

## Vyas Akondi

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CURRENT AFFILIATION	Academic Staff Researcher – Senior Research Scientist (Basic Life) Department of Ophthalmology, Stanford University, 2370 Watson Ct, Palo Alto 94303, USA.
	Mobile: +1 650-304-9243 E-mail: vakondi@stanford.edu WWW: profiles.stanford.edu/vyas-akondi
RESEARCH INTERESTS	Adaptive optics, vision science, retinal imaging, microscopy, and wavefront sensing.
SHORT BIOGRAPHY	I earned a Ph.D. degree from the Department of Physics, Indian Institute of Science in the field of astronomical adaptive optics. I gained over 9 years of post-Ph.D. research experience in vision science and retinal imaging. I authored 28 peer-reviewed journal articles. Adaptive optics is a technology that mitigates optical aberrations in several applications. During two post-doctoral fellowships in University College Dublin, Ireland and Instituto de Optica, Spain, and currently as a Senior Research Scientist at Stanford University, my research applies this technology to ophthalmic applications with the goal of developing the next-generation clinical ocular devices.
PROFESSIONAL EXPERIENCE	<p><b>Senior Research Scientist - Basic Life</b> <span style="float: right;">March 2018 - Present</span> Department of Ophthalmology, School of Medicine Stanford University, Palo Alto, CA 94303, USA</p> <p><b>Senior Post-Doctoral Research Fellow</b> <span style="float: right;">December 2014 - February 2018</span> M+Vision Fellow; Marie Curie action COFUND (recipient of the Madrid-MIT M+Vision Advanced Fellowship) Visual Optics and Biophotonics Laboratory, Instituto de Óptica “Daza de Valdés” IO-CSIC, Madrid, Spain</p> <p><b>Post-Doctoral Research Fellow</b> <span style="float: right;">March 2012 - August 2014</span> Advanced Optical Imaging Group, School of Physics University College Dublin, Belfield, Dublin 4, Ireland.</p>
ACADEMIC HISTORY	<p>(1) Ph.D., Department of Physics, Indian Institute of Science, 2012</p> <p>Thesis Topic : <i>Advanced Wavefront Sensing in Astronomy</i> Adviser : Prof. B. Raghavendra Prasad Area of Study : Astronomical adaptive optics Award of Ph.D. degree : 12-14-2012</p> <p>(2) M.Sc. in Physics, Sri Sathya Sai Institute of Higher Learning, 2006</p> <p>II year project: <i>Particle induced X-ray emission technique: Application to trace element analysis of diabetic blood.</i> I year project: <i>Developing an interactive environment for understanding Fabry-Perot interferometer using GUI in Matlab.</i></p> <p>(3) B.Sc. Honours in Physics, Sri Sathya Sai Institute of Higher Learning, 2004</p> <p>Project: <i>Modified Newton’s Rings.</i></p>

MARKS/GRADES	Class	Total Marks/GPA	Out of
	10 <sup>th</sup> standard (CBSE)	382 Marks	500 Marks
	11 <sup>th</sup> , 12 <sup>th</sup> (AP board)	940 Marks	1000 Marks
	B.Sc (Honors in Physics)	4.70 GPA	5.00 GPA
	M.Sc (Physics)	4.96 GPA	5.00 GPA

GPA stands for Grade Point Average

COMMITTEES 2019-2021: Chair, Vision Technical Group of the Optical Society of America (OSA).  
 2017-2019: Webinar Officer, Optical Metrology (OR) Technical Group of the OSA.  
 2015-2016: ICoRSA committee on Outreach and Ambassador in emerging countries.  
 2014-2016: Committee Member, Optical Metrology (OR) Technical Group of the OSA.

MEETING ORGANIZATION

- Chair and organizer of OSA Data Blitz Series: Optics of the Eye and Novel Ophthalmic Devices (14 July, 2021).
- Chair and organizer of OSA Virtual Vision Science Seminars (28 January, 2021).
- Chair of the OSA Data Blitz Series: Visual Psychophysics and New Technologies for Understanding Vision (29 July, 2020).
- Chair and organizer of the OSA Vision Technical Group Workshop: Chromatic Aberrations in Vision (19 June, 26 June and 2 July, 2020).
- Presider at OSA Frontiers in Optics, Rochester, USA. Session: Novel Design Concepts for Eye Correction and Vision Simulators II (2018).

