

Ata Chizari  
résumé

October 22, 2023

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## 0.1 Contact Information

ZH264, Biomedical Photonic Imaging (BMPI).  
Technical Medical Centre, Faculty of Science and Technology (TNW),  
University of Twente, Drienerlolaan 5,  
7522 NB Enschede, The Netherlands.

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E-mail ..... a [dot] chizari [at] utwente [dot] nl  
Website ..... atachizari.com

## 0.2 Education

- **University of Twente, Enschede, The Netherlands** ..... Feb. 2017 - Apr. 2021  
**Ph.D.** with focus on Biomedical Optics,  
Thesis: Handheld laser speckle contrast perfusion imaging,  
Supervisor: Prof. dr. Wiendelt Steenbergen.
- **Shahid Beheshti University (SBU), Tehran, Iran** ..... Sep. 2013 - Sep. 2015  
**M.Sc.** with focus on Communication Systems,  
GPA: 17.79/20.00 (3.81/4),  
Thesis: Designing A Dimmable OPPM-Based VLC System Under Channel Constraints,  
Supervisor: Dr. Akbar Dargahi.
- **Tafresh University, Tafresh, Iran** ..... Sep. 2009 - Sep. 2013  
**B.Sc.** with focus on Electronics,  
GPA: 18.72/20.00(3.96/4),  
Thesis: Design and Implementation of a Remote Control Switching Device for Electricity Keys with  
Capability of Easy Installation,  
Supervisor: Dr. Ali M. Fotouhi.

### 0.2.1 Certifications

- Certificate in Advanced English (C1) ..... August 2022
- Driving licence (AM and B) ..... March 2022
- Dutch as the second language level B2 (Nederlands als tweede taal (NT2) Programma II) .. July 2021
- Basic life support and defibrillation (BLS-D) including first aid ..... May 2021
- Biophotonics graduate summer school (BIGSS) ..... Aug. 2020

### Conferences Proceedings Participation

- European conferences on biomedical optics, SPIE\OSA, Munich, Germany ..... June 2023
- SPIE Photonics Europe, Strasbourg, France ..... Apr 2022
- 16<sup>th</sup> International conference on LALS, ENSIC site, Nancy, France ..... Apr 2022
- 10<sup>th</sup> IEEE/IET International Symposium on Communication Systems, Networks, and Digital Signal Processing (CSNDSP), Czech Technical University, Prague ..... 2016
- 4<sup>th</sup> Iran Workshop on Comm. and Inf. Theory (IWCIT), Sharif University of Technology, Tehran 2016
- 3<sup>rd</sup> Iran Workshop on Comm. and Inf. Theory (IWCIT), Sharif University of Technology, Tehran 2015
- 21<sup>st</sup> Iranian Conference on Optics and Photonics (ICOP), Shahid Beheshti University, Tehran .. 2015
- 22<sup>nd</sup> Iranian Conference on Electrical Engineering (ICEE), Shahid Beheshti University, Tehran.. 2014
- International Symposium on Telecommunications (IST), Iran Telecommunications Research Center (ITRC), Tehran ..... 2014
- Workshop on Optical Wireless Communication Systems: Indoor and Outdoor, Iran Telecommunications Research Center (ITRC), Tehran ..... 2014

**Generic Courses and Educational Workshops Provided by University of Twente, Center for Training and Development (CTD)**

- Cambridge Proficiency English (C2) ..... Sep. 2021- Feb. 2022
- Entrepreneurial researcher ..... Nov. 2020
- Software Engineering Tutorial .... Sep. - Oct. 2018
- NT2 High Proficiency Dutch (C1) Sep. - Dec. 2018
- Cambridge Advanced English (C1) .... Apr. - Nov. 2018
- Dutch Follow-up III (B2) ... Mar. - Jun. 2018
- Cambridge First Certificate (B2) . Oct. 2017 - Apr. 2018
- Scientific Information Boot-camp .. Jan. 2018
- Dutch Follow-up II (B1) .... Nov. 2017 - Mar. 2018
- Laser Safety for Users ..... Jan. 2018
- Designing a Lesson and a Course ... Jan. 2018
- Write to Publicize ..... Nov.- Dec. 2017
- English for Lectures ..... Nov.- Dec. 2017
- Creative Thinking ..... Nov. 2017
- Storytelling and How to make your Lessons Stick ..... Nov. 2017
- Dutch Follow-up I (A2) ..... Sep.- Nov. 2017
- Basics on How to Create an Industrial Video Oct. 2017
- Practical Teaching Skills ..... Oct. 2017
- Project Management for PhD Students .. Oct. 2017
- PhD Introductory Workshop ..... Sep. 2017
- Supervising Students ..... Sep. 2017
- Research Data Management ..... Sep. 2017
- Orientation on the University of Twente Bachelor Educational Program ..... Jul. 2017
- Getting Started with the CE Stamp on your Medical Devices ..... Jun. 2017
- Dutch for Beginners (A1) ... Apr. - Jun. 2017
- From Idea to Patent and to Business May 2017
- Transferable Skills ..... Apr. 2017

**0.2.2 Accomplished Disciplinary Courses**

**Graduate Courses (grades are out of 20)**

- Spring 2017 ..... University of Twente  
Biomedical Optics ..... Audited
- Spring 2015 ..... Sharif University of Tech.  
Data Communication Networks ..... Audited  
Advanced Data Comm. Networks .... Audited  
Optical Comm. Networks ..... Audited
- Spring 2015 ..... Shahid Beheshti University  
Thesis ..... 19.75  
Optoelectronics II ..... Audited
- Fall 2014 ..... Sharif University of Tech.  
Statistical Optical Comm. .... Audited
- Fall 2014 ..... Shahid Beheshti University  
Thesis ..... Proj. Cont.
- Information theory and Coding I ..... 17.3  
Optoelectronics I ..... 17.8
- Spring 2014 ..... Shahid Beheshti University  
Spread Spectrum ..... 17.5  
Optical Communication Systems ..... 17  
Wireless Communications ..... 19.75  
Seminar ..... 19
- Fall 2013 ..... Shahid Beheshti University  
Stochastic Processes ..... 15.5  
Advanced Communication Theory ..... 17.6  
Digital Signal Processing ..... 15.15
- Spring 2013 ..... Tafresh University  
Image Processing ..... 20

