# CURRICULUM VITAE

**Safal Khanal, O.D., Ph.D., F.A.A.O.**
Assistant Professor
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## Academic Qualifications

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| 2015-2019 | Ph.D., The University of Auckland, New Zealand<br>*Thesis: Physiological responses of the human retina and choroid to retinal image defocus: Implications for myopia (Supervisor: Dr. John Phillips)* |
| 2013-2014 | O.D. (Dean's Lister), Southwestern University, Philippines |
| 2008-2012 | B.Optom, Tribhuvan University, Nepal<br>*Thesis: Retinal nerve fiber layer and macular thickness in glaucomatous Nepalese eyes and their relationship with visual field sensitivity (Supervisor: Dr. Madhu Thapa)* |

## Professional Qualification/Licenses

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| 2020– | Optometry T-License, Alabama Board of Optometry (T-246-TA-B76) |
| 2016– | Fellow, American Academy of Optometry |
| 2015– | Optometry License, Nepal (A-T-121 OPT/A-84 OPT) |

## Professional Appointments

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| 2021– | Assistant Professor, School of Optometry, University of Alabama at Birmingham, USA |
| 2019–2021 | Postdoctoral Fellow, School of Optometry, University of Alabama at Birmingham, USA (Mentors: Profs. Timothy J. Gawne and Jason J. Nichols) |
| 2019 | Research Assistant and Postdoctoral Fellow, Myopia Lab and Dakin Lab, The University of Auckland, NZ (Mentors: Dr. John Phillips and Prof. Steven Dakin) |
| 2016–2019 | Graduate Teaching Assistant, School of Optometry and Vision Science, Faculty of Medical and Health Sciences, The University of Auckland, NZ. |
| 2017–2018 | Area Officer, Grafton Residences, Campus Life, The University of Auckland, NZ |
| 2015 | Consultant Optometrist, Grande International Hospital, Kathmandu, Nepal |
| 2012–2013 | Clinical Optometrist, Siddhartha and Sudrishti Eye Clinic, Kathmandu, Nepal |

## Research Focus

My research program focuses on the visually guided mechanism of emmetropization that actively regulates axial eye growth to match the eye's axial length and optical power (focal length) to achieve and maintain good focus (emmetropia). The current emphasis is on understanding the key operating characteristics of the emmetropization machinery, including visual cues, growth signals, retinal and choroidal responses, neural circuity, and signal transmission in the retinal-choroid-sclera pathway. The overarching aim is to inform how the emmetropization mechanism 1) integrates visual information to generate growth signals, 2) processes these signals to modulate eye growth, and 3) fails or loses efficiency leading to the development of refractive errors like myopia. To study these questions, my laboratory uses advanced imaging and electrophysiology tools as well as clinical, cellular, and molecular techniques in tree shrews (dichromatic mammals closely related to primates) and humans, including children. The overall goal is to devise clinically translatable strategies to prevent the onset of myopia and slow its progression in children.

## Publications

### *Peer-reviewed journal articles*

2022 **Khanal S**, Kim L, Turnbull P, Phillips JR. The response of the human choroid to short-term changes in eyelid and periocular temperature (Under review)

**Khanal S**, Paudel N, Adhikari R, Joshi MR. Optometry in Nepal: Clinical Practice, Research Advances, and Challenges (Under review)

**Khanal S**, Norton TT, Gawne TJ. Limited bandwidth short-wavelength light: A better model of juvenile-onset myopia (Under review)

**Khanal** S, Bai Y, Ngo W, Wilson L, Barnes S, Nichols KK, Nichols JJ. Human meibum and tear film derived cholesteryl and wax esters in meibomian gland dysfunction and tear film structure. The Ocular Surface. 2022; 23:12-23.

Bai Y, Ngo W, **Khanal S**, Nichols JJ. Characterization of the Thickness of the Tear Film Lipid Layer in Meibomian Gland Dysfunction using High-Resolution Optical Microscopy. The Ocular Surface. 2022; 24: 34-39.