REVIEWER OF JOURNALS

- Optica (Optical Society of America, IF: 9.778)
- Optics Letters (Optical Society of America, IF: 3.714)
- Optics Express (Optical Society of America, IF: 3.669)
- Ophthalmic and Physiological Optics (Wiley-Blackwell, IF: 2.624)
- Optik – International Journal for Light and Electron Optics (Elsevier, IF: 2.187)
- Optics Communications (Elsevier, IF: 2.125)
- Applied Optics (Optical Society of America, IF: 1.961)
- Journal of the Optical Society of America A (Optical Society of America, IF: 1.791)
- Journal of the European Optical Society - Rapid publications (IF: 1.239)

\*IF – impact factor 2019

STARTUP COMPANY

**2Eyes Vision, SL (2015 - Present)**

**Founding partner** of a startup company 2Eyes Vision, SL. In the year 2015, a technology-based company 2Eyes Vision, SL was founded as a spin-off company of the Consejo Superior de Investigaciones Científicas (CSIC). CNAE code 7211: Investigación y desarrollo experimental en biotecnología (Research and experimental development on biotechnology).

Research role: Optical simulations and testing of SimVis technology

MEDIA Interview with Fundación Madri+d, April 2015  
 (<http://www.madrimasd.org/informacionIDI/noticias/>)

SOFTWARE SKILLS

- Matlab
- Zemax
- ImageJ
- Python
- Labview

PROOFREADING  
WORKS

1. Saha, Swapan K. *Diffraction limited imaging with large and moderate telescopes*. World Scientific, 2007.

HONOURS,  
AWARDS, &  
FELLOWSHIPS

1. Qualcomm Distinguished Poster Award at the SCIEN Industry Affiliates Meeting, Stanford University, 20 November, 2020 for the poster titled, "Image degradation due to dynamic wavefront distortion in resonant scanners."
2. Senior Member of the Optical Society of America in June 2019.
3. Optical Society of America Outstanding Reviewer Recognition/Award - 2016 (<https://www.osapublishing.org/submit/review/outstandingreviewers.cfm>).
4. 2016 Traveling lecturer, Optical Society of America.
5. Outstanding reviewer status granted by Elsevier recognizing contributions to Optics Communications (May 2015).
6. Received certificate as a dedicated quality scientific peer-reviewer in April from the Optical Society of America (2015).
7. Recipient of the 2014 M+Visión Advanced Fellowship in Translational Biomedical Imaging (EU COFUND under FP7 - Marie Curie actions)
8. Recipient of the 2011 *Robert S. Hilbert Memorial Student Travel Grant*, \$1100, in recognition of research excellence in the areas of optical engineering, lens design and illumination design, conferred by *Optical Research Associates* and *OSA Foundation*.
9. Received an Optical Society of America Foundation Student travel grant in the amount of \$800 USD, plus a free registration, to help cover my housing and travel costs for the Optical Society of America Imaging and Applied Optics meeting, Adaptive Optics: Methods, Analysis and Applications, July 10-14 in Toronto, Canada, 2011.
10. Winner of a Travel Grant with free conference registration, free accommodation and a payment of \$200 towards travel expenses to attend the First International MEFOMP Conference of Medical Physics, Shiraz University of Medical Sciences, Shiraz, Iran Nov 2-4, 2011.
11. Council of Scientific and Industrial Research, India, supported me with the foreign travel grant (Ref No. TG/5998/11-HRD).
12. Secured Silver medal in the best paper category of the International Conference on Advances in Information Technology and Mobile Communication 2011 and Advances in Power Electronics and Instrumentation Engineering 2011 (April 21-22 2011 Nagpur, India) organized by Association of Computer Electronics and Electrical Engineers (ACEEE). Paper title - "Efficient minimization of servo lag error in adaptive optics using data stream mining".
13. Received SPIE student travel grant - \$450 to attend SPIE Photonics WEST, 23-28, Jan 2010 San Francisco, USA.
14. Paper "Improved iteratively weighted centroiding for accurate spot detection in laser guide star based Shack Hartmann sensor" nominated in the semifinals for the Student best paper prize in LASE symposium of SPIE Photonics WEST-2010.

