

## Assist. Prof. Dr. Onur Keskin

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### Education

**Ph.D. Mechanical Engineering:** May 2008

University of Victoria, Victoria, BC, Canada

**Dissertation:** Point Spread Function Reconstruction for Next Generation Adaptive Optics Systems

*Dissertation Advisor:* Prof. Dr. Colin Bradley (Canada Research Chair)

**M.A.Sc., Mechanical Engineering:** July 2003

University of Victoria, Victoria, BC, Canada

**Thesis:** Hot Air Turbulence Generator for Multi-Conjugate Adaptive Optics

*Supervisors:* Prof. Dr. Colin Bradley (Canada Research Chair)

Prof. Dr. Sadik Dost (Canada Research Chair)

**B.Sc., Mechanical Engineering:** May 2000

Yildiz Technical University, Istanbul, Turkey

**Thesis:** Power Transmission Systems on 4x4 Vehicles

**Lycée Saint Benoît d'Istanbul:** July 1996

Istanbul/Turkey

### Professional Experience

#### Project Management Experience

##### **October 2016 – Present**

Dr. Keskin works as the Director of the Center for Optomechatronics Research and Application (OPAM) and of the Center for Optomechatronics Research and Application (OPAM) Commercial Enterprise at Işık University.

##### **October 2016 – Present**

Dr. Keskin works as the Principal Investigator of the Adaptive Optics and Derotator Development and Manufacturing (AOS) project at OPAM.

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- *2016-2022 Ataturk University through Ministry of Development (11.450.000,00 TL)*

***January 2014 – Present***

Dr. Keskin works as the Project Manager and Engineering Manager for the Doğu Anadolu Gözlemevi (DAG) 4 meter class infrared telescope project and instrumentation.

- *2014-2022 Ataturk University through Ministry of Development (≈200.000.000,00 TL)*

***November 2008 – February 2012***

Dr. Keskin worked as Vice Project Manager and Senior Researcher at TUBITAK BILGEM UEKAE on various “Classified Level Projects”.

***Academic Experience***

***February 2012 – Present***

***FMV Işık University – Department of Mechanical Engineering***

Dr. Keskin works as an Assistant Professor at FMV Işık University. His principal research interest focuses on optomechatronics, adaptive optics systems, deformable mirror technology, implementing adaptive optics test benches, and point spread function reconstruction through adaptive optics. He is the author of many articles in journals and proceedings in the domains of imaging through turbulence, adaptive optics, and opto-mechatronic devices.

***Research Experience***

***November 2008 – February 2012***

***TUBITAK BILGEM UEKAE – The Scientific and Technological Research Council of Turkey - National Institute of Electronics and Cryptology***

Performed extensive research, design, project management, procurement, integration, commissioning and testing of various “Classified Level Projects” in the following research areas: electro-optics; stabilization systems; adaptive optics; control system design and analysis; micro-optics; signal processing; image processing; micro-machining; and MEMS devices. Contributed as researcher and referee at “TUBİTAK Support Programme for Research Projects of Public Institutions (1007)”.

***September 2003- August 2008***

***University of Victoria, Adaptive Optics Laboratory, Dept. of Mechanical Engineering  
&***

***Herzberg Institute of Astrophysics, National Research Council of Canada***

***Under Grants and Funding from All Agencies Including University of Victoria***

- *2003-2005 British Columbia Advanced Systems Institute (\$ 200,000) – Adaptive Optics Technology*
- *2004-2007 Canada Foundation for Innovation (\$ 4,000,000) – Thirty Meter Telescope Project*

- 2004-2007 NSERC- NRC Research Partnership(\$ 470,000) – *Advanced Technology for Astronomy*
- 2005-2008 BC Knowledge Development Grant (\$ 2,000,000) – *Large Optical Telescope Project*
- 2007 – NSERC Special Research Opportunity (\$ 5,500,000) – *Thirty Meter Telescope Proposal*

### **Ph.D. Research Experience**

*Extensive technical expertise developed, as Research Associate, through the integration of fundamental mechanical/electronic engineering with the following research areas: adaptive optics; control system design and analysis; micro-optics; signal processing; image processing; remote sensing; micro-machining; MEMS devices.*

