

# Alper Sarikaya

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## EDUCATION

PhD, Computer Sciences (expected late 2016)  
MS, **Computer Sciences** (May 2013)

University of Wisconsin – Madison  
Aug 2011 – *Current*

**Bachelor of Science, Computer Science**  
**Bachelor of Science, Chemistry (ACS certified)**  
College honors in Computer Science and Chemistry

University of Washington  
Sept 2004 – June 2009

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## RESEARCH

I am interested in bringing the power of visual and parallel computation to biochemical problems and creating useful tools for their domain experts. Much of my work so far has involved the binding interfaces of proteins to ligands and inorganic surfaces. My (post-)undergraduate work involved computational exploration of the strength of inorganic-binding peptides, specifically graphene. My current research involves the determination of protein-ligand interfaces by protein comparison through local descriptors that describe the spatial and chemical local environment on the proteins' solvent-excluded surface.

## Publications

Yuhei Hayamizu, Christopher So, **Alper Sarikaya**, Emre Ersin Oren, Mehmet Sarikaya. "Molecular Recognition of Multilayer Graphene by Self-Assembled Peptides" *Advanced Materials*. 2012. *under review*

## Refereed Abstracts

**Alper Sarikaya**, Danielle Albers, Michael Gleicher. "Understanding Performance of Protein Structural Classifiers." *Poster Abstracts of IEEE VIS 2013*, October 2013 (to appear).

Danielle Albers, **Alper Sarikaya**, Michael Gleicher. "Lightness Constancy in Surface Visualization." *Poster Abstracts of IEEE VIS 2013*, October 2013 (to appear). **{Best Poster Award}**

## Theses

"The Limits of Adiabatic Quantum Computation." Honors Thesis, University of Washington, June 2009.

## Experience

I am currently under the advisement of Professor Michael Gleicher at the University of Wisconsin – Madison. My primary undergraduate research in quantum computation was under Professor Dave Bacon at the University of Washington.

**UW Graphics Laboratory** Aug 2011 – *Current*  
University of Wisconsin – Madison, Madison, WI  
<http://graphics.cs.wisc.edu>

- + In conjunction with fellow biochemists, developing a solution to efficiently and accurately compare proteins in order to determine functional similarity and specificity

**GEMSEC (Genetically-Engineered Materials Sci. & Engr. Center)** Aug 2009 – Aug 2011  
University of Washington, Seattle, WA  
<http://depts.washington.edu/gemsec/>

- + Developed energy minimization techniques of graphite-binding peptides through MD simulation

**Quantum Computation Theory Group** Jan 2008 – Jun 2009  
University of Washington, Seattle, WA  
<http://quantum.cs.washington.edu>

- + Developed code with SciPy to test polynomial speedup of adiabatic quantum algorithms over its classical counterpart

**Seattle (educational peer-to-peer network)** Oct 2008 – Mar 2009  
University of Washington, Seattle, WA  
<http://seattle.cs.washington.edu>

- + Designed and constructed a proof-of-concept of MapReduce on the RePy framework. Reorganized DHT allocation of resources

**UrbanSim – Public Policy and Analysis Software** Jan 2007 – Jun 2007  
University of Washington, Seattle, WA  
<http://urbansim.org>

- + Through strict test-driven development (TDD), refactored and implemented unit tests for the entire codebase

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## INDUSTRY

**Software Development Engineer in Test II** Sep 2009 – Aug 2011  
Microsoft Corporation, Redmond, WA

- + Ensured the stability of the business intelligence component of Windows crash reports; maintained and tested code that processed billions of messages daily; overlooked multi-terabyte databases. Validated the performance and stability of telemetric data marts for Windows 8

**Software Development Engineer in Test Intern** Jun 2007 – Aug 2007  
Microsoft Corporation, Redmond, WA

- + Developed a testing tool to programmatically obtain and utilize virtual machines for testing System Center Virtual Machine Manager with itself

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## TEACHING

**Chemistry Tutor** Oct 2010 – Jun 2011  
Shorecrest High School, Shoreline, WA

- + Taught core chemistry concepts in small-group and individual settings to high-school students on topics like redox, stoichiometry, ionic charges, and interpreting the periodic table of elements

## Teaching Assistant

University of Washington, Seattle, WA

Jan 2008 – Mar 2009

- + *Computer Networks (TA for three quarters)* – Graded assignments; ran bi-weekly discussion sections discussing transmission speed, error correction, routing algorithms, and addressing; assisted students with NAT poking, RFID simulation, and programming on Netgear routers
  - + *Operating Systems (TA for one quarter)* – Graded assignments; created first Windows-based homeworks projects for the department (previous incarcerations of the class were in Linux); ran weekly recitation sections discussing RAID, file systems, concurrency, and process scheduling
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## COMMUNITY

**TGIF, Welcome Weekend co-organizer, UW ACM Student Chapter** Sep 2011 – May 2013  
<http://sacm.cs.wisc.edu>

Co-organized logistics for prospective students for the 2013 academic year. Helped coordinate visitation and logistics for 60 prospective graduate students for the 2012 academic year. Organized weekly TGIF graduate-student get-togethers and picked tasty food for consumption by able bodies (2011-2012)

### UW – Madison Scratch Club Volunteer

Sep 2012 – Dec 2012

<https://sites.google.com/site/uwmadisoncsafterschool/>

Helped run sessions and build lesson plans to introduce fourth- and fifth-grade students to Scratch programming and associated concepts (e.g. events, loops, objects) at Van Hise Elementary School

### Mass Care Worker, American Red Cross – Disaster Relief

Nov 2009 – Aug 2011

Volunteered computer, logistical, and medical skills in emergency shelters for local apartment fires

### Eagle Scout, Boy Scouts of America

Fall 1993 – Summer 2006

Gained extensive leadership experience through the roles of Patrol Leader, SPL (at summer camp), and webmaster. Completed Eagle Scout Project at Little Bit Therapeutic Riding Center (Woodinville, WA) and constructed concrete pads for stable on- and off-loading of riders onto horses

### Professional Memberships

Association of Computer Machinery (student)

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## HONORS AND AWARDS

Best Poster Award (with D. Albers, M. Gleicher), IEEE VIS 2013

UW Department of Computer Sciences Summer Research Fellowship Winner, 2012

NSF Graduate Research Fellowship Program, Honorable Mention, 2012

University of Washington, Dean's List, 2005–2009

National Merit Finalist, 2004

Full acceptance into the University of Washington at age 16 through UW Academy for Young Scholars

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## REFERENCES

Personal and professional references are available upon request.