15. Second Best paper award for the paper titled “Denoising Shack Hartmann Sensor spot pattern using Zernike Reconstructor” in the International Conference on Advanced Computing, 2009
16. First Prize in the best paper category for the session Data Mining for the paper titled “Progressive Prediction of Turbulence using Wave Front Sensor Data in Adaptive Optics using Data Mining” in the International Conference on Advanced Computing, 2009
17. Qualified as the Senior Research Fellow in Indian Institute of Science (August 2008).
18. Selected as Junior Research Fellow in Joint Astronomy Program, Physics Department, Indian Institute of Science (August 2006).
19. Selected as Junior Research Fellow in the Indian Institute of Astrophysics (August 2006).
20. Qualified the Graduate Aptitude Test in Engineering (GATE)-2006 with All India Rank 246 and a percentile of 94.98, conducted by the Ministry of Human Resources Development, Government of India.
21. Qualified in the Joint CSIR-UGC Junior Research Fellowship (JRF) and Eligibility for Lectureship - National Eligibility Test (NET) for the award of Lectureship (NET) in Physical Sciences under the “Lectureship Category”, 18th June, 2006.
22. Qualified in the Joint CSIR-UGC Junior Research Fellowship (JRF) and Eligibility for Lectureship - National Eligibility Test (NET) for the award of JRF in Physical Sciences under the UGC Fellowship scheme, 18th December, 2005.
23. JN Sapru Scholarship (INR 48,000) and gold medal for standing first in 12th standard (2001).
24. Gayathri Meritorious Award (INR 4,000) for good performance in 11th standard (2000).

INVITED TALKS &  
SEMINARS

1. ‘Adaptive optics in the field of ophthalmology and vision science,’ Physics for Health Care Webinar, Department of Physics, Sri Sathya Sai Institute of Higher Learning, 19th March, 2021.
2. ‘Shack-Hartmann wavefront sensor: Measurement bias at the pupil boundary,’ Wavefront and Presbyopic Refractive Corrections Congress, Santa Fe, New Mexico, USA, 16th March, 2019.
3. ‘On-bench validations of tunable lens based multifocal visual simulations,’ Applied Industrial Optics: Spectroscopy, Imaging and Metrology conference, Optical Society of America, Orlando, Florida United States, 25-28 June 2018.
4. ‘Experimental validations of a tunable lens based visual simulator of multifocal corrections,’ seminar at the Indian Institute of Technology, Hyderabad, India, 26th February, 2018.
5. ‘Wavefront sensing and adaptive optics for ophthalmic applications,’ seminar at Aurolab (manufacturing unit of the Aravind Eye Care Hospital), Madurai, India, 17th July, 2017.
6. ‘Virtual wavefront sensors for phase unwrapping,’ IOSA Scientific Seminars, Instituto de Optica, CSIC, Madrid, Spain, 21st September, 2016.