The Ph.D. research was in the area of modeling and experimental evaluation of a complex adaptive optics (AO) system developed for an astrophysical instrumentation. The research work was coupled to initial design studies performed on behalf of the ***Thirty Meter Telescope*** project. During the course of this work, the following areas have been investigated:

- Development and evaluation of an end-to-end model of an AO system. The model is created to establish a theoretical baseline for comparison with an experimental AO system. The model is coded with Matlab using object-oriented programming.
- Investigation of MEMS and magnetically driven deformable mirror technologies employed to correct the distorted wavefront in an AO system.
- Implementation of a discrete control system that measures the degree of distortion on the wave-front, as measured by a wave-front sensor, and compensates for the optical aberrations using the deformable mirrors. This is a real-time process that compensates for the aberrations (created by atmospheric turbulence) that constantly change during an astronomical observation.
- Implementation of signal processing tools to determine the optical transfer function of the AO system. This leads to the determination of the point spread function (impulse response) of the adaptive optics system. In the post-processing stage this information is used to counteract the high order optical aberrations introduced by the atmospheric turbulence that are not compensated due to the limited degrees of freedom of the deformable mirrors and the spatial sampling of the wavefront sensor. Proposed methodologies are evaluated using the wavefront sensor data gathered from both numerical model and experiments.
- Manufacturing of micro-optical components using an electro discharge machining center. The optical elements were used in the development of the AO test bench. After thorough calibration and pre-manufacturing processes, a Panasonic micro-

machining center was used to make components ranging in size from 5 microns to 1mm.

- Layout and alignment of optical and mechanical components on the AO test bench. Experience in 3D CAD/CAE/CAM packages, optical alignment, and optical design has been gained.

**January 2001- August 2003**

**University of Victoria, Adaptive Optics Laboratory, Dept. of Mechanical Engineering  
&  
Herzberg Institute of Astrophysics, National Research Council of Canada**

Under Grants and Funding from All Agencies Including University of Victoria

- 1999-2002 NSERC Research Grant (\$ 280,000) –Sensors for Design and Manufacturing
- 2000-2001 NSERC Equipment Grant (\$ 72,000) – Rapid Prototyping and Geometric Modeling System
- 2001-2002 Canada Foundation for Innovation (\$ 1,422,000) – Experimental Laboratory for Instrument Development in Astrophysics
- 2002-2003 BCKDF – Development of a Micromachining Laboratory

### M.A.Sc. Research Experience

*Extensive technical expertise developed, as Research Associate, through the integration of fundamental mechanical/electronic engineering with the following research areas: manufacturing automation; design; sensor systems; atmospheric turbulence theory; remote sensing; machine vision systems; signal processing & image processing; MEMS devices.*

M.A.Sc. research experience consisted of a simple low-cost, characterized, statistically repeatable optical phase turbulence generator is described for application in multi-conjugate adaptive optics, simulating several layers of atmospheric turbulence. Amongst the different turbulence generator options such as phase plates, the only one matching the specifications is hot air turbulence. The results and the characteristics of the turbulence generated on the laboratory are presented. It was decided to use turbulence layers conjugate to heights in the real atmosphere of 5 km and 15 km. Given the necessary folding of the beam, it was desirable to place the two turbulence layers so that a single turbulence generator box could be used by allowing two beam passes through the optical path. The experiments allowed for having two well characterized turbulence with  $l < d/r_0 < 20$  for both the layers. The research was performed

### Other Research Experience

**The University of North Carolina UNC Lineberger Cancer Research Center**

*The research project consisted of a novel approach to position a patient on the treatment table during each of the radiotherapy treatment sessions. Positioning is done by comparing the patient's contour from the Diagnostic scan to the Vision contour.*

*Software is written to read each slice from the CT (diagnostic) scan and represent each slice in a 3D point set form. The CT data therefore detects the tumor size with its location and is also used to generate a 3D-reference contour of the patient. A test bed (simulating the treatment table) is built which incorporates a Vision system to extract the 3D contour of the patient. The two 3D data sets are then compared by the ICP process. The ICP algorithm employs an iterative process, minimizing the mean square distance between the data points and the total transformation computed is used to re orient the treatment table.*

