

## Eğitim

2010–2013	Doktora	Edinburgh Üniversitesi, Mühendislik Fakültesi, İngiltere <i>Tez Başlığı: Büyük Rüzgar Türbinleri için Süperiletken Jeneratör Tasarımı</i>
2005–2008	Yüksek Lisans	ODTÜ Elektrik-Elektronik Mühendisliği <i>Tez Başlığı: Asenkron Motorlar için Harici Bobin ile Modifiyesiz Hız Ve Pozisyon Algılayıcısı</i>
2000–2005	Lisans.	ODTÜ Elektrik-Elektronik Mühendisliği

## İş Tecrübesi

2011–	Araştırma Görevlisi	Enerji Sistemleri Enstitüsü, Edinburgh Üniversitesi
2010–2012	Makine Tasarım Danışmanı	NGenTec, Edinburgh
2009–2010	Araştırma Görevlisi	Enerji Sistemleri Enstitüsü, Edinburgh Üniversitesi
2005–2009	Araştırma Görevlisi	ODTÜ Elektrik-Elektronik Mühendisliği

## Araştırma Projeleri

2011–	Avrupa Birliği 7. Çerçeve Programı	Marina Platform Projesi’nde halen tam zamanlı araştırmacı olarak çalışıyorum. Projenin amacı dalga ve rüzgar enerjisini birleştiren yüzer platformlar tasarlamaktır.
2013	Birleşik Arap Emirlikleri Üniversitesi	5 kW’lık sabit mıknatıslı doğrusal jeneratör tasarımı.
2013	General Electric	Doktora tezim sırasında geliştirdiğim süperiletken jeneratör tasarımının laboratuvar testleri. Süperiletken bobin ve test olanakları General Electric tarafından sağlanmıştır.
2011	NGenTec	5 MW, 300 rpm sabit mıknatıslı jeneratör tasarım danışmanlığı ve sonlu element analizi.
2010	NGenTec	1 MW, 12 rpm sabit mıknatıslı jeneratör tasarımı. Jeneratör başarıyla üretilmiş ve test edilmiştir.
2010	SMART R&D Grant	25 kW eksenel sabit mıknatıslı jeneratörün tasarım ve üretimi.
2010	Hayward Tyler	Su altında çalışacak bir sabit mıknatıs motor tasarımı. Motorun termal performansı, aşınma mekanizmaları ve sürtünme kayıpları incelenmiştir.
2009–2010	NPower Project	The feasibility analysis of direct-drive PM generators for two wave energy converters (Aquamarine,AWS Ocean Power) and two tidal energy converters (Marine Current Turbines, Scotrenewables) have been investigated. An analytical and optimization tool is developed, and licensed by University of Edinburgh for further use.
2005–2008	METU	A novel method to estimate the rotor speed and position of an induction motor using the fringing flux out of the rotor cage is developed. An international patent has been awarded to this work.

## Teaching Experience

### School of Engineering, University of Edinburgh

#### Laboratory Supervision:

- Power Engineering Lab (2nd year): This course introduces students to the techniques and equipment used in the generation, transmission, distribution and utilisation of electrical power.
- Power Generation Lab (3rd year): The lab aims to give the students experience in working with rotating machines and power electronic equipment and synchronization to the grid.

#### Courses:

- The Industrial Doctoral Centre for Offshore Renewable Energy (four-year EngD programme), "Introduction to Superconductivity and Superconducting Generators".

#### M.Sc. Supervision:

- Mario Recio Lara, "Development of a mobile phone application to detect speed and faults of electrical machines", 2013–present.
- Marzia Akbari, "Comparison and control of power take-off systems for combined wind/wave energy platforms", 2013–present.

### Middle East Technical University

#### Laboratory Supervision

- Electromechanical Energy Conversion I-II (EE361, EE362, undergraduate 3rd year).
- Static Power Conversion (EE463, undergraduate 4th year).
- Laboratory coordinator (4 semesters).

## Honours & Awards

2013	Staff Scholarship, University of Edinburgh.
2012	Young Researcher Support, International Conference on Superconductivity and Magnetism, ICSM.
2011	Young Researcher Award and Travel Grant, European Conference on Applied Superconductivity, EUCAS.
2011	IEEE Membership and Travel Grant, IEEE Power Electronics Society.
2011	Best Poster Award, IEEE International Electric Machines and Drives Conference, IEMDC.
2010	Best Paper Award, IEEE International Conference on Electrical Machines, ICEM.
2012-2013	Ph.D. Overseas fee waiver and stipend, University of Edinburgh.
2010-2011	Ph.D. Scholarship on Renewable Energy, Hopewell Holdings, Hong Kong.
2005–2007	TUBITAK Graduate Fellowship.
2005	Ranked 2nd in the Academic Personnel and Graduate Education Exam (ALES).
2005	Finalist in the METU Entrepreneurship Competition (Yeni İşler Yeni Fikirler).
2001–2005	Dean's high honour list (3 times), Dean's honour list (3 times).