7. ‘Wavefront sensing and aberration compensation in ophthalmic applications,’ Guest Lecture, Patodia Auditorium - KAR Campus, Academy of Eye Care Education, LV Prasad Eye Institute, Hyderabad, India, 30th December, 2016.
8. ‘Digital wavefront sensing and phase unwrapping,’ Seminar, Indian Institute of Astrophysics, Bangalore, India, 8th December, 2016.
9. ‘Restoring accommodation to the presbyopic eye,’ ‘Meet the Fellows’ Public speech organised by Fundación para el Conocimiento madri+d on the occasion of la Noche Europea de los Investigadores (European Researcher’s night) de Madrid, Espacio Fundación Telefónica C/Fuencarral 3, Madrid, Spain, 25th September, 2015.
10. ‘Digitizing a point diffraction interferometer, Hartmann-Shack, signal-based and pyramid wavefront sensors using spatial light modulators,’ Seminar, ISITE campus, Indian Space Research Organization, Bangalore, India, 15 October, 2014.
11. ‘Enabling nanoscale biological imaging through the development of low-cost adaptive optics assisted microscopes,’ Seminar, Instituto de Optica, CSIC, Madrid, Spain, 30 June, 2014.
12. ‘Advanced wavefront sensing methods in astronomy and vision science,’ OSA/SPIE student chapter, Department of Physics, Indian Institute of Technology, Madras, Chennai, India, 3 January, 2013.
13. ‘Detecting lower order aberrations: an analysis of Hartmann Shack, curvature and confocal wavefront sensors,’ Instrumentation seminar, Indian Institute of Astrophysics, Bangalore, India, 4 January, 2013.
14. ‘Selection of pinhole size in wavefront sensor-less adaptive optics,’ 1st Workshop on Opto-Imaging Ireland 2012, National University of Ireland Galway, 7 December, 2012.
15. ‘Demonstration of dithering Hartmann-Shack wavefront sensor using a spatial light modulator,’ 4th Summer Workshop on Optoinformatics, National University of Ireland, Maynooth, June, 2012.
16. Public talk, “Adaptive optics in astronomy” at Space Applications Centre (ISRO), Ahmedabad, India, on 2 March 2012.
17. “Adaptive Optics: Introduction, methods and analysis” at Laboratory for Electro-Optics Systems (LEOS), ISRO, Bangalore, India on January 11, 2012.
18. Public speech addressing the students at Bhadrachalam Public School and Junior College (BPS and Jr. Col.), Sarapaka, Andhra Pradesh, India on December 1, 2011 “Careers in Science and Technology” at Bhadrachalam Public School and Junior College, Sarapaka, Andhra Pradesh, India on December 1, 2011
19. “Adaptive Optics: principles, practice and application” at ISRO Satellite Centre (ISAC), Bangalore, India on 23 November, 2011.
20. “Efficient and improved wavefront sensing techniques in adaptive optics”, In-House Scientific Meeting, Indian Institute of Astrophysics, Bangalore, India, April 9, 2010.
21. “Astronomy and Optics”, OSA/SPIE student chapter, also part of IYA-09 at National Institute of Technology, Tiruchirappalli, India August 2009.
22. “Liquid crystal spatial light modulator for adaptive optics”, In-House Scientific Meeting, Indian Institute of Astrophysics, Bangalore, India, April 15 - 16, 2008.

PROFESSIONAL  
MEMBERSHIPS

SPIE – The International Society for Optical Engineering – Lifetime member.  
OSA – The Optical Society of America.  
ARVO – The Association for research in vision and ophthalmology.

