**Burak Bastem**
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## EDUCATION

- **Koç University,** Graduate School of Sciences and Engineering, Istanbul, Turkey **2016 - 2019**
  **Master of Science in Computer Science and Engineering,** GPA 3.88/4.00
  Thesis: Tiling-Based Programming Model for GPU Clusters Targeting Structured Grids
- **Koç University,** College of Engineering, Istanbul, Turkey **2010 - 2016**
  **Bachelor of Science in Computer Engineering, Double Major (BSc) in Industrial Engineering,**
  **Track Certificate Program in Software Engineering,** GPA 3.18/4.00

## EXPERIENCE

**Yapı Kredi, Senior Software Developer**, Istanbul, Turkey **July 2018 – Present**

- Developing state-of-the-art machine learning models for credit card fraud detection in R&D division.

**Koç University ParCoreLab,** Research Assistant, Istanbul, Turkey **June 2015 – April 2019**

- Implemented TiDA-C++, tiling based multi-threaded programming model to increase cache performance with data locality and manage parallelism. TiDA achieves up to 2.10x speedup over OpenMP and resulted in publication at ISC'16.
- Designed and developed TiDA-acc. TiDA-acc is a tiling-based GPU programming model which manages distinct address spaces, successfully hides transfer latency between CPU and GPU, automatically generates GPU code, handles cases where there is no sufficient GPU memory and is published at ICPP'17.
- Integrated TiDA-acc to SMC, a combustion simulation consisting of approximately 10,000 lines of code, and presented an article as well as a poster about the study at BAŞARIM'17, Turkey's national HPC conference.
- Developed a tiling-based high-level asynchronous programming model for GPU clusters using TiDA-acc. On top of what TiDA-acc offers, it utilizes all GPUs (and CPUs) in a system, overlaps any type of communication with computation and achieves good speedup. An article about the study is under review for publication.

**Koç University,** Teaching Assistant, Istanbul, Turkey **Sept 2016 – July 2018**

- Assisted in teaching, supervision and assessment of Computer Architecture, Operating Systems and Parallel Programming courses, and received Teaching Assistant Training Certificate.

**Lawrence Berkeley National Laboratory,** Affiliate, Berkeley, CA, US **July - Sept 2016**

- Studied existing GPU execution models and SMC implemented with AMReX, an AMR framework from Berkeley Lab, implemented GPU version of SMC kernels, and collaborated on TiDA-acc design.

**Vestel Research and Development**, Software Engineering Intern, Istanbul, Turkey **Aug 2015**

- Developed three proof of concept applications for Android platform.

**Netaş Telecommunication,** Software Engineering Intern, Istanbul, Turkey **June - Aug 2014**

- Analyzed and configured static code analysis tools (PMD, FindBugs and Checkstyle) which are integrated to continuous delivery project.

## PUBLICATIONS

**Conference Proceedings**

- **B. Bastem**, D. Unat, "Tiling-Based Programming Model for Structured Grids on GPU Clusters", under review
- **B. Bastem**, D. Unat, W. Zhang, A. Almgren, J. Shalf, "Overlapping Data Transfers with Computation on GPU with Tiles", International Conference on Parallel Processing (ICPP), Bristol, UK, August 2017
- D. Unat, T. Nguyen, W. Zhang, N. Farooqi, **B. Bastem**, G. Michelogiannakis, A. Almgren, J. Shalf, "TiDA: High-Level Programming Abstractions for Data Locality Management", International Supercomputing Conference (ISC), Frankfurt, Germany, June 2016

## HONORS AND AWARDS

- Research Project Scholarship Recipient, Prof. Didem Unat through TÜBİTAK **2016 - 2018**
- Half Merit Scholarship Recipient, Koç University, Istanbul, Turkey **2010 - 2016**
- Second Best Senior Project Award, Koç University, Istanbul, Turkey **2016**
- Dean's Honor Roll, Koç University, Istanbul, Turkey **Fall 2014, Fall 2015, Spring 2016**
- Vehbi Koç Scholar, Koç University, Istanbul, Turkey **Spring 2014, Spring 2015**

## SKILLS

**Language:** Turkish-Native
English-Advanced

- KAPLAN International Certificate of Achievement, New York City, NY, US **Summer 2012**

**Computer:** - C, C++, Java, Julia, Python, Objective-C, SQL, HTML, PHP, MATLAB - Pthreads, OpenMP, MPI, CUDA, OpenACC, Knet, Keras, NumPy, Pandas, OpenCV, OpenGL - Linux, Android, iOS