**Undergraduate Courses at Tafresh University (grades are out of 20)**

• Spring 2013	Electrical Installations .....17	Technical English Language ..... 20	Power Systems Analysis I .....18.6	Physics of Electronics ..... 19.75	Industrial Electronics .....19.75	Linear Control Systems Lab. .... 20	Communications Circuits Lab. .... 20	Electronics lab. III Project ..... 19	Islamic Revolution and its Origins ..... 19.5	Signals and Systems .....20	Electrical Machines I ..... 17	Computer Architecture ..... 17.5	Engineering Statistics and Probability .. 17.5	Electronics Lab. I ..... 19.5	Logic Circuits Lab. .... 20	Physics Lab. I ..... 20	Physics Lab. II ..... 20	Physical Education I ..... 20	Islamic Education II ..... 17.5	
• Summer 2012	Internship ..... 18																			
• Spring 2012	Communication Circuits .....20	Electrical Machines II ..... 20	Engineering Economics ..... 20	Numerical Calculations ..... 20	Project ..... 20	General Workshop ..... 20	Electrical Workshop ..... 20	Computer Architecture Lab. .... 20	Electrical Machines Lab. I ..... 20	Electronics Lab. III .....19.5	Pulse Technique Lab. .... 16.5	History of Islam ..... 17.5								
• Fall 2011	Communication Systems ..... 19.5	Electronics III ..... 20	Microprocessor ..... 18	Pulse Technique ..... 17.25	Linear Control Systems ..... 20	Thermodynamics ..... 20	Electronics Lab. II ..... 20													
• Spring 2011	Electronics II ..... 19																			
										• Fall 2010	Engineering Mathematics ..... 17.7	Electrical Circuits II ..... 17	Electronics I ..... 19.5	Logic Circuits ..... 18.5	Measurements and Circuits Lab. I ..... 18.5	Electromagnetism ..... 19	Physical Education II ..... 19			
										• Spring 2010	General Mathematics II ..... 20	Computer Programming (C) ..... 20	General Differential Equations ..... 16	Electrical Circuits I ..... 18.25	Electrical Measurement ..... 20	Persian ..... 18	Islamic Texts ..... 17.5			
										• Fall 2009	Physics I ..... 17.5	Physics II ..... 15	General Mathematics I ..... 15	English Language ..... 19	Industrial Drafting ..... 18	Islamic Education I ..... 20	Islamic Ethics and Education ..... 17			

### 0.2.3 Self Study

- Saleh, B.E.A. and Teich, M.C., 2019. Fundamental of Photonics, New Jersey: John and Wiley & Sons.
- Goodman, J.W., 2007. Speckle phenomena in optics: theory and applications. Roberts and Company Publishers.
- Boudoux, C., 2017. Fundamentals of biomedical optics: From light interactions with cells to complex imaging systems. Pollux.

## 0.3 Honors and Awards

- Approval of the application for subject study submitted to the Natural Sciences and Engineering Sciences (NES) Ethics committee by the dean of faculty of Science and Technology (TNW) of the University of Twente ..... 2023
- Recognition of Breast Clinic East-Netherlands (BON) at Collaborating Top Clinical Hospitals (STZ Topklinisch) and specific mention of wireless perfusion imager (WIPI) as an in-vivo validated innovation. .... 2023

- Best Oral Communication Award in LALS, Nancy, France ..... 2022
- Accomplished Ironman 70.3 Westfriesland and Maastricht ..... 2022
- Accomplished the Enschede Marathon running event.....2019, 2022
- Member of swimming team of University of Twente, ZPV Piranha, at Netherlands student swimming competitions (NSZK) .....2018-2022
- Awarded Scholarship for Ph.D. Studies from University at Twente ..... 2017 - 2021
- IEEE/IET Student Travel Grant Award for 10<sup>th</sup> IEEE/IET CSNDSP 2016, Prague..... 2016
- Financial Support for U.S. Patent Application by Iran National Science Foundation (INSF)..... 2016
- Ranked 3<sup>rd</sup> Among Communication Systems Students of Shahid Beheshti University ..... 2015
- Member of Swimming Team of Shahid Beheshti University at 12<sup>th</sup> Iran Sport-Cultural University Olympiad ..... 2014
- Accepted as Talented Student for Graduate Studies at Shahid Beheshti University ..... 2013
- Ranked 1<sup>st</sup> Among 120 Students in Class of 2009 Electrical Engineering Entrants ..... 2013
- Ranked Top 3% in the National Entrance Exam Among Electrical Engineering students of Iran for M.Sc. studies..... 2013
- Ranked Top 4% in the Nationwide University Entrance Exam (KONKOOR) for B.Sc. Studies .. 2009
- Ranked 1<sup>st</sup> Among 150 Students in Class of 2004 Mathematics and Physics of Bahonar High School 2007

### 0.3.1 Media

- Iranian Scholars for Liberty at the University of Twente, Tubantia, November 30, 2022.
- A summary of my PhD research “Hand-held laser speckle imaging for flexible medical diagnostics”. U-Today, October 22, 2021.
- Being a team member of the PIHC granted project “Improving free flap transplantation with the use of handheld laser speckle perfusion imaging”. Tubantia, March 2021.
- A member of ZPV Piranha swimming team “The Netherlands student swimming competition (NSZK) 1, in Nijmegen”. U-Today, October 22, 2018.

## 0.4 Presentations

### 0.4.1 Oral Conferences

For conference talks with proceeding papers see Section 0.5.3 (Conference Papers).