CONFERENCES &  
WORKSHOPS  
ATTENDED

1. Presented a talk at SPIE Photonics West (BiOS), 6-11 March, 2021.
2. Presented a poster at the 2020 Annual Meeting of the Stanford Center for Image Systems Engineering (SCIEN), Stanford University, 20 November, 2020.
3. Presented two talks at the CfAO Fall Science Retreat, 26-30 October, 2020.
4. Presented a poster at the OSA Imaging and Applied Optics Congress, Washington, DC United States, 22-26 June 2020.
5. Presented a poster at the ARVO meeting, Vancouver, Canada, 28 April - 2 May, 2019.
6. Presented a talk at Wavefront and Presbyopic Congress, Santa Fe, New Mexico, 16 March 2019.
7. Invited talk at Applied Industrial Optics: Spectroscopy, Imaging and Metrology meeting of the Optical Society of America, Orlando, Florida United States, 25-28 June 2018.
8. Presented a poster at ARVO – The Association for Research in Vision and Ophthalmology conference, Baltimore, MD, USA, 7–11 May, 2017.
9. Attended Optical Society of America Fall Vision meeting, Rochester, NY, USA, 21–23 October, 2016.
10. Presented oral paper at Optical Society of America 100th Frontiers in Optics meeting, Rochester, NY, USA, 17–21 October, 2016.
11. Presented oral paper at Visual and Physiological Optics, Antwerp, Belgium, 22–24 August, 2016.
12. Presented oral paper at Optical Society of America Imaging and Applied Optics meeting, Adaptive Optics: Methods, Analysis and Applications (AO), Arlington, Virginia, USA, 7–11 June, 2015.
13. Presented oral paper at the X International workshop on Adaptive optics for Industry and Medicine, Padova, Italy, 15–19 June, 2015.
14. Participated in the Third Edition Advanced Training on Technology Commercialization (Intellectual Property (IP) valuation & Licensing), fundacion para el conocimiento madri+d, Madrid, 2–3 June 2015.
15. Attended Laser World of Photonics India at Bangalore, Karnataka, India, 23–25 June, 2014.
16. Presented paper (Oral) at World Meeting in Visual and Physiological Optics (AO), Wroclaw, Poland, 25–27 August, 2014.
17. Presented paper (Oral) at Optical Society of America Imaging and Applied Optics meeting, Adaptive Optics: Methods, Analysis and Applications (AO), Arlington, Virginia, USA, 23–27 June, 2013.

18. Part of the team that represented the Optical Society of America/SPIE Student Chapters of UCD and exhibited optic tools and solar cells at the Dublin Mini Maker Faire 2012, Science Gallery, Pearse Street, Trinity College, Dublin 2, on July 14, 2012.
19. Presented paper (Oral) at the 1st Workshop on Opto-Imaging Ireland 2012, Galway, Ireland, 07 December, 2012.
20. Presented two papers (one oral, one poster) at European Optical Society Topical Meeting: 6th European Meeting on Visual and Physiological Optics (EMVPO), Dublin , 20–22 August, 2012.
21. Presented a paper (oral) at the 4th Summer Workshop on Optoinformatics, National University of Ireland, Maynooth , 14–16 June, 2012.
22. Part of the team that represented the Indian Institute of Astrophysics in a two day conference “Frontiers in Science and Technology: Opportunities and Challenges”, organized by Karnataka Science and Technology Academy at Science Block in University of Mangalore, 28–29 January, 2012.
23. Presented 3 papers (oral) in the Optical Society of America meeting on Adaptive Optics: Methods, Analysis and Applications (AO), The Westin Harbour Castle, Toronto, Ontario, Canada, 10–14 July, 2011.
24. Attended and presented a paper (oral) in ‘Optics’11’, Calicut, Kerala, India, 23–25 May, 2011.
25. Attended and presented a paper (oral) in the Second International Conference on Advances in Power Electronics and Instrumentation Engineering (PEIE), 2011, Nagpur, Maharashtra, India, 21–22 April, 2011.
26. Was part of the team which represented the Department of Science and Technology in the third conference cum exhibition in the University of Mysore, Theme: “Globalization: Challenges and Opportunities for Science and Technology”, University of Mysore, 15–16 February, 2011.
27. Attended and presented 4 papers (1 oral, 3 posters) in the SPIE symposium: Astronomical Telescopes and Instrumentation, San Diego, USA, 27 June – 2 July, 2010.
28. Attended and presented 2 papers (2 oral) in SPIE Photonics WEST, San Francisco, USA, 23–29 January, 2010.
29. Presented a paper (oral) in the International Conference on Information Systems and Software Engineering, Meenakshi Sundararajan Engineering College, Chennai, India, 28–30 December, 2009
30. Presented 3 papers (1 oral, 2 posters) in the International Conference on Optics and Photonics, CSIO, Chandigarh, India, 30 October – 1 November, 2009.
31. Presented a paper (oral) in the International Conference on Advances in Recent Technologies in Communication and Computing, ACEEE, Kottayam, India, 27–28 October, 2009.
32. Presented 2 papers (both oral) in the International Conference on Advanced Computing, Cauvery College for Women, Tiruchirappalli, India, 6–8 August, 2009.
33. Attended and presented a paper (oral) in the National Conference on Innovative Computational Intelligence and Security Systems, Sona College of Technology, Salem, India, 3–4 April, 2009.

