

## CURRICULUM VITAE

- 1. Name Surname:** Salih Barış ÖZTÜRK
- 2. Date of Birth:** 04.06.1978
- 3. Department:** Electrical and Electronics Engineering
- 4. Education:**

Degree	Department	University	Year
Bachelor	Electrical and Electronics Eng.	Istanbul Technical University	2000
Master	Electrical and Computer Eng.	Texas A&M University, College Station	2005
Ph.D.	Electrical and Computer Eng.	Texas A&M University, College Station	2008

- 5. Academic Titles:**

Title	Discipline	University	Year
Assistant Professor	Electrical and Electronics Eng.	OKAN University	2009
Associate Professor			
Full Professor			

- 6. Supervised Master and Ph.D. Thesis**

### 6.1 Title of Master Thesis

### 6.2 Dissertation Title:

### 7) Publications

#### 7.1 International Refereed Journal Publications

- B. Akin, **S. B. Ozturk**, H. A. Toliyat, and M. Rayner, "DSP-Based Sensorless Electric Motor Fault-Diagnosis Tools for Electric and Hybrid Electric Vehicle Powertrain Applications", *IEEE Transactions on Vehicular Technology*, vol. 58, no. 6, pp. 2679-2688, July 2009
- S. B. Ozturk**, W. C. Alexander, and H. A. Toliyat, "Direct Torque Control of Four-Switch Brushless DC Motor With Non-Sinusoidal Back-EMF", accepted for future publication in the *IEEE Transactions on Power Electronics*, exp. pub. date Mar./Apr. 2010

- **S. B. Ozturk** and H. A. Toliyat, “Sensorless Direct Torque and Indirect Flux Control of Brushless DC Motor”, under review in the *IEEE Transactions on Mechatronics*, submitted in Jun. 2009

## 7.2 International Conference Presentations & Proceedings

- **S. B. Ozturk** and H. A. Toliyat, “Sensorless Direct Torque and Indirect Flux Control of Brushless DC Motor with Non-sinusoidal Back-EMF”, in *Proc. IEEE-IECON Annu. Meeting*, Orlando, FL, Nov. 9-11, 2008, pp. 1373-1378
- **S. Baris Ozturk**, B. Akin, and H. A. Toliyat, "Low-Cost Direct Torque Control of Permanent Magnet Synchronous Motor Using Hall-Effect Sensors", in *Proc. IEEE-APEC Annu. Meeting*, Dallas, TX, Mar. 19-23, 2006, pp. 667-673
- B. Akin, **S. B. Ozturk**, P. Niazi, H. A. Toliyat, and A. Goodarzi, "Low Speed Performance Operation of Induction Motors Drives Using Low-Resolution Speed Sensor," in *Proc. IEEE-ISIE Annu. Meeting*, Montreal, Canada, Jul. 9-13, 2006, vol. 3, pp. 2110-2115
- B. Akin, **S. B. Ozturk**, and H. A. Toliyat, "Analyzing Contributions to Very- Low-Speed Measurement Techniques Using Low-Count Encoders," *TI Texas Instruments Developer Conference*, Dallas, TX, Feb. 28-Mar. 2, 2006
- **S. B. Ozturk**, O. Yang, and H. A. Toliyat, “Power Factor Correction of Direct Torque Controlled Brushless DC Motor Drive”, in *Proc. IEEE-IAS Annu. Meeting*, New Orleans, LU, Sep. 23-27, 2007, pp. 297-304
- B. Akin, **S. B. Ozturk**, and H. A. Toliyat, “On-board Fault Diagnosis of Induction Motor in HEV at Start-up and Idle Mode”, in *Proc. IEEE-VPPC Annu. Meeting*, Arlington, TX, Sept. 9-12, 2007, pp. 140-147
- I. S. Freitas, H. A. Toliyat, C. B. Jacobina, **S. B. Ozturk**, “A PWM Strategy with Reduced Bearing Currents for Five-Phase Motors”, in *Proc. IEEE-VPPC Annu. Meeting*, Arlington, TX, Sept. 9-12, 2007, pp. 354-358
- **S. B. Ozturk** and H. A. Toliyat, “Direct Torque Control of Brushless DC Motor with Non-sinusoidal Back-EMF”, in *Proc. IEEE-IEMDC Biennial Meeting*, Antalya, Turkey, May 3-5, 2007, vol. 1, pp. 165-171

## 7.3 International Books / Chapters of Books

Co-author of “DSP-Based Electromechanical Motion Control”, Edited by Hamid A. Toliyat, CRC Press, 2003