- Chizari, A., 2022, September. Addressing movement artefacts in handheld laser speckle contrast perfusion imaging. The 25th Congress of the International Commission for Optics (ICO), the 16th International Conference on Optics Within Life Sciences (OWLS), Dresden, Germany. *Invited*
- Chizari, A., Knop, T., Sirmacek, B., Van Der Heijden, F. and Steenbergen, W., 2022, March. Movement artefacts in handheld laser speckle contrast imaging. 16th International conference on Laser Applications in Life Sciences (LALS) 2020, Nancy, France (maintained in 2022). *Keynote*
- Chizari, A., Knop, T., Sirmacek, B., Van Der Heijden, F. and Steenbergen, W., 2022, March. Exploration of movement artefacts in a handheld laser speckle contrast imaging. 16th International conference on Laser Applications in Life Sciences (LALS) 2020, Nancy, France (maintained in 2022). *Best oral communication*
- Padmanaban, P., Chizari, A., Steenbergen, W. and Rouwkema, J., 2019, December. Flow and Form: Imaging biomechanical parameters to study the vascular tree formation within developing chicken embryo. In TERMIS EU Chapter Conference (postponed to 2023).

- Padmanaban, P., Chizari, A., Steenbergen, W. and Rouwkema, J., 2019, May. Modification of mechanical environment to control vascular organization within developing chicken embryo. In TERMIS European Chapter Meeting 2019: Tissue Engineering Therapies: From Concept to Clinical Translation & Commercialisation.

### 0.4.2 Local symposiums

- Rook, A.R.D., Chizari, A., Knop, T., Rakhorst, H.A, Evers, D.J. and Steenbergen, W., 2023, Oct. Handheld wireless laser speckle contrast imaging (LSCI) during DIEP flap breast reconstruction: a pilot study. Regional symposium on mammography (Regionaal mamma symposium). Twente hospital group (ZGT).
- Rook, A.R.D., Chizari, A., Knop, T., Rakhorst, H.A, Evers, D.J. and Steenbergen, W., 2023, Oct. Handheld wireless laser speckle contrast imaging (LSCI) during DIEP flap breast reconstruction: a pilot study. ZGT science day (Wetenschapsdag). Twente hospital group (ZGT).
- Rook, A.R.D., Chizari, A., Knop, T., Rakhorst, H.A, Evers, D.J. and Steenbergen, W., 2023, June. Handheld wireless laser speckle contrast imaging (LSCI) during DIEP flap breast reconstruction: presentation of preliminary results. TechMed Research Day. University of Twente.
- Chizari, A., 2022, September. Wireless perfusion imaging to assist plastic surgeons during free flap breast reconstruction. The Dutch event in photonics, ASML, Veldhoven, The Netherlands. *Invited*
- Chizari, A., “Study of movement artefacts in handheld laser speckle contrast perfusion imaging”, Monthly Meetings on Applied Nanophotonics (ANP), University of Twente, Enschede, The Netherlands ..... Dec. 2022
- Chizari, A., “Wireless perfusion imaging to assist plastic surgeons during free flap breast reconstruction”, Techmed research day, Enschede, The Netherlands. ....Jun. 2022
- Chizari, A., “Laser Speckles and Microcirculatory Perfusion Imaging”, Monthly Meetings on Advances in Nanophotonics (ANP), University of Twente, Enschede, The Netherlands ..... Oct. 2017

### 0.4.3 Selected Laboratory Demonstrations

- “Simultaneous thermal and RGB imaging of diabetic feet with embedded motion sensor and MATLAB user interface for previewing, recording and post-processing”, Output prototype of pioneers in healthcare innovation fund, call 2021, The Bath Mat: Technology for early detection of diabetic foot ulcers in the home setting, Biomedical Photonic Imaging (BMPI), University of Twente, Enschede, The Netherlands ..... September 2022
- “Wireless perfusion imager (WIPI): Handheld and wireless laser speckle contrast imaging based on Python for previewing and recording and MATLAB user interface for data transfer and post-processing”, Output prototype of pioneers in healthcare innovation fund, call 2020, Improving free flap transplantations with the use of handheld laser speckle perfusion imaging, Biomedical Photonic Imaging (BMPI), University of Twente, Enschede, The Netherlands ..... February 2022
- “Handheld perfusion imager (HAPI)”, Output prototype of NWO open technology program: handheld device for optical microcirculatory perfusion imaging, call 2016, Biomedical Photonic Imaging (BMPI), University of Twente, Enschede, The Netherlands ..... January 2020
- “Geometrical optics positioning algorithm (GOPA) and system based on smartphone using spatial color coded LED arrays”, IEEE Iran Workshop on Communications and Information Theory (IWCIT), Optical Networks Research Lab (ONRL), Sharif University of Technology, Tehran, Iran .... May 2015

## 0.5 Research

- ORCID ..... 0000-0001-7679-7077
- Scopus ..... 57190381690
- Web of science ..... R-5148-2017

### 0.5.1 Research Interests

- Laser speckle contrast perfusion imaging
- Laser Doppler perfusion imaging
- Side stream dark-field microscopy
- Electromagnetic tracking
- Macro-photography
- Tissue engineering
- Embryonic development and culturing systems

### 0.5.2 Research Positions

- Postdoctoral researcher ..... Jan. 2023- Exp. May. 2025  
Biomedical Photonic Imaging Group, University of Twente  
Funding: Sonion Nederland B.V.  
Title: Optical measurement of cardiovascular parameters
- Postdoctoral researcher ..... May. 2022- Dec. 2022  
Biomedical Photonic Imaging Group, University of Twente  
Funding: pioneers in healthcare innovation  
Title: The Bath Mat: technology for early detection of diabetic foot ulcers in the home setting
- Postdoctoral researcher ..... May. 2021- May. 2022  
Biomedical Photonic Imaging Group, University of Twente  
Funding: pioneers in healthcare innovation  
Title: improving free flap transplantation with the use of handheld laser speckle perfusion imaging
- PhD researcher ..... Feb. 2017- May. 2021  
Biomedical Photonic Imaging Group, University of Twente  
Funding: open Technology program, Netherlands Organization for Scientific Research (NWO), Domain Applied and Engineering Sciences  
Title: handheld device for optical microcirculatory perfusion imaging
- Visiting research assistant ..... Sep. 2014- Sep. 2016  
Optical Networks Research Lab., Sharif University of Technology

