Mert Hidayetoğlu

Bilkent University
Electrical and Electronics Engineering
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Education

University of Illinois at Urbana-Champaign
Electrical and Computer Engineering
Doctor of Philosophy (Expected), 2020
Advisors: Weng Cho Chew and Wen-Mei Hwu

Bilkent University
Electrical and Electronics Engineering
Master of Science, April 2015
Advisor: Levent Gürel
Bachelor of Science (Honour), January 2013

Research Interests

Electromagnetics, Integral Equations, Fast Algorithms, Parallel Computing

Computer Skills

Proficient in FORTRAN and MPI parallelization. Skilled in Unix/Linux systems, C/C++, MATLAB, OpenMP, Java, assembly language, VHDL, and HTML. Experience in CAD and simulation programs including Solidworks, I-DEAS, NX, CATIA, and SPICE.

Languages

Turkish (mother tongue), English (fluent), French (beginner)

Experience

09/2012 – 08/2015 — *Staff*, ABAKUS Computing Technologies — Ankara, Turkey
- Establishment of the company
- Organization of CEM'15 Computational Electromagnetics Workshop — İzmir, Turkey
- *See other duties under BiLCEM*

12/2010 – 10/2014 — *Research Assistant*, Bilkent University Computational Electromagnetics Research Center (BiLCEM) — Ankara, Turkey
- Development of novel and parallel electromagnetic solvers
- Accurate and fast solutions of large-scale electromagnetics problems
- Implementation of iterative solvers and preconditioners for solutions of extremely-large linear systems (involving upto 1.3 billion unknowns!)
- Geometry modeling using CAD programs
- Conducting industry and government-fundend projects
- Administration of various types of parallel HPC clusters
- Assistant in CEM'13 Computational Electromagnetics Workshop — İzmir, Turkey

05/2014 – 06/2014 — *Volunteer*, IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting — Memphis, TN, USA

01/2013 – 04/2015 — *Teaching Assistant*, Bikent University Department of Electrical and Electronics Engineering — Ankara, Turkey
- EEE 212 Microprocessors (3 Semesters)
- EEE 202 Circuit Theory
- EEE 491 Electrical and Electronics Engineering Design

06/2012 – 08/2012 — *Undergraduate Tutor*, Bilkent University Academic Student Coordination Unit — Ankara, Turkey
- CS 114 Introduction to Programming for Engineers

11/2011 – 05/2012 — *Instructor & Coordinator*, BiLCEM-IEEE Student Branch — Ankara, Turkey
- Introduction to Unix/Linux, FORTRAN, parallel computing, parellel programming, and MATLAB classes

06/2011 – 09/2011 — *Intern*, BiLCEM — Ankara, Turkey
- Development of a parallel mesh refinement program for large-scale geometries
- Assistant in CEM'11 Computational Electromagnetics International Workshop — İzmir, Turkey

06/2010 – 07/2010 — *Intern*, ETA Electronic Design Inc. — Ankara, Turkey
- Implementation and documentation of a testing software for power distribution system of a military cruiser ship

July 2015

Honors & Activities

BiLCEM undergraduate research fellowship (2011 – 2013)
IEEE student member (2011 – present)
Bilkent University EEE Department Research Excellence Award 2013
Bilkent University EEE Department Graduate Program full scholarship
Scientific and Technological Research Council of Turkey Graduate Research Scholarship
Turkcell Technology Leaders Graduate Scholarship Program 2013 – 2014

Involved Projects

Industry	**Contractor**
• Computational Methods for Antennas Mounted on Platforms	ASELSAN-SSM
• Jet Trainer/Fighter Radar Cross Section Analysis	TAI-SSM
• Radar Cross Section Calculations of Chaff Clouds	ASELSAN
State	
• Breast Cancer Detection via Inverse Scattering Algorithms	TÜBİTAK
• Parallel Electromagnetic Equivalence Principle Algorithm	TÜBİTAK

ASELSAN*: Military Electronic Industries Inc.*
SSM*: Undersecretariat for Defence Industries*
TAI*: Turkish Aircraft Industries Inc.*
TUBİTAK*: Scientific and Technological Research Council of Turkey*

Conference Papers

M. Hidayetoğlu and L. Gürel, "Full-wave and approximate solutions of large electromagnetic scattering problems," *2015 IEEE Int. Symp. Antennas and Propagation and North American Radio Science Meeting (AP-S/URSI)*, Vancouver, Canada, July 2015.

M. Hidayetoğlu and L. Gürel, "An MPIxOpenMP implementation of the hierarchical parallelization of MLFMA," *Computational Electromagnetics Int. Workshop (CEM'15)*, Izmir, Turkey, July 2015.

M. Hidayetoğlu and L. Gürel, "Parallel out-of-core MLFMA on distributed-memory computer architectures," *Computational Electromagnetics Int. Workshop (CEM'15)*, Izmir, Turkey, July 2015.

M. Salim, A. O. Akkirman, **M. Hidayetoğlu**, and L. Gürel, "Comparative benchmarking: matrix multiplication on a multicore processor and a GPU," *Computational Electromagnetics Int. Workshop (CEM'15)*, Izmir, Turkey, July 2015.

M. Hidayetoğlu and L. Gürel, "Accelerating hybrid integral-equation and physical-optics solutions with MLFMA," *URSI Atlantic Radio Science Conf. (AT-RASC 2015)*, Gran Canaria, Spain, May 2015.

M. Hidayetoğlu and L. Gürel, "MLFMA memory reduction techniques for solving large-scale problems," *2014 IEEE Int. Symp. Antennas and Propagation and USNC-URSI National Radio ScienceMeeting (AP-S/URSI)*, TN, USA, July 2014.

M. Hidayetoğlu, B. Karaosmanoğlu, and L. Gürel, "Reducing MLFMA memory with out-of-core implementation and data-structure parallelization," *Computational Electromagnetics Int. Workshop (CEM'13)*, İzmir, Turkey, Aug. 2013.

Others

M. Hidayetoğlu and Ö. İlday, "A parallel physical optics solver for solving large-scale electromagnetics scattering problems," *Bilkent University IEEE Graduate Research Conf. (GRC'15)*, Ankara, Turkey, Mar. 2015.

M. Hidayetoğlu and L. Gürel, "BiLCEM researchers making aircraft stealthier," *Bilkent News*, Mar. 2014.

M. Hidayetoğlu and L. Gürel, "Hybrid PO-MoM solutions of electromagnetic scattering problems involving PEC geometries," *Bilkent University IEEE Graduate Research Conf. (GRC'14)*, Ankara, Turkey, Mar. 2014.

M. Hidayetoğlu and L. Gürel, "Memory reduction by parallelizing data structures of MLFMA," *Bilkent University IEEE Graduate Research Conf. (GRC'13)*, Ankara, Turkey, Mar. 2013.

M. Hidayetoğlu, B. Karaosmanoğlu, and L. Gürel, "MLFMA solutions of electromagnetic scattering from chaff clouds," *Bilkent University IEEE Graduate Research Conf. (GRC'12)*, Ankara, Turkey, Mar. 2012.

Thesis

M. Hidayetoğlu, "Large-scale solutions of electromagnetics problems using the multilevel fast multipole algorithm and physical optics," M.S. Thesis, Dept. Elect. Electron. Eng., Bilkent Univ., Ankara, Turkey, Apr. 2015.

July 2015