### ***The University of Victoria Department of Mechanical Engineering***

*The research project consisted of virtual prototyping; global optimization, and integrated concurrent engineering design in order to explore the viability of fuel cell - battery hybrid electric vehicles. The modeling and simulation of the fuel cell electric scooter using new performance modules, and a platform for the design optimization of the fuel cell power system. Various optimization methods, including a sampling based optimization algorithm, were used to explore the viability and options of a low cost design for urban use.*

## **Publications**

### **Journal Papers**

- **O. Keskin**, “Off-axis point spread function on a multi-deformable mirror adaptive optics system,” Publications of the Astronomical Society of the Pacific, (under review), (2018).
- **O. Keskin**, R. Conan, P. Hampton, C. Bradley, "Derivation and Experimental Evaluation of a Point Spread Function from a Dual Deformable Mirror Adaptive Optics System," Optical Engineering, Vol.47, No. 4, p. 046601, 2008.
- P. J. Hampton, R. Conan, **O. Keskin**, C. Bradley, P. Agathoklis, “Self-characterization of linear and nonlinear adaptive optics systems,” Applied Optics, Vol. 47, Issue 2, pp. 126-134, 2007.
- R. Conan, C. Bradley, P. Hampton, **O. Keskin**, A. Hilton, and C. Blain, “Distributed Modal Command for a Two Deformable Mirror Adaptive Optics System,” Applied Optics, Vol. 46, Issue 20, pp. 4329-4340, 2007.
- **O. Keskin**, L. Jolissaint, C. Bradley, “A Hot Air Turbulence Generator for Adaptive Optics: Applications, Principles, and SLODAR Characterization,” Applied Optics, Vol.45, issue 20, pp. 4888-4897, 2006.

- **O. Keskin**, P. Hampton, R. Conan, C. Bradley, A. Hilton, C. Blain, “*Woofler Tweeter Adaptive Optics System*,” Photons, Vol. 4, No 1, CIPI (Canadian Institute for Photonic Innovations), pp. 34-37, 2006.

### **Invited Papers**

- **O. Keskin**, L. Jolissaint, C. Bradley, S. Dost, I. Sharf, “*Hot Air Turbulence Generator for Multi-Conjugate Adaptive Optics*”, Proceedings of SPIE, Advanced Wavefront Control: Methods, Devices, and Applications, Vol. 5162, pp. 49-57, 2003.
- **O. Keskin**, “Adaptif Optik ve Derotator Projesi,” Ulusal Astronomi Kongresi, 2016
- L. Zago, **O. Keskin**, C. Yeşilyaprak, S.K. Yerli, “The DAG Project,” Ulusal Astronomi Kongresi, 2015
- L. Jolissaint, **O. Keskin**, L. Zago, C. Yeşilyaprak, S.K. Yerli, “Observing with DAG: Performance of Imaging and Spectroscopy,” Ulusal Astronomi Kongresi, 2015

### **Conference Papers**

- **O. Keskin**, C. Yeşilyaprak, L. Jolissaint, “[Project management and status update for DAG \(Eastern Anatolia Observatory\) the 4 meter VIS/IR optical telescope](#),” Modeling, Systems Engineering, and Project Management for Astronomy VIII, 10705, 2018
- Jolissaint, L., Eikenberry, S., Bouxin, A., **Keskin, O.**, and Yesilyaprak, C, “[The Flexible Adaptive Optics Concept](#),” DOI: 10.26698/AO4ELT5.0118, 2018
- C. Yeşilyaprak, **O. Keskin**, Ü.B. Akbulak, C.T. Tezcan, F. Güvenir, Ö.F. Aydemir, “[DAG-TGI: turbulence generator instrument for DAG \(Eastern Anatolia Observatory\)](#),” Adaptive Optics Systems VI 10703, 107036T, 2018
- L. Jolissaint, A. Bouxin, U.S. Gökay, **O. Keskin**, F. Rigaut, C. Yesilyaprak, “[A flexible adaptive optics concept for general purpose high angular resolution science on the DAG 4 m telescope](#),” Adaptive Optics Systems VI 10703, 1070366, 2018
- A.E. Şahmali, C. Yeşilyaprak, **O. Keskin**, “[Coordination in building an observatory: a case study of Eastern Anatolian Observatory \(DAG\)](#),” Modeling, Systems Engineering, and Project Management for Astronomy VIII, 10705, 2018
- M.A. Abdulkadyrov, A.P. Semenov, S.P. Belousov, N.M. Vladimirov, **O. Keskin**, ... “[Production of M1, M2 and M3 for DAG project \(Belgium, Russia\): current status](#),” Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation III, 10706, 2018

