



# Department of Computer Science

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Fall, 2015



## From the Desk of the Chair by way of the Credenza

This summer we replaced the classroom and lounge student workstations. The new machines have more memory and faster processors. They also have new names. The new machines are named **cs** instead of **gbcs**. You will find cs1 through cs18 in the classroom and cs19 through cs22 in the lounge. As always please let me or one of the other faculty know if something does not appear to work for you.

My other summer work focused on two main areas. I continued my research that I presented during a colloquium last fall on using genetic algorithms to generate puzzles. I also worked on programs to analyze our enrollment data to gain a better understanding of how our students go about completing the major.

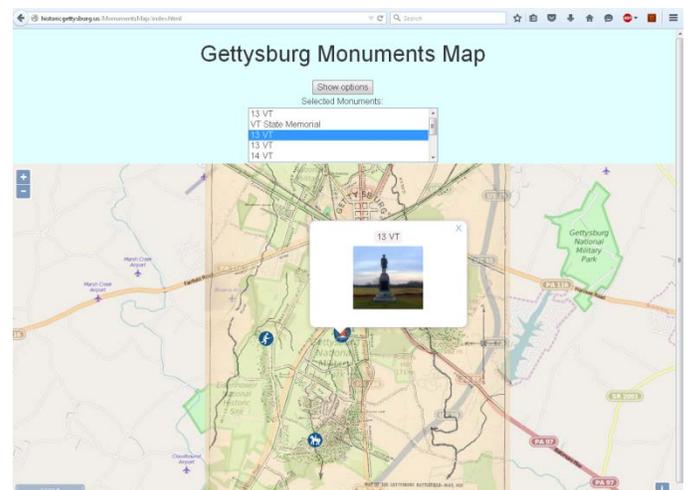
This year the department will be doing a self-study and external review. We will be asking for student participation and feedback during the process. We look forward to hearing your thoughts and ideas about the strengths and weaknesses in our programs.

## Gettysburg Monuments Map

--Chuck Kann

The Gettysburg Monuments Map, written as a project during a summer internship by Gettysburg College student John Duncan, is an application showing the location of monuments and other sites of historic interest on the Gettysburg Battlefield. It was written as a web page that can be viewed at <http://HistoricGettysburg.us>. As part of the summer internship John ported the application to the Android platform, and it will soon be available through the Google Play Store.

The data for the maps contains about 700 monuments and other historic sites. The monuments can be selected by the state unit represented on the monument and/or the type of monument. For example, the following image shows having selected the monuments for the state or Vermont, with the 13<sup>th</sup> Vermont Regiment selected.



The background map for this image shows a modern street map overlaid with the 1921 map created by the Gettysburg National Military Park. The 1921 map is courtesy of the Library of Congress.

This map is a stand-alone application which was written in HTML, JavaScript and OpenLayers.



## Poker Squares

--Todd Neller

The Game of Poker Squares is simple, but nontrivial: Given a shuffled deck, 25 cards are individually dealt and placed into a 5-by-5 grid.

Each row and column is scored as a Poker hand according to a point system. The Educational Advances in Artificial Intelligence (EAAI) 2016 student-faculty research challenge is this: Create a computer Poker Squares player that can play Poker Squares given *any point system*!

Zuozhi “George” Yang and Colin Messinger worked with Professor Todd Neller during the summer of 2015 to meet this novel challenge. George’s individual challenge was to take a given point system, quickly have his program use simulation to learn rough game strategy, and use what was learned to be able to quickly evaluate any partially-played game for its scoring potential. This was constrained to 5 minutes of computation. Colin’s individual challenge was to take George’s evaluation and search through various lines of play to select best moves to make throughout 100 games with 30 seconds maximum computation time per game.

Remarkably, the learning player that George and Colin and Todd created together outperforms all previous student AI programming for just the American point system. That is, they have done more for expert play of all possible Poker Squares point systems than any student prior achieved for a single point system. To learn more about the competition, see

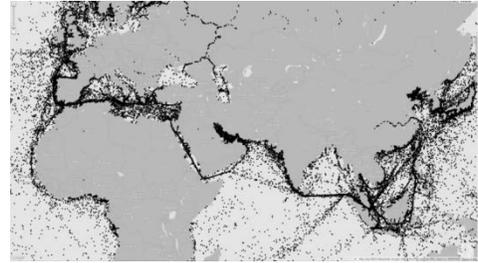
<http://cs.gettysburg.edu/~tneller/games/pokersquares/eaai/>

To learn more about traditional Poker Squares, see <http://cs.gettysburg.edu/~tneller/games/pokersquares/index.html>.

## Visualizing Data

--Sunghee Kim

Professor Kim has been looking at ways to visualize the correlation between two variables. Specifically, she is interested in the visualization of the spatial data such as climate or census data and finding the location and pattern of high and low correlations. Taking this to a more application level, she has also been thinking about usability issues for a dataset with a large number of variables especially on a mobile device. A lot of research in this topic has been done in the geographic information systems (GIS) community and a survey of previous work is ongoing.



## Android Library

--Ivaylo Ilinkin

Prof. Ilinkin worked with Amrit Dhakal'17 on an Android library for the introductory computer science course. This semester students in CS 111 will learn Java and the fundamental programming constructs by building apps for Android devices. Amrit also studied an algorithm from computational geometry for identifying triangles in sets of colored points and found interesting patterns that could lead to a better understanding of the run time of the algorithm.



## New Face in CS

If you see this man around Glatfelter in the evening, please give him a warm welcome. He is Stu Eisenman, here to teach CS 103 this fall. We're very glad to have him!

# A Wise Guy, Eh?

--Cindy Helfrich



No one will keep reading until the third page, but I told the CS faculty that if they wrote something for this newsletter, so would I. Of course, they didn't take me seriously. Of course, I'm doing it anyway.

## **Transformation**

Breath to sound  
Voice to speech  
Waves of air  
Aural beach

Stick through sand  
Mind to eyes  
Symbols form  
Groups devise

Ones by nones  
Whisper in  
Circuits thought  
Language kin

Face and place  
Held in hand  
Coding life  
On demand