2021 Logan NS, Radhakrishnan H, Cruickshank F, Allen PM, Bandella PK, Davies LN, Hasebe S, **Khanal S**, Schmid KL, Vera-Diaz FA, Wolffsohn JS. IMI: Accommodation and Binocular Vision in Myopia Development and Progression. Invest. Ophthalmol. Vis. Sci. 2021;62(5):4.

**Khanal S**, Norton TT, Gawne TJ. Amber light treatment produces hyperopia in tree shrews. Ophthalmic Physiol Opt. 2021 Aug 11.

Norton TT, **Khanal S**, Gawne TJ. Tree shrews do not maintain emmetropia in initially-focused narrow-band cyan light. Exp. Eye Res. 2021 Mar 10:108525.

Ramamoorthy P, **Khanal S (co-first author)**, Nichols JJ. Inflammatory proteins associated with contact lens-related dry eye. Contact Lens and Anterior Eye. 2021 Apr 3:101442.

**Khanal S**, Ngo W, Wilson L, Barnes S, Nichols KK, Nichols JJ. Human meibum and tear film derived (o-acyl)-omega-hydroxy fatty acids in meibomian gland dysfunction. The Ocular Surface. 2021; 21: 118-128.

**Khanal S**, Bai Y, Ngo W, Wilson L, Barnes S, Nichols KK, Nichols JJ. Human meibum and tear film derived (o-acyl)-omega-hydroxy fatty acids as biomarkers of tear film dynamics in meibomian gland dysfunction and dry eye disease. Invest Ophthalmol Vis Sci. 2021;62(9):13

**Khanal S**, Paudel N, Joshi MR. Optometry in Nepal: historical perspectives. Clinical and Experimental Optometry. 2021 May 2:1-4.

Bai Y, Ngo W, **Khanal S**, Nichols KK, Nichols JJ. Human precorneal tear film and lipid layer dynamics in meibomian gland dysfunction. The Ocular Surface. 2021 Mar 23:S1542-0124(21)00018-5.

Turnbull P, **Khanal S**, Dakin S. The effect of cellphone position on driving and gaze behavior. Scientific reports. 2021 Apr 8;11(1):1-0.

2020 **Khanal S**, Rathod SN, Phillips JR. The acute effect of atropine eye drops on the human full-field electroretinogram. Doc Ophthalmol. 2021 Jun;142(3):315-328. Epub 2020.

Kharal A, **Khanal S (co-first author)**, Shrestha JB, Shrestha GS, Paudel N. Flash VEP in clinically stable pre-term and full-term infants. 2020;141(3):259-267.

2019 **Khanal S**, Phillips JR. Which low-dose atropine for myopia control? Clinical and Experimental Optometry. 2019; 103: 230-232.

**Khanal S**, Turnbull PRK, Lee N, Phillips JR. Effect of atropine on global flash mfERG responses to retinal defocus. Invest Ophthalmol Vis Sci. 2019;1(60):218-225.

**Khanal S**, Turnbull PRK, Vaghefi E, Phillips JR. Repeatability of arterial spin labeling MRI in measuring blood perfusion in the human eye. JMRI. 2019 Apr;49(4):966-74.

2017 Uprety S, Morjaria P, Shrestha JB, Shrestha GS, **Khanal S**. Refractive status in preterm infants and its relation to clinical risk factors. Optom Vis Sci. 2017 Oct 1;94(10):957-64.

**Khanal S**, Walton M, Davey PG. Evaluation of intraocular pressure estimates obtained using an ICare rebound tonometer. Clin Exp Optom. 2017;100(2):179-83.

Gnyawali S, Shrestha GS, **Khanal S**, Dennis T, Spencer JC. Ocular morbidity among porters at high altitudes. Nepal J Ophthalmol. 2017 Jun 20;9(1):30-6.

Sitaula RK, Joshi SN, **Khanal S**. Surgical eye camp in a rural area of Nepal and its role in Vision 2020. Journal of Chitwan Medical College. 2017;6(2):1-5.

