval*. SPARS, 2013.

12. Henrik Ohlsson, **Allen Y. Yang**, Roy Dong, and S. Shankar Sastry. *Quadratic Basis Pursuit – A Nonlinear Extension of Compressive Sensing*. SPARS, 2013.

13. Henrik Ohlsson, **Allen Y. Yang**, Roy Dong, and Shankar Sastry. *Compressive phase retrieval via lifting*. Snowbird Learning Workshop, 2012.

14. Victor Shia, **Allen Y. Yang**, and Shankar Sastry. *Fast £$_1$-minimization and algorithm parallelization for face recognition*. Asilomar Conference on Signals, Systems, and Computers, 2011.

15. Dheeraj Singaraju, Roberto Tron, Ehsan Elhamifar, **Allen Y. Yang**, and Shankar Sastry. *Lagrangian biduality of the £$_0$ and £$_1$-minimization problems*. Signal Processing with Adaptive Sparse Structured Representations Workshop, 2011.

16. Edmund Seto, Eladio Martin, **Allen Y. Yang**, Posu Yan, Raffaele Gravina, Irving Lin, Curtis Wang, Michael Roy, Victor Shia, and Ruzena Bajcsy. *Opportunistic strategies for lightweight signal processing for body sensor networks*. Pervasive Technologies Related to Assistive Environments, 2010.

17. **Allen Y. Yang**, Philip Kuryloski, and Ruzena Bajcsy. *WARD: A wearable action recognition database*. CHI Workshop on Developing Shared Home Behavior Datasets, 2009.

18. Edmund Seto, Annarita Giani, Victor Shia, Curtis Wang, Posu Yan, **Allen Y. Yang**, Michael Jerret, and Ruzena Bajcsy. *A wireless body sensor network for the prevention and management of asthma*. IEEE Symposium on Industrial Embedded Systems, 2009.