### 0.5.3 Publications

(Oct. 2023, Citations: 860, h-index:10, i10-index: 12, visit Google Scholar)

#### Book chapter

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#### Patents

- W. Steenbergen, A. Chizari, T. Knop, and K.D.R. Kappert, “An assembly and a method for determining a temperature 5 distribution of a foot”, filed at Netherlands Patent Office (P142473NL00), October 2023.
- W. Steenbergen, A. Chizari, and T. Knop, Handheld laser-based perfusion imaging apparatus and method of using said apparatus WO Patent WO2022154660A1, PCT/NL2022/050010, Publication date: 2022/7/21. Also filed at U.S. Patent and Trademark Office (P139146), Sep. 2023.
- J.A. Salehi, H. Hosseinianfar, and A. Chizari, “Methods and Systems for Geometrical Optics Positioning using Spatial Color Coded LEDs”, US Patent App. 15/275,431 ..... 2018
- A. M. Fotouhi and A. Chizari, “Remote Control Switching Device of Electricity Keys with Capability of Easy Installation”, Iran Patent, registration number: 73930 ..... 2012



## Journal Articles

- Chizari, A., Tsong, W., Knop, T. and Steenbergen, W., 2023. Prediction of motion artifacts caused by translation in handheld laser speckle contrast imaging. *Journal of biomedical optics*, 28(4), pp.046005-046005.
- Schaap, M.J., Chizari, A., Knop, T., Groenewoud, H.M., van Erp, P.E., de Jong, E.M., Steenbergen, W. and Seyger, M.M., 2021. Perfusion measured by laser speckle contrast imaging as a predictor for expansion of psoriasis lesions. *Skin Research and Technology*.
- Padmanaban<sup>†</sup>, P., Chizari<sup>†</sup>, A., Knop, T., Zhang, J., Trikalitis, V.D., Koopman, B., Steenbergen, W. and Rouwkema, J., 2021. Assessment of flow within developing chicken vasculature and biofabricated vascularized tissues using multimodal imaging techniques. *Scientific reports*, 11(1), pp.1-14. <sup>†</sup>*Co-first author with equal contribution*.
- Chizari, A., Schaap, M.J., Knop, T., Boink, Y.E., Seyger, M. and Steenbergen, W., 2021. Handheld versus mounted laser speckle contrast perfusion imaging demonstrated in psoriasis lesions. *Scientific reports*, 11(1), pp.1-13.
- Chizari, A., Knop, T., Tsong, W., Schwieters, S. and Steenbergen, W., 2021. Influence of wavefront types on movement artefacts in handheld laser speckle contrast perfusion imaging. *OSA Continuum*, 4(6), pp.1875-1888.
- Chizari, A., Knop, T., Sirmacek, B., van der Heijden, F. and Steenbergen, W., 2020. Exploration of movement artefacts in handheld laser speckle contrast perfusion imaging. *Biomedical Optics Express*, 11(5), pp.2352-2365.
- Jamali, M.V., Mirani, A., Parsay, A., Abolhassani, B., Nabavi, P., Chizari, A., Khorramshahi, P., Abdollahramezani, S. and Salehi, J.A., 2018. Statistical studies of fading in underwater wireless optical channels in the presence of air bubble, temperature, and salinity random variations. *IEEE Transactions on Communications*, 66(10), pp.4706-4723.
- Chizari, A., Jamali, M.V., Abdollahramezani, S., Salehi, J.A. and Dargahi, A., 2017. Visible light for communication, indoor positioning, and dimmable illumination: A system design based on overlapping pulse position modulation. *Optik*, 151, pp.110-122.
- Abdollahramezani, S., Chizari, A., Dorche, A.E., Jamali, M.V. and Salehi, J.A., 2017. Dielectric metasurfaces solve differential and integro-differential equations. *Optics letters*, 42(7), pp.1197-1200.
- Jamali, M.V., Chizari, A. and Salehi, J.A., 2017. Performance analysis of multi-hop underwater wireless optical communication systems. *IEEE Photon. Technol. Lett.*, 29(5), pp.462-465.
- Dorche, A.E., Abdollahramezani, S., Chizari, A. and Khavasi, A., 2016. Broadband, polarization-insensitive, and wide-angle optical absorber based on fractal plasmonics. *IEEE Photonics Technology Letters*, 28(22), pp.2545-2548.
- Chizari, A., Abdollahramezani, S., Jamali, M.V. and Salehi, J.A., 2016. Analog optical computing based on a dielectric meta-reflect array. *Optics letters*, 41(15), pp.3451-3454.

## Preprints

- Hosseinianfar, H., Chizari, A. and Salehi, J.A., 2018. GOPA: Geometrical Optics Positioning Algorithm Using Spatial Color Coded LEDs (Extended Version). arXiv preprint arXiv:1807.06931.
- Jamali, M.V., Mirani, A., Parsay, A., Abolhassani, B., Nabavi, P., Chizari, A., Khorramshahi, P., Abdollahramezani, S. and Salehi, J.A., 2018. Statistical Studies of Fading in Underwater Wireless Optical Channels in the Presence of Air Bubble, Temperature, and Salinity Random Variations (Long Version). arXiv preprint arXiv:1801.07402.
- Jamali, M.V., Chizari, A. and Salehi, J.A., 2016. Performance analysis of multi-hop underwater wireless optical communication systems (extended version). arXiv preprint:1603.02895.