Thapa M, Gautam P, Joshi SN, **Khanal S**. Antibiotic sensitivity pattern on cluster endophthalmitis caused by Gram-negative organism JIOM. 2017;39(2): 38-42.

2016 **Khanal S**, Davey PG, Racette L, Thapa M. Comparison of retinal nerve fiber layer and macular thickness for discriminating Primary Open Angle Glaucoma and Normal-Tension Glaucoma using Optical Coherence Tomography. Clin Exp Optom. 2016;99(4):373-81.

Uprety S, **Khanal S**, Morjaria P, Puri LR. Profile of Pediatric Low Vision Population: A Retrospective Study from Nepal. Clin Exp Optom. 2016;99(1):61-5.

**Khanal S**, Davey PG, Racette L, Thapa M. Intraeye retinal nerve fiber layer and macular thickness asymmetry measurements for the detection of Primary Open Angle Glaucoma and Normal-Tension Glaucoma using OCT. J Optom. 2016;9:118-25.

**Khanal S**, Pokharel A, Kandel H. Visual deficits in Nepalese patients with oculocutaneous albinism. J Optom. 2016;9:102-9.

2014 **Khanal S**, Thapa M, Racette L, Johnson R, Davey PG, Joshi MR, Shrestha GS. Retinal nerve fiber layer thickness measurements in glaucomatous Nepalese eyes and their relation with visual field sensitivity. J. Optom. 2014;7:217-224.

**Khanal S**, Kandel H. Axial length and corneal curvature in anisometropic amblyopia in Nepalese children. Opt Vis Perf 2014;2(3):142-145.

Thapa M, **Khanal S**, Shrestha GB, Sharma AK. Retinal nerve fiber layer thickness measurement in Nepalese population by optical coherence tomography. Nepal J Ophthalmol 2014;6(12):131-139.

2013 **Khanal S**, Lama P. Profile of low vision population attending low vision clinic in a peripheral eye hospital in Nepal. Opt Vis Perf 2013;1(6):367-376.

**Khanal S**, Gautam P, Paudel N. Waardenburg syndrome: A report of two familial case series. Opt Vis Perf 2013;1(6):378-385.

Thapa M, Kumar P, **Khanal S**, Shrestha GB, Sharma AK. Unusual case of bilateral angle-closure glaucoma. J Nepal Med Assoc 2013;52 (190):205-12.

Thapa M, Shrestha GB, Sharma AK, Karki S, **Khanal S.** Recurrence of uveal malignant melanoma: a case report. Nepal J Ophthalmol 2013;5(10):275-278.

***Editor-reviewed articles***

2022 **Khanal S**. Combination treatment strategy for myopia control. Mastering Myopia, Contact Lens Spectrum. May 18, 2022.

**Khanal S**. Not all myopias are the same. Mastering Myopia, Contact Lens Spectrum. April 20, 2022.

2021 **Khanal S**. Myopia—Not Just "Nearsightedness" But a Disease. Mastering Myopia, Contact Lens Spectrum. September 15, 2021.

**Khanal S**. Myopia Management: A Specialty or Primary Care? Mastering Myopia, Contact Lens Spectrum. July 21, 2021.

**Khanal S**. Ocular Growth Charts: A New Decision-Making Tool For Myopia Management. Mastering Myopia, Contact Lens Spectrum. June 23, 2021.

2020 **Khanal S.** Evidence-based Myopia Management: Clinical Considerations. MiVision. December 2020. (Continuing Professional Development Article)

**Khanal S**. 0.01% Atropine’s puzzling disconnect. MiVision. February 2020.

**Khanal S**. Which low-dose atropine for myopia control? NZOptics. March 2020.

**Khanal S**. Optometry from New Zealand to Nepal. NZAO TVC. February 2020.

2017 **Khanal S,** Turnbull PRK. Atropine: Efficacy and possible mechanisms for myopia control. MiVision. November 2017.

2015 **Khanal S.** Impact of Visual Skills Training on Sports Performance: Current and Future Perspectives. Adv Ophthalmol Vis Syst 2015, 2(1):00032.