34. Attended and presented a paper (oral) in the International Conference on Trends in Optics and Photonics, University of Calcutta, Kolkata, India, 1–4 March, 2009.
35. Presented 2 posters in the 27th meeting of the Astronomical Society of India, Indian Institute of Astrophysics, Bangalore, India, 18–20 February, 2009.
36. Attended “Photonics India Review”, Indian Institute of Science, October, 2008.
37. Attended the 2nd IIA - PennState Astrostatistics School, Kavalur, 9–16 July, 2008.
38. 6<sup>th</sup> National Conference on Virtual Instrumentation in Engineering Education, 26 October, 2007
39. Young Astronomers Meet, Indian Institute of Astrophysics, 3–5 January, 2007.
40. 2006 Solar Physics Winter School, Indian Institute of Astrophysics, Kodaikanal, 10–22 December, 2006.



**Peer Reviewed Journals - Published (17 first-author, 11 co-author)**

28. **V. Akondi** and A. Dubra, "Shack-Hartmann wavefront sensor optical dynamic range," *Optics Express*, 29(6), 8417-8429, (2021).
27. **V. Akondi** and A. Dubra, "Multi-layer Shack-Hartmann wavefront sensing in the point source regime," *Biomedical Optics Express*, 12(1), 409-432, (2021).
26. **V. Akondi**, B. Kowalski, S. A. Burns, and A. Dubra, "Dynamic wavefront distortion in resonant galvanometric optical scanners," *Optica*, 7(11), 1506-1513, (2020).
25. M. Vinas, S. Aissati, A. M. Gonzalez-Ramos, M. Romero, L. Sawides, **V. Akondi**, E. Gamba, C. Dorronsoro, T. Karkainen, D. Nankivil, S. Marcos, "Optical and visual quality with physical and visually simulated presbyopic multifocal contact lenses," *Translational Vision Science & Technology*, 9(20), 1-16 (2020).
24. **V. Akondi** and A. Dubra, "Average gradient of Zernike polynomials over polygons," *Optics Express*, 28(13), 18876-18886 (2020).
23. **V. Akondi** and A. Dubra, "Accounting for focal shift in the Shack-Hartmann wavefront sensor," *Optics Letters* 44(17), 4151-4154 (2019).
22. **V. Akondi**, S. Steven, and A. Dubra, "Centroid error due to non-uniform lenslet illumination in the Shack-Hartmann wavefront sensor," *Optics Letters* 44(17), 4167-4170 (2019).
21. M. Vinas, C. Benedi, S. Aissati, D. Pascual, **V. Akondi**, C. Dorronsoro, S. Marcos, "Visual simulators replicate vision with multifocal lenses," *Scientific Reports*, 9, 1539 (2019).
20. C. Dorronsoro, X. Barcala, E. Gamba, **V. Akondi**, L. Sawides, Y. Marrakchi, V. Rodriguez-Lopez, C. Benedi-Garcia, M. Vinas, E. Lage, and S. Marcos, "Tunable lenses: dynamic characterization and fine-tuned control for high-speed applications," *Optics Express*, 27(3), 2085-2100, 2019.
19. **V. Akondi**, L. Sawides, Y. Marrakchi, E. Gamba, C. Dorronsoro, and S. Marcos, "Experimental validations of a tunable-lens-based visual demonstrator of multifocal corrections," *Biomedical Optics Express*, 9(12), 6302-6317, 2018.
18. M. Vinas, A. Gonzalez-Ramos, C. Dorronsoro, **V. Akondi**, N. Garzon, F. Poyales, S. Marcos, "In vivo measurement of longitudinal chromatic aberration in patients implanted with trifocal diffractive intraocular lenses," *Journal of Refractive Surgery*, 33(11), 736-742, 2017.
17. **V. Akondi**, C. Dorronsoro, E. Gamba and S. Marcos, "Temporal multiplexing to simulate multifocal intraocular lenses: theoretical considerations," *Biomedical Optics Express*, 8(7), 3410-3425, 2017.
16. **V. Akondi**, P. Pérez-Merino, E. Martínez-Enriquez, C. Dorronsoro, N. Alejandro, I. Jiménez-Alfaro, S. Marcos, "Evaluation of the true wavefront aberrations in eyes implanted with a rotationally asymmetric multifocal intraocular lens," *Journal of Refractive Surgery*, 33(4), p. 257-265, 2017.
15. **V. Akondi**, B. Vohnsen, S. Marcos, "Virtual pyramid wavefront sensor for phase unwrapping," *Applied Optics*, 55(29), p. 8363-8367, 2016.
14. **V. Akondi**, C. Falldorf, S. Marcos, B. Vohnsen, "Phase unwrapping with a virtual Hartmann-Shack wavefront sensor," *Optics Express*, 62(10), p. 786-792, 2015.