## Conference Papers

- Chizari, A., A., Schaap, M.J., Knop, T., Seyger, M.M. and Steenbergen, W., 2023, August. Speed detection to suppress motion artifacts (MA) in laser speckle contrast imaging (LSCI). In *Optical Coherence Imaging Techniques and Imaging in Scattering Media V* (Vol. 12632, pp. 116-121). SPIE.
- Chizari, A., Tsong, W., Knop, T. and Steenbergen, W., 2023, March. Modelling movement artefacts in handheld laser speckle contrast imaging. In *Dynamics and Fluctuations in Biomedical Photonics XX* (Vol. 12378, pp. 11-16). SPIE. *Keynote*
- Chizari, A., Tsong, W., Knop, T. and Steenbergen, W., 2022, March. Modeling movement artefacts in handheld laser speckle contrast perfusion imaging: influence of wavefront types. In *Dynamics and Fluctuations in Biomedical Photonics XIX* (Vol. 11959, pp. 25-31). SPIE.  
<https://doi.org/10.1117/12.2609849>
- Chizari, A., Schaap, M.J., Knop, T., Seyger, M.M. and Steenbergen, W., 2022, March. Reliability of handheld laser speckle contrast perfusion imaging demonstrated in psoriasis lesions. In *Photonics in Dermatology and Plastic Surgery 2022* (Vol. 11934, pp. 53-63). SPIE.;  
<https://doi.org/10.1117/12.2608663>
- Hosseinianfar, H., Chizari, A. and Salehi, J.A., 2019, January. GOPA: Geometrical Optics Positioning Algorithm. In *2019 IEEE International Conference on Consumer Electronics (ICCE)* (pp. 1-6). IEEE.
- Pouryousef, S., Rezaiee, M. and Chizari, A., 2018, August. Let me Join Two Worlds! Analyzing the Integration of Web and Native Technologies in Hybrid Mobile Apps. In *2018 17th IEEE International Conference On Trust, Security And Privacy In Computing And Communications/12th IEEE International Conference On Big Data Science And Engineering (TrustCom/BigDataSE)* (pp. 1814-1819). IEEE.
- Chizari, A., Jamali, M.V., AbdollahRamezani, S., Salehi, J.A. and Dargahi, A., 2016, July. Designing a dimmable OPPM-based VLC system under channel constraints. In *Communication Systems, Networks and Digital Signal Processing (CSNDSP), 2016 10th International Symposium on* (pp. 1-6). IEEE.
- Olyaei, S., Nikoosohbat, A., Mohebzadeh-Bahabady, A. and Chizari, A., 2016, July. Square-hexagonal nanostructured photonic crystal fiber at 1550 nm wavelength. In *Communication Systems, Networks and Digital Signal Processing (CSNDSP), 2016 10th International Symposium on* (pp. 1-4). IEEE.
- Ghahremanirad, E., Olyaei, S. and Chizari, A., 2016, July. Nano-plasmonic thin-film solar cell receiver in visible light communication. In *Communication Systems, Networks and Digital Signal Processing (CSNDSP), 2016 10th International Symposium on* (pp. 1-5). IEEE.
- Lotfi-Rezaabad, A., Talebi, S. and Chizari, A., 2016, July. Two quasi orthogonal space-time block codes with better performance and low complexity decoder. In *Communication Systems, Networks and Digital Signal Processing (CSNDSP), 2016 10th International Symposium on* (pp. 1-5). IEEE.
- Fazelian, M., AbdollahRamezani, S., Bahrani, S., Chizari, A., Jamali, M.V., Khorramshahi, P., Tashakori, A., Shahsavari, S. and Salehi, J.A., 2016, May. Mining data sequences based on spatially coded technique using spatial light modulator. In *Communication and Information Theory (IWCIT), 2016 Iran Workshop on* (pp. 1-6). IEEE.
- Jamali, M.V., Khorramshahi, P., Tashakori, A., Chizari, A., Shahsavari, S., AbdollahRamezani, S., Fazelian, M., Bahrani, S. and Salehi, J.A., 2016, May. Statistical distribution of intensity fluctuations for underwater wireless optical channels in the presence of air bubbles. In *Communication and Information Theory (IWCIT), 2016 Iran Workshop on* (pp. 1-6). IEEE.

## Posters

- Chizari, A., A., Schaap, M.J., Knop, T., Seyger, M.M. and Steenbergen, W., 2023, June. Speed detection to suppress motion artifacts (MA) in laser speckle contrast imaging (LSCI). *TechMed Research Day*. University of Twente.
- Padmanaban, P., Chizari, A., Steenbergen, W. and Rouwkema, J., 2018, November. Inside the box: 3D system to probe the vascular networks within developing chicken embryo. In *27th NBTE Annual Meeting 2018*.
- Fischer, B., Chizari, A., Knop, T., and Steenbergen, W., 2017. Chilli pepper and keeping cancer under control. *TEKNOLOGY-NWO*.

### 0.5.4 Research Grants

- Mentioned team member as Twente University Radboudumc Opportunities (TURBO) grant, “Real-time non-invasive perfusion imaging of the skin – accurate tissue assessment in the blink of an eye”, submitted Sep. 2015
- PhD Scholarship, University of Twente ..... 2017-2021
- IEEE/IET Student Travel Grant Award for 10<sup>th</sup> IEEE/IET CSNDSP 2016, Prague, Czech Republic 2016
- US Patent Application, Iran National Science Foundation (INSF) ..... 2016

### 0.5.5 Technical Review Activities

(Verified peer reviews: 94, October 2023, Visit Peer Review tab in Web of Science)

- IEEE Transaction on Medical Imaging
- IEEE Transaction on Vehicular Technology
- IEEE Vehicular Technology Magazine
- IEEE Photonics Journal
- IEEE Access
- IEEE Communications Letters
- Elsevier Optics Communications
- Elsevier Physical Communication
- Elsevier Optik - International Journal for Light and Electron Optics
- Chinese Optics Letters
- Optica Journal of Optical Communications and Networking
- Optica Optics Letters
- Optica Optics Express
- Optica Biomedical Optics Express
- Optica Journal of the Optical Society of America A
- Elsevier Quantitative imaging in medicine and surgery
- Elsevier Biomedical signal processing and control
- Elsevier Optics and lasers in engineering
- SPIE-SOC Optical engineering
- SPIE-SOC Journal of Biomedical Optics
- Springer Heidelberg European physical journal plus
- MDPI Sensors, Electronics, Micromachines, Energies, Symmetry, Entropy, Axioms, Applied sciences
- AME Quantitative imaging in medicine and surgery

### 0.5.6 Subscription and Membership

- International society for optics and photonics (SPIE) ..... 2022-present
- Nature journal ..... 2019-present
- IEEE Communications Society (93943136) ..... 2016