2012 **Khanal S.** Spectral-Domain Optical Coherence Tomography in Glaucoma: A review of its interpretation. Annual Optometry Journal- The Sight. 2012;8(8):56-59.

Kandel H, **Khanal S**, Pokharel A, Bhatta S. Pattern of ocular morbidity in a rural community of Nepal. Annual Optometry Journal- The Sight. 2012;8(8):18-19.

2011 **Khanal S**. Visual Motor Integration and Learning Disabilities: The Role of Optometrists. Annual Optometry Journal- The Sight. 2011;7(7):54-55.

**Research Activity**

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***Refereed conference presentations***

2022 **Khanal S**, Rathod S, Phillips JR. Retinal On-Off pathway activity in myopes and non-myopes. International Myopia Conference (IMC), September 4-7, Rotterdam, the Netherlands.

Phillips JR, Lee L, **Khanal S**, Chiang S. Smartphone viewing: effect of the visual surroundings on choroidal thickness. International Myopia Conference (IMC), September 4-7, Rotterdam, the Netherlands.

2021 **Khanal S**, Gamble K, Norton TT, Gawne TJ. The spectrum of ambient light does not substantially affect circadian rhythms of behavioral activity in tree shrews. AAO, November 3–6, 2021, Boston, MA, USA (Paper).

**Khanal S**, Bai B, Ngo W, Wilson L, Barnes S, Nichols KK, Nichols JJ. Human Meibum and Tear Film Derived (O-acyl)-Omega-Hydroxy Fatty Acids as Biomarkers of Tear Film Dynamics. ARVO 2021 (Paper)

2020 **Khanal S**, Norton TT, Gawne TJ. Amber light treatment produces hyperopia in tree shrews. Southeastern Vision Research Conference, Dec 7–8, 2020, USA (Paper).

**Khanal S**, Norton TT, Gawne TJ. Amber light treatment produces hyperopia in tree shrews. AAO, November 7–22, 2020, Nashville, TN, USA.

**Khanal S**, Norton TT, Gawne T. 7-MX does not prevent induced myopia in tree shrews. ARVO 2020.

2019 Kharal A, **Khanal S**, Shrestha GS, Shrestha JB, Paudel N. Comparison of Flash VEP between Clinically Stable Preterm and Full Term Infants. AAO, Oct. 23–27, 2019, Orlando, FL, USA.

Rathod S, **Khanal S**, Phillips J. The effect of 0.1% Atropine on human full-field electroretinogram responses. 17th IMC, September 12–15, 2019, Tokyo, Japan.

K**hanal S**, Turnbull PRK, Vaghefi E, Phillips JR. Blood perfusion MRI response of the human choroid to myopic retinal image defocus. ARVO 2019, Canada.

2018 **Khanal S**, Kim L, Turnbull PRK, Phillips JR. The effect of temperature on the thickness of the ocular choroid. AAO, November 7–10, 2018, San Antonio, USA.

K**hanal S**, Turnbull PRK, Lee Nicholas, Phillips JR. Effect of atropine on multifocal electroretinogram responses to defocus. 56th ISCEV symposium, June 20–23, 2018, Reims, France (Paper).

**Khanal S**, Turnbull PRK, Lee Nicholas, Phillips JR. Atropine selectively enhances peripheral mfERG responses to myopic retinal defocus. Scientific and Educators' Meeting in Optometry, April 5–6, Australia (Paper).

2017 **Khanal S**, Turnbull PRK, Vaghefi E, Phillips JR. Intra- and inter-sessional reproducibility of MRI measures of blood perfusion in the human choroid. 16th International Myopia Conference, September 14–17, 2017, Birmingham, UK.

2016 **Khanal S**, Turnbull PRK, Phillips JR. Defocus induced changes in retinal electrophysiological responses and the effect of atropine. AAO, November 9–12, 2016, Anaheim, CA, USA.

**Khanal S**, Turnbull PRK, Vaghefi E, Phillips J. Arterial spin labeling for ischemic retinal diseases. HealtheX, The University of Auckland, Sept. 9, 2016, NZ.