- O. Pirnay, G. Lousberg, E. Gabriel, G. Marchiori, A. Busatta, C Yeşilyaprak, **O. Keskin**, “[DAG 4m telescope: assembly, integration and testing](#),” Ground-based and Airborne Telescopes VII 10700, 107001Y, 2018
- A.C. Ünal, M. Sarajlic, L.J. de Sepibus, **O. Keskin**, C. Yesilyaprak, J. Baudet, “[In flange derotator design for the 4m DAG Telescope](#),” Ground-based and Airborne Telescopes VII 10700, 107003W, 2018
- C. Yeşilyaprak, **O. Keskin**, “[Eastern Anatolia Observatory \(DAG\): recent developments 2017](#)”, Ground-based and Airborne Telescopes VII 10700, 107002J,2018
- L. Jolissaint; A. Bouxin; **O. Keskin**, “AO development of the DAG 4 m telescope,” AO4ELT (Adaptive Optics for ELT Conference), 2017
- **O. Keskin** ; C. Yesilyaprak ; S. K. Yerli ; L. Zago ; T. Guver ; S. Alis, “Project management of DAG: Eastern Anatolia Observatory,” Proc. SPIE 9911, Modeling, Systems Engineering, and Project Management for Astronomy VI, 99110S; doi:10.1117/12.2234459, 2016
- **O. Keskin**, S.K. Yerli, C. Yeşilyaprak, et all, “[Status of Focal Plane Instrumentation \(FPI\) project of the 4m DAG telescope](#) ”, Proc. SPIE 9908, Ground-based and Airborne Instrumentation for Astronomy VI, 99085I, doi: 10.1117/12.2234285, 2016
- **O. Keskin** ; C. Yesilyaprak ; S. K. Yerli, “Auxiliary free space optical communication project to ensure continuous transfer of data for DAG the 4 meter telescope”, Proc. SPIE 9912, Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation II, 991273; doi:10.1117/12.2234388, 2016
- L. Jolissaint ; **O. Keskin** ; L. Zago ; S. K. Yerli ; C. Yesilyaprak ; E. Mudry ; G. Lousberg, " The design of an adaptive optics telescope: the case of DAG ", Proc. SPIE 9906, Ground-based and Airborne Telescopes VI, 99063J; doi:10.1117/12.2233297, 2016
- B. B. Güçsav; D. Çoker; C. Yeşilyaprak; **O. Keskin**; L. Zago; S. K. Yerli, " Agile development approach for the observatory control software of the DAG 4m telescope ", Proc. SPIE 9913, Software and Cyberinfrastructure for Astronomy III, 991333; doi:10.1117/12.2234394, 2016
- [A. E. Sahmali](#) ; C. Yesilyaprak ; S. K. Yerli ; **O. Keskin**, “Observatory building design: a case study of DAG with infrastructure and facilities,” Proc. SPIE 9911, Modeling, Systems Engineering, and Project Management for Astronomy VI, 99112S; doi:10.1117/12.2234386, 2016
- L. Zago; B. Guex; C. Yesilyaprak; S. K. Yerli; **O. Keskin**, Integrated opto-dynamic modeling of the 4m DAG telescope image quality performance ", Proc. SPIE 9911, Modeling, Systems Engineering, and Project Management for Astronomy VI, 991128; doi:10.1117/12.2232816, 2016

