# CANTURK ISCI

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## EDUCATION

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| 2001 - Present | **Ph.D.** in **Electrical Engineering** | *Princeton University*, Princeton, NJ (Expected graduation date: June 2007) | |

• Thesis Title: *Live, Runtime Workload Power Modeling, Phase Monitoring and Prediction for Adaptive Processing*

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| 2000 - 2001 | **M.Sc.** in **VLSI System Design** | *University of Westminster*, London, UK (Graduated with Distinction) | |

• Thesis Title: *Pseudo-Random Testing of Arithmetic Circuits*

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| 1996 - 2000 | **B.S.** in **Electrical Engineering** | *Bilkent University*, Ankara, Turkey (Graduated with High Honors) |

## ACHIEVEMENTS AND AWARDS

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| 2001 - 2002 | *Graduate Fellowship*, Department of Electrical Engineering, Princeton University |
| 2001 | *M.Sc. with Distinction,* University of Westminster, Department of Electronic Systems |
| 2000 - 2001 | *Millennium Scholarship*, awarded by British Council to a single candidate in Turkey for postgraduate study in Britain |
| 2000 | *Ranked 33rd in National Selection Examination for Graduate Studies among 100 thousand candidates, Turkey* |
| 1996 - 2000 | *Undergraduate Fellowship*, Bilkent University |
| 1996 | *Ranked 45th in National University Entrance Exam among 1.5 million candidates, Turkey* |
| 1995 | *Ranked 11th in National Physics Olympiads, Turkey* |

## EXPERIENCE

**2001- Present**  
***Princeton University,* Department of Electrical Engineering**  
Research Assistant in Parapet Research Group

Conducted research on runtime mathematical modeling of processor power behavior. Investigated repetitive pattern behavior of applications and developed novel methods for detecting recurrent behavior under variability. Applied pattern analysis methods to duration prediction of specific patterns. Investigated application behavior tracking and prediction via application feature signatures. This overall research led to eight peer-reviewed publications.

**Jun-Sep 2006**  
***Intel Research,* Hillsboro, Oregon**  
Intern in Platform Capabilities Lab, Corporate Technology Group

Worked with a team of researchers on a resource allocation problem in data centers. Developed analytical and statistical methods to predict workload behavior across platforms. This work led to an Intel invention disclosure and a publication under preparation.

**Jun-Sep 2005**  
***IBM T.J. Watson Research Center,* Yorktown Heights, New York**  
Intern in Reliability and Power Aware Microarchitecture Group

Worked in a research group on a power budget fitting problem, where different processor components consume dynamically varying portions of a global budget. Developed predictive models and policies that distribute this budget to consumers under different constraints. This work led to a peer-reviewed publication and an IBM internal white paper.

**Jul-Dec 2004**  
***IBM T.J. Watson Research Center,* Yorktown Heights, New York**  
Co-op in Reliability and Power Aware Microarchitecture Group

Worked in a research group on runtime modeling and pattern analysis of server applications. Designed long-term value and duration prediction methodologies based on specific patterns in application behavior. This work led to an IBM patent filing, two peer-reviewed publications and an IBM internal white paper.

## SKILLS AND LANGUAGES

**Computer Skills:** First-hand knowledge of a variety of operating systems and languages. Extensive C programming background on multiple platforms including Solaris, Linux, PalmOS and AIX.

Experienced in a wide range of programming, scripting and modeling environments: C, Perl, Pascal, Delphi, shell, HTML, VHDL and Verilog.

Working experience with various research and productivity tools such as: Matlab, Latex and MS Office.

**Languages:** Turkish and English (fluent), German (basic)

## ACTIVITIES

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| 2005 - 2006 | *Chair of Academic Affairs,* Princeton University Graduate Student Government |
| 2002 - 2003 | *Organizer of Computer Engineering Graduate Workshop (CEW),* Princeton University |

## PUBLICATIONS, PATENTS AND DISCLOSURES

Eleven first author publications in peer-reviewed technical conferences and journals. Selected publications:

- **Canturk Isci,** Gilberto Contreras and Margaret Martonosi, *Live, Runtime Phase Monitoring and Prediction on Real Systems with Application to Dynamic Power Management*. In 39th International Symposium on Microarchitecture, Dec 2006.
  [Acceptance Rate: 24%]

- **Canturk Isci** and Margaret Martonosi, *Phase Characterization for Power: Evaluating Control-Flow-Based and Event-Counter-Based Techniques*. In International Symposium on High-Performance Computer Architecture, Feb 2006.
  [Acceptance Rate: 15%]

- **Canturk Isci,** Margaret Martonosi and Alper Buyuktosunoglu, *Long-term Workload Phases: Duration Predictions and Applications to DVFS*. In IEEE MICRO, Special Issue on Energy Efficient Design, Sep/Oct 2005.

One patent filed jointly with IBM:

- Alper Buyuktosunoglu, Pradip Bose, **Canturk Isci,** Chen-Yong Cher, Prabhakar Kudva and Margaret Martonosi, *System and Method of Efficient Resource Management by Predicting Stable Durations of a Workload Phase*. Patent filed, Jul 2006.

One invention disclosure jointly with Intel:

- Eugene Gorbatov, **Canturk Isci** and Ripal Nathuji, *Method for Energy-Efficient Resource Allocation in Heterogeneous Data Centers*. Invention disclosure, Sep 2006.