2015 **Khanal S,** Pokharel A, Kandel H. Visual Problems in Albinism. 20th Asia Pacific Optometry Congress, October 9–11, 2015, Kuala Lumpur, Malaysia (Paper).

**Khanal S**, Davey PG, Racette L, Thapa M. Intraeye RNFL and macular thickness asymmetry for the discrimination of NTG and POAG. 20th Asia Pacific Optometry Congress, Oct 9–11 2015, KL, Malaysia (Paper).

**Khanal S**, Davey PG, Racette L, Thapa M. Comparison of RNFL and macular thickness parameters for discrimination of POAG and NTG. 1st World Council of Optometry Congress, August 14–16, 2015, Medellin, Colombia (Paper).

2014 **Khanal S**, Lama P. Profile of low vision population attending a low vision clinic in Nepal. 1st CEU International Conference of Health Professionals, Jan. 31, Philippines (Paper).

**Khanal S**, Gautam P, Paudel N. Waardenburg syndrome: A case report of two familial case series. 1st CEU International Conference of Health Professionals, Jan. 31, Philippines (Paper).

2013 Kandel H, Kaphle D, Gyawali R, **Khanal S**, Upadhyaya S. Refractive errors in the Maldives- A pilot study. 19th APOC, October 2–4, 2013, Seoul, Korea.

***Invited talks***

2022 **"The mechanistic basis of myopia: Insights from retinal physiology"**, Vision Science Research Center Vision Research at UAB, May 24, 2022, AL, USA.

2021 "**Emmetropization to myopiagenesis: Insights from defocus and chromatic cues**", 2nd Indian Myopia Awareness and Research Conference, Nov. 20, 2021.

"**The mechanistic basis of myopia: Insights from defocus and chromatic cues**", New England College of Optometry, April 26, 2021, Boston, MA, USA.

"**The mechanistic basis of myopia: Insights from defocus and chromatic cues**", University of Alabama at Birmingham School of Optometry, June 11, 2021, AL, USA.

2019 "**The mechanistic basis of myopia: Insights from defocus cues**", University of Alabama at Birmingham School of Optometry, April 23, 2019, AL, USA.

"**Which low-dose atropine for myopia control**", School of Optometry and Vision Science Conference, 16 June 2019, Auckland, New Zealand.

2018 "**MRI of blood flow in the human retina/choroid complex**", 1st All Nepal Optometry Conference, October 5–6, 2018, Kathmandu, Nepal

"**Quantifying chorio-retinal perfusion using arterial spin labeling MRI**", Division of Optometry and Vision Science, City, University of London, 14 June 2018, UK.

"**Arterial spin labeling MRI in Ophthalmology**", Institute of Biomedical Engineering, University of Oxford, 8 June 2018, Oxford, UK.

"**Global flash mfERG for myopia**", Roland Consult Electrophysiology Users Meeting, Greenlane Hospital, 13 May 2018, Auckland, New Zealand.

2017 "**MRI for the measurement of blood flow in the human eye**", 87th New Zealand Association of Optometrists Conference, October 13–14, 2017, Hamilton, NZ.

"**Atropine's action to control myopia: Understanding the mechanisms**", School of Optometry and Vision Science Conference, 29 May 2017, Auckland, NZ.

## Research Support

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| 2022 | Exosome signaling in eye growth regulation and myopia. Sponsor: UAB Vision Science Research Center. PI: **S. Khanal.** US$20,000 |
| 2022 | The role of S-cone neural activity in eye growth regulation and refractive development. PI: **S. Khanal**. Sponsor: E. Matilda Ziegler Foundation for the Blind Inc. US$100,000. |
| 2019 | Myopia control spectacle lens design and choroidal thickness. PI: J. Phillips. Sponsor: Essilor R&D, Singapore. NZ$85,000, Role: Co-investigator |
| 2018 | Funding support for electrophysiology research to **S. Khanal**. Sponsor: International Society for Clinical Electrophysiology of Vision. €1500 |
| 2017–2018 | Effect of complex defocus on the multifocal electroretinogram in normal and myopic eyes. PI: J. Phillips. Sponsor: CooperVision Inc. US$100,000, Role: Co-I |
| 2018 | Knowledge Exchange Grant to **S. Khanal**. Sponsor: The University of Auckland Centre for Brain Research. NZ$5000. |