13. A.R. Jewel, **V. Akondi**, B. Vohnsen, “Optimization of sensing parameters for a confocal signal-based wavefront corrector in microscopy,” *Journal of Modern Optics*, 23(20), p. 25425–25439, 2015.
12. **V. Akondi**, A.R. Jewel, B. Vohnsen, “Closed-loop adaptive optics using a spatial light modulator for sensing and compensating of optical aberrations in ophthalmic applications,” *Journal of Biomedical Optics*, 19(9), p. 096014-1-096014-7, 2014.
11. **V. Akondi**, S. Castillo, B. Vohnsen, “Multi-faceted digital pyramid wavefront sensor,” *Optics Communications*, 323, p. 77-86, 2014.
10. **V. Akondi**, A.R. Jewel, B. Vohnsen, “Digital phase-shifting point diffraction interferometer,” *Optics Letters* 39, p. 1641-1644, 2014. (also appeared in *Virtual Journal for Biomedical Optics*, Vol. 9, Issue 5)
9. M.B. Roopashree, **V. Akondi**, S.J. Weddell, B.R. Prasad, “Myopic aberrations: Simulation based comparison of curvature and Hartmann Shack wavefront sensors,” *Optics Communications*, 312, p. 23–30, 2014.
8. A.R. Jewel, **V. Akondi**, B. Vohnsen, “A direct comparison between a deformable mirror and a spatial light modulator in signal-based wavefront sensing,” *Journal of the European Optical Society - Rapid publications*, 8, p. 13073, 2013.
7. **V. Akondi**, S. Castillo, B. Vohnsen, “Digital pyramid wavefront sensor with tunable modulation,” *Optics Express*, 21 (15), p. 18261–18272, 2013.
6. **V. Akondi**, B. Vohnsen, “Myopic aberrations: impact of centroiding noise in Hartmann Shack wavefront sensing,” *Ophthalmic and Physiological Optics*, 33, p. 434–443, 2013.
5. M.B. Roopashree, **V. Akondi**, B.R. Prasad, “A review of atmospheric wind speed measurement techniques with Shack Hartmann wavefront imaging sensor in adaptive optics,” *Journal of the Indian Institute of Science*, 93, p. 67–84, 2013.
4. S. Chatterjee, **V. Akondi**, R.R. Haghighi, P. Kumar, “The energy dependence of the photoelectric attenuation coefficient of substances,” *Journal of Biomedical Physics and Engineering*, 1, p. 22–27, 2011.
3. R.R. Haghighi, S. Chatterjee, **V. Akondi**, P. Kumar, S. Thulkar, “X-ray attenuation coefficient of mixtures: Inputs for dual-energy CT,” *Medical Physics* 38 (10), p. 5270, 2011.
2. **V. Akondi**, M.B. Roopashree, B.R. Prasad, “Centroid detection by Gaussian pattern matching in adaptive optics,” *International Journal of Computer Applications*, 1 (26), p. 30 –35, 2010.
1. S.K. Jha, **V. Akondi**, O.S.K.S. Sastri, R. Jain, K.S. Umesh, “Determination of wavelength of laser using modified Newton’s rings setup,” *Physics Education*, 22 (3), pp. 195–202, 2005.