- S. K. Yerli ; C. Yeşilyaprak ; **O. Keskin** ; S. Alis, “DAG telescope site studies and infrastructure for possible international co-operations,” Proc. SPIE 9910, Observatory Operations: Strategies, Processes, and Systems VI, 99102J; doi:10.1117/12.2234384, 2016
- C. Yeşilyaprak ; S. K. Yerli ; **O. Keskin** ; B. B. Güçsav, “DAG: a new observatory and a prospective observing site for other potential telescopes,” Proc. SPIE 9910, Observatory Operations: Strategies, Processes, and Systems VI, 99102U; doi:10.1117/12.2234383, 2016
- [T. Güver](#), [B. A. Mazin](#), [K. O'Brien](#), [B. Kay](#), [S. Aliş](#), [F. K. Yelkenci](#), [C. Yeşilyaprak](#), [S. K. Yerli](#), [A. Erol](#), **O. Keskin**, “[A microwave kinetic inductance detector for the DAG telescope](#)”, Proc. SPIE 9915, High Energy, Optical, and Infrared Detectors for Astronomy VII, 99152P; doi: 10.1117/12.2234281, 2016
- [J. Baudet](#), [L. Jolissaint](#), **O. Keskin**, [C. Yesilyaprak](#), [S. K. Yerli](#). “[Design of a derotator for the 4 m DAG telescope](#)”, Proc. SPIE 9908, Ground-based and Airborne Instrumentation for Astronomy VI, 99085L, doi: 10.1117/12.2234392, 2016
- G. Marchiori ; A. Busatta ; L. Ghedin ; E. Marcuzzi ; C. Manfrin ; C. Battistel ; O. Pirnay ; Carlo Flebus ; C. Yeşilyaprak ; **O. Keskin** ; S. Yerli, “The DAG project, a 4m class telescope: the telescope main structure performances,” Proc. SPIE 9906, Ground-based and Airborne Telescopes VI, 990662; doi:10.1117/12.2234946, 2016
- C. Yeşilyaprak, **O. Keskin**, “Doğu Anadolu Gözlemevi Son Gelişmeler,” Ulusal Astronomi Kongresi, 2016
- S.K. Yerli, C. Yeşilyaprak, T. Güver, **O. Keskin**, S. Aliş, “DAG Odak Düzlemi Aygıtları,” Ulusal Astronomi Kongresi, 2016
- **O. Keskin**, “DAG Adaptif Optik Sistemi ve Derotator Projesi,” Ulusal Astronomi Kongresi, 2016
- S. Aliş, M. Ö. Arabacı, S. K. Yerli, C. Yeşilyaprak, T. Güver, **O. Keskin**, L. Jolissaint, T. Saguner, “Bilimsel Gereçler Işığında DAG Teleskobu için Düşünülen Olası Odak Düzlemi Aygıtları ve İşbirlikleri,”Ulusal Astronomi Kongresi, 2016
- T. Güver, B. Kay, E. Ege, B. Mazin, K. O'Brien, S. Aliş, K. Yelkenci, A. Erol, **O. Keskin**, “DAG-MKID,”Ulusal Astronomi Kongresi, 2016
- **O. Keskin**, L. Jolissaint, C. Yeşilyaprak, S. K. Yerli, “Adaptive Optics for DAG Telescope,” Ulusal Astronomi Kongresi, 2015



- **O. Keskin**, L. Jolissaint, C. Yeşilyaprak, S. K. Yerli, “The Effect of Atmospheric Turbulence on Astrophysical Applications,” Ulusal Astronomi Kongresi, 2015
- C. Yeşilyaprak, S.K. Yerli, **O. Keskin** “DAG Projesi: Dünü Bugünü, ve Geleceği,” Ulusal Astronomi Kongresi, 2015
- C. Yeşilyaprak, S.K. Yerli, **O. Keskin** “DAG Altyapı ve Üstyapı Çalışmaları,” Ulusal Astronomi Kongresi, 2015
- S. K. Yerli, C. Yeşilyaprak, **O. Keskin**, “DAG Odak Düzlemi Aygıtları,” Ulusal Astronomi Kongresi, 2015
- **O. Keskin**, C. Yesilyaprak, S.K.Yerli, L. Zago, L. Jolissaint, “*Turkey's next big science project: DAG the4-m telescope,*” Proceedings of SPIE, Astronomical Telescopes and Instrumentation, (9145--210, to appear 2014)
- **O. Keskin**, “*Electro-optics Free Space Optical Communication Systems*”, 4<sup>th</sup> Naval Systems Seminar, 2011
- **O. Keskin**, “*Askeri Alanda Adaptif Optik Uygulama ile Serbest Uzay Haberleşme Sistemleri*”, Cyber Warfare Symposium, SASAD, 2010
- **O. Keskin**, “*Numerical Evaluation of an Off-axis Point Spread Function Reconstruction from the Woofer/Tweeter Adaptive Optics System,*” IEEE, 978-1-4244-4210-2/09, 2009.
- H. Nasibov, **O. Keskin**, F. Hacizade, “*High Resolution Digital Library of Cultural Heritage,*” e-challenges e-2009, 2009.
- **O. Keskin**, H. Nasibov, F. Hacizade, “*Hot-Air Atmospheric Turbulence Generator For The Improvement Of Laser Based Free-Space Communication Systems With Adaptive Optics Systems,*” ALT 09: 17<sup>th</sup> International Advanced Laser Technologies, 2009.
- **O. Keskin**, R. Conan, C. Bradley, “*Off-axis Point Spread Function Reconstruction from a dual Deformable Mirror Adaptive Optics System,*” SPIE Astronomical Telescopes and Instrumentation, 2008.
- **O. Keskin**, R. Conan, C. Bradley, “*Point Spread Function Reconstruction Using a Dual DM Adaptive Optics System,*” Adaptive Optics: Analysis and Methods Abstracts, Optical Society of America: Topical Meetings, 2007.
- R. Conan, C. Bradley, P. Hampton, **O. Keskin**, A. Hilton, C. Blain, “*UVic Woofer/Tweeter Test Bed: Status and Plans,*” Adaptive Optics: Analysis and Methods Abstracts, Optical Society of America: Topical Meetings, 2007.