### 0.5.7 Selected Accomplished Projects

**University of Twente ..... Feb. 2017- Oct. 2023**

- Photodetector-based laser Doppler perfusion monitoring (LDPM) and photoplethysmography (PPG) in transmission mode in MATLAB app designer, Aug. 2023
- High speed camera-based laser Doppler perfusion imager (LDPI) and PPG in transmission mode in MATLAB app designer, April 2023
- Handheld and wireless laser speckle contrast imaging system based on a Raspberry Pi 4 (Python and MATLAB)
- Optimization of an incubating system for culturing chicken embryos
- Simultaneous speckle contrast imaging and localization of a handheld probe (MATLAB)

- Mapping 3 dimensional movement of a handheld probe on a 2 dimensional surface using 6 degrees of freedom localization sensor of an electromagnetic tracking system (MATLAB)
- Implementation of laser Doppler perfusion imaging/monitoring systems based on a high-speed camera (MATLAB)
- Estimation of the refractive index of a contact lens using ultrasound technique (MATLAB)
- Implementation of a real-time and GUI-based laser speckle contrast imaging/monitoring system including post processing of raw data (MATLAB)
- Simulation of laser Doppler/speckle-contrast imaging/monitoring systems via computer generated speckle patterns (MATLAB)

**Sharif University of Technology ..... Sep. 2014- Sep. 2016**

- Simulation of dielectric meta-transmit-array (CST)
- Design and implementation of visible light indoor positioning system (MATLAB)
- Design and implementation of LED-based illumination systems for indoor and outdoor environments

**Afra Engineering Group ..... Feb. 2014 - Sep. 2016**

- RFID-based smart card service for:  
 The 13<sup>th</sup> International Conference on Information Security and Cryptology .....ISC 2016  
 The 22<sup>nd</sup> Iranian Conference on Electrical Engineering ..... ICEE 2014  
 The 9<sup>th</sup> Iranian Conference on Machine Vision and Image Processing ..... MVIP 2015  
 The 21<sup>st</sup> Iranian Conference on Optics and Photonics ..... ICOP 2015

**Shahid Beheshti University ..... Sep. 2013- Sep. 2015**

- Developing a GUI-based transceiver with various modulation schemes, such as QAM and DPSK, in the presence of AWGN considering ISI and equalizer effects (Advanced Communications Theory, Monte Carlo Simulation, MATLAB)
- Developing a GUI-based random access network with various techniques, such as ALOHA and CSMA (Wireless Communications, MATLAB)
- Simulation and analysis of an indirect optical fiber transceiver using Mach-Zehnder modulator (Fiber Optic Communications, Opti-system)
- Developing an RFID-based smart card service for conference participants (AVR microprocessors, Altium Designer)

**Tafresh University ..... Sep. 2009 - Sep. 2013**

- Design and implementation of a remote control switching device of electricity key with capability of easy installation (AVR microprocessors, Code Vision AVR, Altium Designer)
- Design and implementation of a switching mode power supply and a power amplifier (Electronics Lab Project, Altium Designer, Fairchild Semiconductor Software)
- Design and implementation of a binary to BCD converter using VHDL on FPGA (Digital Lab, Quartus)
- Design and implementation of an auto-irrigating system for gardens (Microprocessors Lab, Code Vision AVR)

## 0.6 Teaching

### 0.6.1 Advisees

#### Master Students

- Eline Zoetelief (technical medicine, M3).....Aug. 2023  
Thesis title: Explorative Study of Thermal Footprint Imaging as Method to Early Detect Diabetic Foot Ulcers in a Domestic Setting: the Bath Mat, University of Twente.  
Role: daily supervisor
- Felix Torrengra (technical medicine, M2).....Feb. 2023  
Internship title: The Bath Mat: a minimally invasive way for documenting the temperature of the foot, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Alieke Keurhorst (technical medicine, M2) ..... Oct. 2022  
Internship title: Bath Mat: an automated diabetic ulcer warning system for the entire foot, integrated in a domestic setting, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Sacha Teunissen (technical medicine, M3).....Aug. 2022  
Thesis title: Wireless laser speckle contrast imaging during DIEP flap breast reconstruction: an evaluation of the first prototype, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Wilson Tsong (applied physics).....Aug. 2021  
Thesis title: Theoretical prediction of translational movement artefacts in laser speckle contrast imaging, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Mona Zarrinsaz Sorkhabi (communication systems).....Sep. 2015  
Thesis Title: Analysis of the Poynting vector error effect on the multi-input multi-output receivers in wireless communication systems, Shahid Beheshti University (SBU).  
Role: daily supervisor  
Supervisor: Dr. A. Dargahi

#### Capita Selecta

- Wilson Tsong (applied physics)..... Apr. 2020  
Capita Selecta assignment title: Simulation of time integrated dynamic optical speckles, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen

#### Undergraduate Students

- Ralph Gerlings (advanced technology)..... Aug. 2022  
Thesis Title: Thermal imaging as a quantitative measurement method of blood perfusion in the skin, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- M.J. (Ries) van Walsum (biomedical technology).....Feb. 2022  
Thesis Title: Development of a skin-mimicking layer for a photoacoustic breast phantom, University of Twente.  
Role: external committee member  
Supervisor: Prof.dr. S. Manohar

- Micha de Bont (applied physics).....Feb. 2022  
Thesis Title: Thermal measurements of absolute skin perfusion: a proof of concept, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Sven Schwieters (biomedical technology) ..... Jul. 2021  
Thesis Title: Detection of on-surface movements employing optical flow and its relation with speckle contrast, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Tommie Verouden (applied physics).....Nov. 2020  
Thesis Title: Hardware-based prevention & simulation of movement artefacts in laser speckle contrast perfusion imaging, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Klaas Vlasma (biomedical technology)..... Jul. 2018  
Thesis Title: Motion artifacts in laser speckle contrast imaging of blood flow, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Mirjam J. Marseille (applied physics).....Sep. 2017  
Thesis Title: Analysis of human skin perfusion based on laser Doppler perfusion imaging and Monte Carlo simulation, University of Twente.  
Role: daily supervisor  
Supervisor: Prof.dr. W. Steenbergen
- Pouya Shiri (electronics) ..... Sep. 2014  
Thesis Title: Design and implementation of a donut shaped three dimensional display based on a single light emitting diode, Shahid Beheshti University (SBU).  
Role: daily supervisor  
Supervisor: Prof. M. Eshghi