### Peer Reviewed Journals - In review

2. **V. Akondi**, B. Kowalski, and A. Dubra, “Dynamic wavefront distortion in resonant MEMS optical scanners,” (2021).
1. B. Kowalski, **V. Akondi** and A. Dubra, “Digital correction of optical scanning non-linearity and jitter,” Manuscript in preparation.

## Manuscripts in preparation

1. **V. Akondi** and A. Dubra, “Ophthalmic Shack-Hartmann wavefront sensor,” Review article in preparation.

## Book in preparation

1. **V. Akondi**, R. Sabesan, and A. Dubra, “Handbook of Ophthalmic Adaptive Optics,” online book in preparation.

## Publications: Book Chapters

2. **V. Akondi**, M.B. Roopashree, B.R. Prasad, “Advanced methods for improving the efficiency of a Shack Hartmann wavefront sensor,” In Robert K. Tyson (Ed.), *Topics in Adaptive Optics*, InTech, p. 167–196, 2012.
1. **V. Akondi**, M.B. Roopashree, B.R. Prasad, “Efficient minimization of servo lag error in adaptive optics using data stream mining,” In V. V. Das, N. Thankachan and N. C. Debnath (Eds.), *Advances in Power Electronics and Instrumentation Engineering*, Springer, p. 13–18, 2011.

## Publications in reviewed conference proceedings

67. **V. Akondi**, A. Dubra, A two-layer Shack-Hartmann wavefront sensor model of the human and mouse retinas, Proc. SPIE Vol. 11623, 2021.
66. **V. Akondi**, B. Kowalski, N. Sredar, A. Dubra, Wavefront distortions in an oscillating resonant galvanometric optical scanner, OSA Adaptive Optics: Methods, Analysis and Applications, June 22–24, 2020.
65. T. Zhang, A. Kho, **V. Akondi**, A. Dubra, V. Srinivasan, In vivo quantification of Bruchs membrane in humans with visible light OCT, Proc. SPIE Vol. 11218, 2020.
64. **V. Akondi**, and A. Dubra, Shack-Hartmann wavefront sensor bias at the pupil boundary: problem and solution. Investigative Ophthalmology and Visual Science, 60(9), 5052-5052 (2019).
63. S. Steven, **V. Akondi**, and A. Dubra, Chromatic Shack-Hartmann wavefront sensor with adaptive optics correction of monochromatic aberrations. Investigative Ophthalmology and Visual Science, 60(9), 4613-4613 (2019).
62. M. Vinas, S. Aissati, A. Gonzales-Ramos, M. Romero, L. Sawides, **V. Akondi**, E. Gamba, C. Dorronsoro, M. Eduardo, T. Karkkainen, D. Nankivil, and S. Marcos, Optical and visual quality with physical and visually simulated presbyopic multifocal contact lenses. Investigative Ophthalmology and Visual Science, 60(9), 6468-6468 (2019).
61. C. Dorronsoro, V. Rodriguez Lopez, X. Barcala, E. Gamba, **V. Akondi**, L. Sawides, Y. Marrakchi, E. Lage, W. S. Geisler and S. Marcos, Perceptual and physical limits to temporal multiplexing simulation of multifocal corrections. Investigative Ophthalmology and Visual Science, 60(9), 6465-6465 (2019).
60. **V. Akondi**, L. Sawides, Y. Marrakchi, E. Gamba, X. Barcala, S. Marcos, and C. Dorronsoro, “On-bench validations of tunable lens based multifocal visual simulations,” in Imaging and Applied Optics 2018, The Optical Society (Optical Society of America, 2018), paper AW2A.1.

59. M. Romero, M. Vinas, S. Aissati, J. L. Mendez-Gonzalez, C. Benedi, E. Gamba, **V. Akondi**, N. Garzon, F. Poyales, C. Dorronsoro, S. Marcos, "Comparacion de simuladores visuales multifocales antes y despues del implante de lentes trifocales difractivas en pacientes reales," XII Reunin Nacional de Optica, RNO 2018 Castellon, Spain.
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