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- R. Conan, C. Bradley, P. Hampton, **O. Keskin**, A. Hilton, C. Blain, “*Performance Assessment of Laser Guide Star Wave Front Sensing*,” Adaptive Optics: Analysis and Methods Abstracts, Optical Society of America: Topical Meetings, 2007.
  - C. Blain, R. Conan, C. Bradley, **O. Keskin**, P. Hampton, A. Hilton, “*Magnetic ALPAO and Piezo-Stack CILAS Deformable Mirrors Characterization*,” Adaptive Optics: Analysis and Methods Abstracts, Optical Society of America: Topical Meetings, 2007.
  - **O. Keskin**, , P. Hampton, R. Conan, C. Bradley, A. Hilton, C. Blain, “*Woofers Tweeter Adaptive Optics Test Bench*,” IEEE/ proceedings of First NASA/ESA Conference on Adaptive Hardware and Systems , pp. 74-80, 2006.
  - **O. Keskin**, R. Conan, C. Bradley, “*PSF Reconstruction from 2 DMs Woofers-Tweeter Adaptive Optics Bench*,” Proceedings of SPIE, Astronomical Telescopes and Instrumentation, Vol. 6272, pp. 156-165, 2006.
  - R. Conan, P. Hampton, C. Bradley, **O. Keskin**, C. Blain, “*The Woofers-Tweeter Experiment*,” Proceedings of SPIE, Astronomical Telescopes and Instrumentation, Vol. 6272, pp. 64-73, 2006.
  - L. Jolissaint, **O. Keskin**, C. Bradley, B. Wallace, A. Hilton “*Multiple-Layer Optical Turbulence Generator Principle and SLODAR Characterization: Preliminary Results*,” Proceedings of SPIE, Optics in Atmospheric Propagation and Adaptive Systems, Vol. 5572, pp. 256-261, 2004.
  - B. Wallace, C. Bradley, H. Richardson, J. Kennedy, **O. Keskin**, P. Hampton, D. Robertson, L. Jolissaint, A. Hilton, “*Dual Conjugate Adaptive Optics Test bed: Progress Report*”, Proceedings of SPIE, Astronomical Adaptive Optics Systems and Applications, Vol. 5169, pp. 255-261, 2003.

### **Other Publications**

- **O. Keskin**, “*Electro-optics Research at TUBITAK and Optical Link Secure Voice and Data Communication System*”, MSI, Military Science & Intelligence, 2010
- “*Thirty Meter Telescope Construction Proposal*” , University of California, California Institute of Technology, The Association of Canadian Universities for Research in Astronomy, TMT Observatory Corporation, Sept. 2007

### **Support & Supervision of Master's Thesis Project**

- “*Pyramid wavefront sensor laboratory performance analysis,*” Jeffrey Le Due at the University of Victoria Physics and Mechanical Engineering Departments\_
- “*Optical Turbulator Design and Analysis,*” Damián Gulich Centro de Investigaciones Opticas (CIOp), Argentina