## 7.4 National Refereed Journal Publications

## 7.5 National Conference Presentations & Proceedings

## 7.6 National Books / Chapters of Books

## 7.7 Other Publications

## 8. Projects

- 2009 – Present **OKAN UNIVERSITY** Istanbul, TURKEY  
*Assistant Professor*
- *Intelligent Unmanned Ground Vehicle Project*: Develop power electronics, motor drive, and intelligent steering, brake, throttle, and gear-shift control of 2010 Fiat Doblo that has an automated manual transmission.
- 2008 – 2009 **UNITED TECHNOLOGIES RESEARCH CENTER (UTRC)** East Hartford, CT  
*Senior Research Engineer*
- *SIKORSKY Future Electric Helicopter Study*: Evaluated alternative primary power systems, including the prime mover (fuel cell, battery, combustion engine/generator), distribution and electric drive, for an electrically powered helicopter and identified the resultant vehicle design impacts
  - *CARRIER Scalable Digital Control Engine*: Phase I – Develop sensorless Permanent Magnet Synchronous Motor (PMSM) and Induction Motor (IM) variable frequency drives (VFDs). Phase II – Develop a real-time operation system (RTOS) for sensorless PMSM and IM variable frequency drives used in Carrier air conditioning systems ranging from 5kW to 1MW
  - *PEM Fuel Cell Based Helicopter*: Defined, procured and integrated telemetry and power conditioning to the specifications
  - *Encoderless Induction Motor (IM) and PMSM Control*: Developed Matlab/Simulink simulation models for encoderless IM control using stator voltage feed-forward control and PMSM control using Luenberger rotor flux observer. Performed a lab implementation of IM encoderless operation using rapid prototyping unit (AixController) with floating-point C code
  - *OTIS Elevator Company*: Proposed a dynamic braking system for tandem operation of mechanically decoupled two PM synchronous motors that are planned to be used in OTIS elevators
  - *OTIS Grid Interface*: Review Otis and global standards related to the grid interface. Investigate the grid interface issues occurred in the Otis elevator systems and help field engineers resolve the problems
- 2002 – 2008 **TEXAS A&M UNIVERSITY** College Station, TX  
*Graduate Research Assistant at Electric Machines & Power Electronics (EMPE) Lab.*
- Implemented the following projects using Texas Instrument's DSPs:
- Sensorless Direct Torque and Indirect Flux Control of Three-Phase Brushless DC (BLDC) Motor with Non-sinusoidal Back-EMF in Wide Speed Range
  - Direct Torque Control of Three and Five-Phase Permanent Magnet Synchronous Motor (PMSM) Drives
  - Boost Power Factor Correction of Direct Torque Controlled BLDC Motor Drive
  - Six- and Four-Switch Two-Phase Conduction DTC of BLDC Motor Drives with Non-sinusoidal Back-EMF
  - Low-Count Encoder Based Field-Oriented Control (FOC) of Induction Motor Drive for Golf Cars (using 4, 6, 8, 32, 64 pulse encoder up to one-digit rpm)
  - On-board Fault Diagnosis of Induction Motor (IM) for Hybrid Electric Vehicle (HEV) at Start-Up and Idle Mode
  - FOC of Three-Phase PMSM and IM Drives
  - Speed Control of BLDC Motor using Three Hall-Effect Sensors

- Stepper Motor Control using TMS320LF2407

Simulation based projects:

- Sensorless Control of Interior and Surface-Mount PM Synchronous Motors in MATLAB/Simulink
- Finite Element Analysis of Axial PM Synchronous Motor Using Ansoft/Maxwell 3D, and Electronic Pole Change of Switch Reluctance Motor for HEV Applications Using Ansoft/Maxwell 2D
- Low-Cost Direct Torque Control of PMSM Using Three Hall-Effect Sensors in MATLAB/Simulink

2004

**WHIRLPOOL CO.**

Benton Harbor, MI

*Research and Development Center*

- Modelled brushless PM motor direct drive for a washing machine in Ansoft/SIMPLORER

## **9. Administrative Tasks:**

Member of Okan University Institutional Communication Platform, November 2009 – Present

## **10. Academic/Professional Memberships:**

- IEEE Member, 2008 – Present
- IEEE Student Member, 2002 – 2008

## **11. Awards:**

- UTRC Outstanding Achievement Award (Highest Award at UTRC), 2009
- IECON 2008 Best Paper Award – Second Prize
- Accomplished the first Fuel Cell Based Helicopter flight successfully in the world, 10/2008
- Session chair at IEEE-IECON Conference in Orlando, FL, 2008
- TAMU Office of Graduate Studies Travel and Presentation Grant for IAS Conference, Fall 2007
- Academic Excellence Scholarship, Texas A&M University (TAMU), College Station, 2004
- Achievement Award from Istanbul Technical University (2<sup>nd</sup> place in Electrical Eng.), 2000
- Upon graduation as the valedictorian of high school class and receiving high marks on the Turkish National Exam, recruited by the Turkish government to attend Istanbul Technical University, 1995