## Courses & Seminars

- Future Reliable Renewable Energy Conversion Systems, 4th Flagship Seminar, Chongqing, China, 2012.
- Supervising Postgraduate Research, Iain Davidson, 2013.

- Large-Scale Parallel Computing, University of Edinburgh, 2013.
- Superconducting Machines, UK Magnetics Society, University of Oxford, 2012.
- Thermal and Mechanical Aspects of High Performance Electrical Machines, UK Magnetics Society, 2011.
- LaTeX for scientific publications, Skills Development Edinburgh, 2010.
- Opera 2D/3D FEA Analysis of Electrical Machines, Cobham Ltd. Vector Fields, 2009.
- Marine and Tidal Energy Workshop, Industrial Problems in Marine Energy Workshop, 2009.
- Project Management for Researchers, Fistrat Training & Consultancy Ltd., 2009.
- Project Presentation on International Venture Capital Forum, Athens, 2006.
- Project Management and Entrepreneurship Course, 30 days, METU Technopolis, 2005.

## Memberships

2011–Present IEEE Member

2011–Present IEEE Power and Energy Society Member

2010–Present UK Magnetics Society Member

2005–Present TMMOB Electrical Engineers Society Member

## Academic Work

Reviews for IEEE Transactions of Industrial Electronics  
IEEE Transactions of Industrial Informatics  
IET Renewable Power Generation Journal  
IEEE International Conference on Electrical Machines and Drives  
IET Power Electronics, Machines and Drives Conference  
IEEE International Conference on Electrical Machines

## Software

- Programming: Python, R, Matlab, C++.
- Finite Element Analysis: Opera, FEMM, ANSYS, Gmsh, GetDP.
- Computer Aided Design: SolidWorks, AutoCad.
- Computational Fluid Dynamics (CFD), OpenFOAM.

## Activities & Hobbies

Mountaineering Active Member of METU Mountaineering Club

Sailing Dinghy and Yacht Sailing, Certificate of Competence For Operators of Pleasure Craft.

Blogging asuyatuyolar.org

## Languages

English (Fluent), Spanish (Intermediate), Chinese (Beginner)

## Publications

## Refereed journal papers

1. Keysan, O., M. Mueller, A. McDonald, N. Hodgins, and J. Shek (2012). Designing the C-GEN lightweight direct drive generator for wave and tidal energy. *IET Renewable Power Generation* 6(3), 161.
2. Keysan, O. and B. Ertan (2012). Real Time Speed & Position Estimation Using Rotor Slot Harmonics. *IEEE Transactions on Industrial Informatics* (c), 1–1.
3. Keysan, O., D. Olczak, and M. A. Mueller (Dec. 2012). A Modular Superconducting Generator for Offshore Wind Turbines. *Journal of Superconductivity and Novel Magnetism*, 1–5.
4. Hodgins, N., O. Keysan, A. S. McDonald, and M. Mueller (2011). Design and Testing of a Linear Generator for Wave Energy Applications. *IEEE Transactions on Industrial Electronics* (c), 1–10.
5. Keysan, O. and M. A. Mueller (Oct. 2011). A Homopolar HTSG Topology for Large Direct-Drive Wind Turbines. *IEEE Transactions on Applied Superconductivity* 21(5), 3523–3531.
6. Keysan, O. and H. B. Ertan (2009). Determination of rotor slot number of an induction motor using an external search coil. *Facta universitatis-series: Electronics and Energetics* 22(2), 227–234.

## Book chapters

1. Keysan, O. (2013). “Application of high temperature superconducting machines to direct drive renewable energy systems”. In: *Electrical Drives for Direct Drive Renewable Energy Systems*. Ed. by M. Mueller and H. Polinder. Woodhead Publication. ISBN: 84569-783-9.

## Patent

1. Keysan, O. and H. B. Ertan (2011). *Speed and Rotor Position Estimation of Electrical Machines Using Rotor Slot Harmonics and Higher Order Rotor Slot Harmonics*.