### **Support & Supervision of Undergraduate Thesis Project**

- “*Autonomous Unverwater Vehicle Project,*” Department of Mechanical Engineering at FMV IşıkUniversity (2012)
- “*Stabilization System for Naval Applications,*” Department of Mechanical Engineering at FMV IşıkUniversity (2013)
- “*Unmanned Transportation Systems,*” Department of Mechanical Engineering at FMV IşıkUniversity (2013)
- “*Robotic Fire Extinguisher system,*” Department of Mechanical Engineering at FMV IşıkUniversity (2013)
- “*Self-Inflating Fender System for Marine Applications,*” Department of Mechanical Engineering at FMV IşıkUniversity (2014)
- “*Dome Design and Analysis for a 1 Meter Class Telescope,*” Department of Mechanical Engineering at FMV IşıkUniversity (2014)
- “*Design of a Portable Lift Table,*” Department of Mechanical Engineering at FMV IşıkUniversity (2015)
- “*Design of a Portable Container Tilter,*” Department of Mechanical Engineering at FMV IşıkUniversity (2015)
- “*Design and Characterizatin of a Wind Tunnel, ,*” Department of Mechanical Engineering at FMV IşıkUniversity (2016)
- “*Automated Guided Vehicle System Design,*” Department of Mechanical Engineering at FMV IşıkUniversity (2016)
- “*Design of a Rotator System,*” Department of Mechanical Engineering at FMV IşıkUniversity (2016)
- “*Design of an Electromechanical Translation Stage System,*” Department of Mechanical Engineering at FMV IşıkUniversity (2016)

## **Teaching Experience**

### **FMV IŞIK UNIVERSITY (2012 – Since)**

- ME 201 - Computational Methods in Engineering
- MCE241 - Engineering Mechanics I
- MCE 242 – Engineering Mechanics II
- ME 242 - Dynamics
- ME 345 - Mechanics of Materials
- MCE 401 – Mechatronics System Design
- ME 482 – Industrial Automation
- ME 490 – Directed Project

### **University of Victoria (2001-2008)**

Taught laboratory courses and tutorials in the areas of mechanics of solids, dynamics, mechanics of fluids, thermodynamics, engineering fundamentals, and machine dynamics; graded reports, assignments and midterms of students; and determined the overall grades in the undermentioned courses.

- Engineering Fundamentals (Mech 141), Mechanics of Solids I & II (Mech 220 & Mech 320), Thermodynamics (Mech 240), Dynamics (Mech 245), Machine Dynamics (Mech 330), Mechanics of Fluids I (Mech 345), Mechanics of Fluids II (Mech 392), Computer-Aided Design (Mech 410 & Mech 520)

## **Awards**

- University of Victoria Fellowship (2004 – 2008)
- Nominee for the Departmental Graduate Teaching Award in 2008 (University of Victoria)
- Nominee for Andy Farquharson Award for Excellence in Graduate Student Teaching in 2008 (University of Victoria)

## **Affiliations**

- The Optical Society of America (OSA)
- Society of Photo-Optical Instrumentation Engineers (SPIE)

- L.A.C.I.R Laboratory for Automation Communications and Information Systems Research, University of Victoria, Canada

### **Certificates**

- The Methodologies Concept and Applications of Project Management (PMI)
- PMP Certification (PMI, in progress)

### **Professional Trainings**

- Security Briefing
- Quantum Theory
- Principles of Quantum Mechanics
- Classical and Quantum Information Theory
- Classical and Quantum Coding
- Quantum Calculations
- Classical and Quantum Error Recovering
- Crypto Clearance Briefing

### **Managerial Responsibilities**

- International Academic Committee Member (TUBITAK UEKAE – National Research Institute of Electronics and Cryptology), 2010 – 2012
- Coordinator of Mechatronics Program at FMV Işık University, 2012 - Present
- Advisory Board Member for DAG (Doğu Anadolu Gözlemevi) project, 2013 – Present

### **Patents**

- \*2 pending international patents
  - EP18020209.5
  - EP18020210.3

### **Languages**

- English (Fluent), French (Fluent), Turkish (Native)

### **Nationality**

- Turkish

- Canadian