## Research Collaboration

Dr. Timothy J. Gawne, University of Alabama at Birmingham
Dr. Thomas T. Norton, University of Alabama at Birmingham
Dr. John Phillips, University of Auckland, New Zealand
Dr. Philip Turnbull, University of Auckland, New Zealand
Dr. Mahesh Raj Joshi, University of Plymouth, UK
Dr. Michael Chappell, University of Oxford, UK

## Ad-hoc Journal Peer Reviewer

Proceedings of the National Academy of Sciences of the United States of America (PNAS), Experimental Eye Research, Scientific Reports, Investigative Ophthalmology and Visual Science, Optometry and Vision Science, Ophthalmic and Physiological Optics, Current Eye Research, Eye and Contact Lens, Contact Lens and Anterior Eye, Cortex, Documenta Ophthalmologica, Clinical and Experimental Optometry, BMC Ophthalmology, Journal of Optometry, Optometry and Visual Performance

## Ad-hoc Grant Reviewer

Grants in Preparation (UAB Comprehensive Neuroscience Centre)

## Research Co-Supervision

| | |
|---|---|
| 2019 | Cassandra Ang, Kriti Rana, Kamaldeep Kaur, Jin Aidi (Part V) |
| 2019 | Mark James, Dae Hyun Jin, Cindy Cheakhun, Anthony Chin (Part IV) |
| 2019 | Alah Musa, Lusi Yu, Saagar Patel, Sahil Suratwala (Part IV) |
| 2018–2019 | Sachi Rathod and Joy Qin (Summer Research Student) |
| 2018 | Sasha Logan and Olivia Wood-Bodley (Part V) |
| 2017–2018 | Lucia Kim (Summer Research Student) |
| 2016–2017 | Nicholas Lee (Summer Research Student) |

## Teaching

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| 2022 | OPT 228: Public Health Optometry (Guest Lecture) |
| 2022 | VIS 611: Ocular Pathology (Guest Lectures) |
| 2022 | VS121: Visual Optics (Myopia Panel) |
| 2021 | VIS 779: Advanced Graduate Seminar in Interdisciplinary Studies |
| 2021 | VS121: Visual Optics (Myopia Panel) |
| 2018 | OPTOM 430B: Contact lens Practice |
| 2018–2019 | OPTOM 416: Clinical Optometry |
| 2016–2019 | OPTOM 316: Optometry |
| 2016 | OPTOM 272: Structure and Function of the Visual System |
| | MEDSCI 316: Sensory Neuroscience: From Molecules to Disease |

## Service

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| 2022– | Deans Strategic Advisory Research Subcommittee, UAB School of Optometry |
| 2022 | Faculty-Student Mentorship Committee, UAB School of Optometry |
| 2022– | Faculty Senate, University of Alabama at Birmingham |
| 2021 | Volunteer, Membership Booth, AAO Annual Meeting, Boston, USA |
| 2022– | Committee Member, ARVO Ethics and Regulations in Human Research |
| 2022– | Member, UAB Vision Science Research Center |
| 2021– | Guest Editor, Methods Collection Issue, Journal of Visualized Experiments |
| 2020 | International Myopia Institute White Paper Task Force Member |
| 2020– | Editor-in-Chief, Nepalese Journal of Optometry (Mero Eye Foundation) |
| 2019– | Member, International Myopia Institute |
| 2018–2020 | Member, Cornea and Contact Lens Society of New Zealand |