### 0.6.2 Teaching Assistantships

- Microscopic detection of cancer cells.....Feb. 2022  
Role: jury for the optics part of final poster pitch  
Prof.dr. S. Manohar ..... University of Twente (undergraduate, module 2)
- Fiber Optic Communications ..... Fall 2014, Spring 2015, Fall 2015  
Dr. A. Dargahi .....Shahid Beheshti University
- Electronics II .....Spring 2013  
Dr. F. Hajati ..... Tafresh University
- Logical Circuits and Microprocessors ..... Fall 2012  
Dr. A.M. Fotouhi..... Tafresh University
- Electrical Circuits ..... Spring 2012  
Dr. H. Meshgin ..... Tafresh University
- Computer Architecture ..... Fall 2011  
Prof. A. Raie ..... Tafresh University

### 0.6.3 Laboratory Assistantships

- Biomedical Optics (master).....2017, 2018, 2021, 2022, 2023  
Prof.dr. W. Steenbergen, Prof.dr. S. Manohar, Prof.dr. I.M. Vellekoop, and Dr. N. Bosschart  
University of Twente
- Ultrasound (bachelor) ..... Spring 2018, Spring 2019, Spring 2020  
Prof.dr. W. Steenbergen ..... University of Twente

- Field-Programmable Gate Array (FPGA) (bachelor) ..... Fall 2014  
Dr. A. Dargahi ..... Shahid Beheshti University
- Microprocessors (bachelor) ..... Spring 2014  
Prof. M. Eshghi ..... Shahid Beheshti University
- Logical Circuits (bachelor) ..... Fall 2013  
Prof. M. Eshghi ..... Shahid Beheshti University

## 0.7 Personal Skills

### 0.7.1 Languages

#### Communication

- English, C1 certified (followed course on C2)
- Persian, Native
- Dutch, B2 certified (followed course on C1)

#### Programming

- Python
- C
- Assembly
- MATLAB
- VHDL

#### Music

- Piano (self study, Alfred book 1, progress 75%)

### 0.7.2 Software

- Operating Systems:  
Linux, Mac, Windows
- Compilers:  
Thonny, CodeVision AVR, AVR Studio, Quartus, Xilinx ISE
- Documentations:  
L<sup>A</sup>T<sub>E</sub>X, Microsoft Office
- Designers:  
Solidworks, Adobe Premiere, Adobe Illustrator, Adobe Photoshop, AutoCAD, Altium Designer
- Simulators:  
MATLAB, Opti-System, CST Design Studio, Cadence (Analog Circuits)
- Version Controller:  
GIT bash, GIT GUI

## 0.8 References

- **Prof. Wiendelt Steenbergen**.....(E-mail: w [dot] steenbergen [at] utwente [dot] nl)  
Faculty of Science and Technology (TNW),  
University of Twente
- **Dr. Ferdinand (Ferd) van der Heijden** ..... (E-mail: f [dot] vanderheijden [at] utwente [dot] nl)  
Faculty of Electrical Engineering, Mathematics and Computer Science  
University of Twente
- **Dr. Jeroen Rouwkema** ..... (E-mail: j [dot] rouwkema [at] utwente [dot] nl)  
Faculty of Engineering Technology,  
University of Twente
- **Dr. Marieke Seyger** ..... (E-mail: Marieke [dot] Seyger [at] radboudumc [dot] nl)  
Department of dermatology, Radboud Institute for Health Sciences,  
Radboud University Nijmegen Medical Center
- **Prof. Jawad A. Salehi** ..... (E-mail: jasalehi [at] sharif [dot] edu)  
Department of Electrical Engineering,  
Sharif University of Technology

## 0.9 Links

- Google Scholar
- Web of Science
- Research Gate
- LinkedIn
- Strava
- Swimrankings
- X (Twitter) (atachizari)
- Facebook (ata.chizari)
- Instagram (atachizari)
- YouTube
- SPIE

## 0.10 Sports

- Triathlon
  - 2022 IRONMAN 70.3 Maastricht-Limburg (1/2nd)
    - Swimming 2 km, 43:51
    - Cycling 90 km, 3:43.51
    - Running 21.1 km, 2:53.20
  - 2022 IRONMAN 70.3 Westfriesland (1/2nd)
    - Swimming 2 km, 46:10
    - Cycling 90 km, 3:20.43
    - Running 21.1 km, 2:41.20
  - UT-Triathlon 2022 (1/4th)
    - Swimming 1 km, 20:12
    - Cycling 38 km, 1:16.04
    - Running 9.6 km, 55:32
  - UT-Triathlon 2021 (1/4th)
    - Swimming 1 km, 20:27
    - Cycling 38 km, 1:28.33
    - Running 9.6 km, 59:11
  - UT-Triathlon 2019 (1/8th)
    - Swimming 500 m, 10:29
    - Cycling 19 km, 46:42
    - Running 4.8 km, 22:56
- Swimming
  - Also check swim rankings
  - 44th Zechstein swim tournament (Veen-dam, Oct. 2022)
    - 100 m, butterfly, 1:51.42
  - NSZK (Nijmegen, Oct. 2022)
    - 200 m, breaststroke, 3:53.66
    - 400 m, freestyle, 7:42.84
  - ONMK (Eindhoven, May 2022)
    - 100 m, butterfly, 1:44.65
  - NSZK III Maastricht 2022
    - 100 m, backstroke, 1:40.45
    - 100 m, butterfly, 1:41.37
    - 50 m, freestyle (relay), 35.13
  - NSZK I Heerenveen 2021
    - 200 m, breaststroke, 3:53.25
    - 50 m, backstroke, 48.61
    - 50 m, backstroke (relay), 46.95
  - ONKS Delft 2020
    - 50 m, backstroke, 45.94
    - 100 m, backstroke, 1:44.46
  - NSZK II Utrecht 2019
    - 50 m, breaststroke, 43.28
    - 100 m, breaststroke, 1:41.60
    - 50 m, freestyle, 34.68
  - NSZK I Wageningen 2019
    - 50 m, freestyle, 32.44
    - 50 m, butterfly, 41.10
    - 50 m, backstroke, 45.10
  - NSZK IV Enschede 2019
    - 100 m, freestyle, 1:17.92
    - 100 m, Medley, 1:34.00 (DIS)
  - NSZK III Amsterdam 2019
    - 200 m, backstroke, 4:05.51
    - 400 m, freestyle, 7:15.67
  - ONKS Rotterdam 2019
    - 200 m, medley, 3:45.65 (DIS)
    - 200 m, freestyle, 3:14.34
    - 100 m, freestyle, 1:24.07
  - NSZK II Heerenveen 2018
    - 100 m, backstroke, 1:48.81
    - 100 m, butterfly, 1:49.25
    - 50 m, freestyle, 34.22
  - NSZK I Nijmegen 2018
    - 200 m, medley, 3:45.65
    - 200 m, breaststroke, 3:56.67
  - Zwem4Daagse 2019; 4 days of each 1 km freestyle (20:00 min/km)
  - Zwem4Daagse 2018; 4 days of each 1 km freestyle (19:57 min/km)
  - 12<sup>th</sup> Iran Sport-Cultural University Olympiad 2014
    - 200 m, breaststroke, 3:30.20
    - 400 m, freestyle stroke, 7:03.83
- Cycling
  - Enschede rondje 63 km (18 km/h) ... Sep. 2108
  - Enschede to Sallandse Heuvelrug national park round trip 103 km (20 km/h) .. July 2018



