Cenk Baykal

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Education

Massachusetts Institute of Technology (MIT) — Cambridge, MA — 2015 — Present
Ph.D. in Electrical Engineering and Computer Science (EECS)
Advisor: Prof. Daniela Rus
GPA: 5.00/5.00

University of North Carolina at Chapel Hill (UNC) — Chapel Hill, NC — 2011 — 2015
B.S. with Highest Honors, Computer Science
B.A. Mathematics
Thesis: *Design Optimization Algorithms for Concentric Tube Robots*
Thesis Advisor: Prof. Ron Alterovitz
GPA: 3.91/4.00
Graduated with Highest Distinction

Publications

1. **Cenk Baykal**, Guy Rosman, Sebastian Claici, and Daniela Rus, *Persistent Surveillance of Events with Unknown, Time-varying Statistics,* in IEEE International Conference on Robotics and Automation (ICRA), May 2017.
2. **Cenk Baykal**, Guy Rosman, Kyle Kotowick, Mark Donahue, and Daniela Rus, *Persistent Surveillance of Events with Unknown Rate Statistics,* in Workshop on the Algorithmic Foundations of Robotics (WAFR), Dec. 2016.
3. **Cenk Baykal,** Luis G. Torres, and Ron Alterovitz, *Optimizing Design Parameters for Sets of Concentric Tube Robots using Sampling-based Motion Planning*, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Sep. 2015, pp. 4381-4387.
4. David Wilkie, **Cenk Baykal,** and Ming Lin, *Participatory Route Planning*, in Proc. International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL), November 2014.
5. Luis G. Torres, **Cenk Baykal,** and Ron Alterovitz, *Interactive-rate Motion Planning for Concentric Tube Robots,* in Proc. IEEE International Conference on Robotics and Automation (ICRA), May 2014, pp. 1915-1921.

Honors

Carolina Research Scholar	2015
CRA Outstanding Undergraduate Researcher Award Finalist	2015
UNC Honors Program - Honors Carolina	2012 — 2015
Dean's List	2011 — 2015
Phi Beta Kappa	2014
Charles H. Dunham Scholarship	2014
Dunlevie Honors Undergraduate Award	2014
Summer Undergraduate Research Fellowship (SURF)	2014

Relevant Experience

Graduate Research Assistant — MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) (Prof. Daniela Rus), Cambridge, MA — September 2015 – Present

- Developing approximation algorithms for popular Machine Learning methods using *coresets:* compressed data sets that provably approximate the original data for a given problem
- Conducting research on persistent surveillance of transient events in unknown environments subject to spatio-temporal variations

Software Engineering Intern — Microsoft, Redmond, WA — Summer 2015

- Enhanced the computational efficiency of Huffman coding in SQL Server as part of the SQL Server Performance Team using SIMD and AVX2 instruction set

Undergraduate Research Assistant — UNC Computational Robotics Group (Prof. Ron Alterovitz), Chapel Hill, NC — January 2013 – May 2015

- Developed and analyzed efficient algorithms for the design optimization of concentric tube medical robots on a patient and application-specific basis
- Conducted research on and developed a codebase for interactive-rate motion planning for concentric tube medical robots

Undergraduate Research Assistant — UNC Gamma Group (Prof. Ming C. Lin), Chapel Hill, NC — January 2015 – May 2015

- Conducted Research in Machine Learning and Computer Vision to develop patient-specific cancer classification algorithm that leveraged patient's medical images and medical history

Undergraduate Teaching Assistant — UNC Computer Science Department (Prof. Marc Niethammer), Chapel Hill, NC — August 2014 – December 2014

- Worked as a Teaching Assistant (TA) for the Computer Science course COMP 116 - Introduction to Scientific Programming

Undergraduate Research Assistant — UNC Gamma Group (Prof. Ming C. Lin), Chapel Hill, NC — August 2013 – August 2014

- Enhanced and implemented the Self-Aware Traffic Route Planning Algorithm (http://gamma.cs.unc.edu/TROUTE/)

Software Engineering Intern — SAS Institute Cary, NC — Summer 2013 and 2014

- Developed automated tests for SAS University, a web-based SAS platform
- Developed fully-automated tests and utilized SAS software to perform data analysis of coverage reports

Undergraduate Research Assistant — UNC Enabling Technologies (Prof. Gary Bishop), Chapel Hill, NC — August 2012 – May 2013

- Helped develop, debug, and improve Tar Heel Reader (tarheelreader.org)
- Created an HTML5 rogue-like game for visually-impaired students that employed path planning algorithms to guide users through the game

Software Developer Intern — UNC Eshelman School of Pharmacy, Chapel Hill, NC — Summer 2012

- Developed novel educational products using XHTML/HTML, CSS, PHP, JavaScript (with jQuery and jQueryUI libraries), and an iOS app using Objective-C to facilitate student learning.