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| 2018– | Member, Association for Research in Vision and Ophthalmology |
| 2018 | Member, International Society for Magnetic Resonance in Medicine (ISMRM) |
| 2018 | Scientific Committee Member, 1st All Nepal Optometry Conference |
| 2018–2019 | Grant Officer FMHS-PGSA, The University of Auckland |
| 2018-2019 | Member, Faculty Research Committee, The University of Auckland |
| 2018–2020 | Member, International Sports Vision Association |
| 2017 | Co-chair, Abstract Review Committee, HealtheX, The University of Auckland |
| 2017 | Health, Safety and Wellbeing Committee, Campus Life, The University of Auckland |
| 2015–2017 | Board member, Postgraduate Students' Association, The University of Auckland |
| 2015–2019 | Board member, FMHS- Postgraduate Students' Association |
| 2016–2017 | Member, University of Auckland Human Participants Ethics Committee |
| 2016– | Fellow, American Academy of Optometry |
| 2015– | Member, Nepal Health Professional Council (NHPC) |
| 2014– | Member, International Society for Clinical Electrophysiology of Vision (ISCEV) |
| 2012– | Member, Nepalese Association of Optometrists (NAO) |
| 2012–2016 | Member, College of Optometrists in Vision Development (COVD) |
| 2012 | Editor, Annual Optometry Journal - The Sight, Edition. 8 |
| 2010-2011 | Editor, Annual Report, BPKLCOS |
| 2010–2011 | Secretary, Nepal Optometry Students' Society (NOSS) |
| 2010 | Editor, Annual Optometry Journal - The Sight, Edition. 6 |

## Professional activities

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| 2022 | Topical Expert, AAO Foundation Clinical Podcast Series - "Factors Associated with Faster Axial Elongation After Orthokeratology Treatment" |
| 2022 | Topical Expert, AAO Foundation Clinical Podcast Series - "Change in Corneal Power Distribution in Orthokeratology: A predictor for the Change in Axial Length" |

## Scholarships and Awards

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|---|---|
| 2021 | Association of Research in Vision and Ophthalmology Travel Grant |
| 2019 | NZAO Higher Degree Research Write Up Scholarship (NZ$3600) |
| 2018 | Eberhard Dodt Memorial Award (€3000) |
| 2018 | Velocity Innovation Challenge 2018 (NZ$1000) |
| 2018 | Centre for Brain Research Knowledge Exchange Grant (NZ$5000) |

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| 2018 | International Society for Clinical Electrophysiology of Vision Travel Grant (US$1200) |
| 2018 | Scientific and Educators' Meeting in Optometry Travel Grant (A$650) |
| 2018 | American Academy of Optometry Travel Fellowship (US$750) |
| 2017 | FMHS Postgraduate Student Association Travel Grant (NZ$500) |
| 2016 | American Academy of Optometry Travel Fellowship (US$750) |
| 2015 | Asia Pacific Optometric Congress Travel Grant (US$800) |
| 2015 | University of Auckland Ph.D. Scholarship |
| 2015 | CARIPARO Ph.D. Scholarship (Not taken) |
| 2015 | WCO Travel Grant for First World Congress of Optometry (US$2500) |
| 2015 | Best English paper, First World Congress of Optometry, Colombia |
| 2015 | Lt-Col Henry Kirkpatrick Scholarship (Not taken) |
| 2014 | Top-notcher and Dean's Lister, Doctor of Optometry, Philippines |

## Courses/Certifications

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|---|---|
| 2022 | UAB Clinical Investigator Training Program |
| 2020 | Euclid Emerald Certification for Orthokeratology Lenses |
| 2020 | Bausch+Lomb Vision Shaping Treatment VST Process Design Certification |
| 2019 | Applying electrophysiological techniques to translational vision research, ARVO |
| 2018 | Human Lab Course on Electrophysiology, ISCEV symposium, Reims, France |
| 2017 | Managing Myopia Course, Brien Holden Vision Institute Academy, Australia |
| 2016 | UT.7.20x: Foundations of Data Analysis, University of Texas, USA |
| 2015 | Global Blindness: Planning and Managing Eye Care Services, LSHTM, UK. |

## Programming/Statistical Software

MATLAB, R, Git, Github, SPM, FSL, MetaboAnalyst, GraphPad Prism, SPSS, SigmaPlot