## Papers in conference proceedings

1. Echenique, E. J., O. Keysan, and M. A. Mueller (2013). (Submitted) Rotor Loss Prediction in Air-Cored Permanent Magnet Machines. In: *IEEE International Conference on Electric Machines and Drives*, ed. by Chicago, pp.1–8.
2. Keysan, O., J. Burchell, and M. A. Mueller (2013). Magnetic and Structural Analysis of a Transverse Flux Claw Pole Linear Machine (Invited Paper). In: *IEEE International Conference on Industrial Technology*. Cape Town, pp.1–5.
3. Keysan, O. and M. A. Mueller (2013). An Open Source Tool to Estimate Mass and Efficiency of Wind Turbine Power Take-off Systems (Submitted). In: *IET Renewable Power Generation Conference 2013*. Beijing, pp.1–6.
4. Keysan, O. and M. Mueller (2012). A linear superconducting generator for wave energy converters. In: *6th IET International Conference on Power Electronics, Machines and Drives (PEMD 2012)*. Bristol: IET, pp.B134–B134. ISBN: 978-1-84919-616-1.
5. Keysan, O., A. S. McDonald, and M. Mueller (2011). A Direct Drive Permanent Magnet Generator Design for a Tidal Current Turbine (SeaGen). In: *International Electric Machines and Drives Conference*. Toronto, pp.1–6.
6. Keysan, O. and M. Mueller (2011). Superconducting generators for renewable energy applications. In: *IET Conference on Renewable Power Generation (RPG 2011)*. Vol. 2020. Edinburgh: IET, pp.12–12. ISBN: 978-1-84919-536-2.
7. Keysan, O. and M. A. Mueller (2011). A Transverse Flux High-Temperature Superconducting Generator Topology for Large Direct Drive Wind Turbines. In: *Superconductivity Centennial Conference*. Vol. 01. Den Haag, pp.1–6.
8. Hodgins, N., O. Keysan, A. S. McDonald, and M. Mueller (Sept. 2010). Linear generator for direct drive wave energy applications. In: *The XIX International Conference on Electrical Machines - ICEM 2010*. Rome: IEEE, pp.1–6. ISBN: 978-1-4244-4174-7.

9. Keysan, O. and H. B. Ertan (May 2010). Higher order rotor slot harmonics for rotor speed & position estimation. In: *2010 12th International Conference on Optimization of Electrical and Electronic Equipment*. Brasov: IEEE, pp.416–421. ISBN: 978-1-4244-7019-8.
10. Keysan, O. and H. B. Ertan (Sept. 2010). Speed & position estimation by demodulating rotor slot harmonics. In: *The XIX International Conference on Electrical Machines - ICEM 2010*. 3. Rome: IEEE, pp.1–6. ISBN: 978-1-4244-4174-7.
11. Keysan, O., A. S. McDonald, and M. Mueller (2010). Integrated Design and Optimization of a Direct Drive Axial Flux Permanent Magnet Generator for a Tidal Turbine. In: *International Conference on Renewable Energies and Power Quality - ICREPQ'10*. Granada.
12. Keysan, O., A. S. McDonald, M. Mueller, R. Doherty, and M. Hamilton (2010). C-GEN, a lightweight direct drive generator for marine energy converters. In: *5th IET International Conference on Power Electronics, Machines and Drives (PEMD 2010)*. Brighton: IET, pp.1–6. ISBN: 978 1 84919 231 6.
13. Hodgins, N., A. S. McDonald, J. Shek, O. Keysan, and M. Mueller (2009). Current and Future Developments of the C-GEN Lightweight Direct Drive Generator for Wave & Tidal Energy. In: *Proceedings of the 8th European Wave and Tidal Energy Conference*. Uppsala.

## National Papers

1. Ertan, H. B. and O. Keysan (2012). Rotor Oluk Harmoniklerini Kullanarak Asenkron Motorlar İçin Gerçek Zamanda Sensörsüz Hız ve Konum Kestirimi. In: *Eletrik-Elektronik ve Bilgisayar Mühendisliği Sempozyumu*, pp.1–6.
2. Keysan, O. and H. B. Ertan (2012). Asenkron Motorlarda Oluk Sayısının Gövde Dışına Takılan Bir Bobinle Belirlenmesi. *EMO Bilimsel Dergi* 2(3), 29–35.
3. Ertan, H. B. and O. Keysan (2009). Govde disina yerlestirilmis bobin ile asenkron motor hizinin olculmesi. In: *Elektrik-Elektronik, Bilgisayar, Biyomedikal Mühendisliği 13. Ulusal Kongresi*. Vol. 2. 3, pp.37–43.

## Technical Reports

1. Keysan, O. and M. A. Mueller (2012). *Marina Platform Deliverable 7.2.2, Wind Energy System Components*. Tech. rep., pp. 1–67.
2. Keysan, O. and M. A. Mueller (2012). *Marina Platform Deliverable 7.3, Critical Components for Wave Energy Converter Power Take-off Systems*. Tech. rep., pp. 1–48.
3. Keysan, O. (2010). *Hayward Tyler, Marinisation of a Direct Drive Permanent Magnet Machine*. Tech. rep., pp. 1–30.
4. Keysan, O. (2009). *Aquamarine Power, Oyster C-Gen Rotary Machine Design*. Tech. rep., pp. 1–45.
5. Keysan, O. (2009). *Archimedes Wave Swing, C-Gen Direct Drive Linear Machine Design*. Tech. rep., pp. 1–28.
6. Keysan, O. (2009). *Marine Current Turbines, C-Gen Direct Drive Machine Design*. Tech. rep., pp. 1–31.
7. Keysan, O. (2009). *Scotrenewables, Tidal Turbine C-Gen Direct Drive Machine Design*. Tech. rep., pp. 1–48.

## Thesis

1. Keysan, O. (2008). “A Non-Invasive Speed and Position Sensor for Induction Machines Using External Search Coils”. MSc. Middle East Technical University, p. 213.