- Tafresh-Kohandan-Vasfownjerd-Nayeh-Tafresh 94.3 km (10.51 km/h) mountain biking ..... Apr. 2013
- Tafresh-Sarabadan-Abredar-Kharazan-Tafresh 80 km mountain biking ..... Sep. 2012
- Tehran-Jajrud-Latian National Park round trip 89.4 km (14.23 km/h) mountain biking ..... Jul. 2012
- Tafresh-Garakan-Ashtian-Ahoo-Tafresh 64 km mountain biking ..... Sep. 2011
- Tafresh-Sarabadan 34 km mountain biking round trip..... Apr. 2011

- Running

- Total runs from Mar. 2017 till August. 2023 recorded on Strava: 489 (2664 km)
- Enschede Marathon 2022, 42.195 km, total time: 4:59:37
- Enschede Marathon 2019, 42.195 km, total time: 4:27:00
- Alfa Laval Stevensloop half marathon 2022, 21.10 km, total time: 1:56:41

- Oldenzaal half marathon 2022, 21.10 km, total time: 1:59:44
- Oldenzaal half marathon 2021, 21.10 km, total time: 1:51:27
- Oldenzaal half marathon 2019, 21.10 km, total time: 2:05:40
- NN Zevenheuvelenloop 2019, 15 km (5:14 min/km)
- NN Zevenheuvelenloop 2018, 15 km (5:07 min/km)
- Enschede Singelloop 2019, 8.2 km (5:34 min/km)
- Enschede Singelloop 2018, 8.2 km (4:37 min/km)
- Ready for take off 2021, 10 km, total time: 51:53
- Batavierenrace 2020, 6 km (6:05 min/km)
- Batavierenrace 2019, 10.7 km (5:01 min/km)
- Batavierenrace 2018, 9.4 km (4:41 min/km)
- Batavierenrace 2017, 9.9 km (5:30 min/km)

## 0.11 Free time

### 0.11.1 Activities

- Scuba diving

- SSI recognition: level 3  
SSI Diver ID (MID): .....2527470  
Master dive center: .....ZPV Piranha (714007)
- Total dives: ..... 34
- Specialties:
  - \* Deep diving ..... Sep. 2021
  - \* Dry suit diving ..... Sep. 2021
  - \* Diver Stress and rescue ... Aug. 2021
  - \* Basic life support and defibrillation (BLSD) including first AID (DAN-Europe) ..... May 2021
  - \* Night and limited visibility Sep. 2019
  - \* Navigation ..... Sep. 2019
- Upgrades:
  - \* Advanced open water diver Sep. 2021
  - \* Specialty diver ..... Oct. 2019

- \* Open water diver ..... Jul. 2019

- Dive sites:  
Slijk-Ewijk  
Enschede Diveworld  
Het Grasbroek  
Bussloo  
Boschmolenplas  
Bronsbergen

- First aid provider at medical team Twente for MC Hamac Harfsen

- 12 Sep. 2021
- 16 Oct. 2021 (half-day)
- 1 May 2022
- 28 May 2022 (green vibrations)

- Hiking

- Preikestolen Apr. 2023, Norway, 9.36km, 3h 6m
- Zevenheuvelenhike 2022, Nijmegen, 28km, 4h 38m

- Water-skiing
- Tennis
- Table tennis
- Water polo
- Badminton
- Volleyball
- Tandem skydiving
- Cooking
- Shopping
- Organizing things
- Gardening

### 0.11.2 Reading

- Konnikova, M., 2020. *The Biggest Bluff*. Penguin Press.
- Austen, J., 2014. *Northanger Abbey*. Vintage Classics Austen Series.
- Gordin, M.D., 2020. *Einstein in Bohemia*. Princeton University Press.
- Robinson, A., 2019. *Einstein on the Run: How Britain Saved the World's Greatest Scientist*. Yale University Press.
- Terlouw, J.C., 2017. *Het touwtje uit de brievenbus en Katoren revisited*. Rubinstein Publishing BV.
- Abdolah, K., 2011. *De Kraai*. Uitgeverij De Geus BV.
- Bernlef, J., 2008. *De pianoman*. Em. Querido's Uitgeverij BV.
- Hesabi, I., 2006. *Master of love (a biography of Prof. Mahmoud Hessabi)*. Iran Ministry of Culture and Islamic Guide.