NOLAN WINKLER

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Education and Academic Honors

University of Chicago (Chicago, Illinois)   Fall 2012 – Summer 2016 (Expected)
> *Dean's List (2012 – 2013, 2013-2014, 2014-2015)*
> *Expected Degrees: Bachelor of Science in **Mathematics** with minor in **Computer Science***

Budapest Semesters in Mathematics Education (Budapest, Hungary)   Fall 2015

Programming and Computer Science Experience

Counselor, SESAME   Summer 2015
- *Assisted students in lab sessions as a TA for Computer Science class (in Java) for CPS and other teachers.*

Teaching Assistant, Intro to Computer Science   Summer 2015
- *Answered most student questions on Piazza of 3 TA team, assisted in programming labs, and graded.*

Intro to Mathematical Probability   Spring 2015
- *Studied probability spaces, both discrete and continuous random variables, transformations of variables, bivariate normal distribution, and basic random walks as well as applied lots and lots of multi-variable calculus/analysis.*

Databases   Spring 2015
- *Wrote (in C) a relational database management system, including organizing data using B-trees, implemented machine instructions, generated machine code from parsed SQL queries, and did sigma-pushing optimization.*
- *Used SQLite to design a database of albums released in 2015. Helped run house t-shirt sales using SQL queries.*

Networks and Distributed Systems   Winter 2015
- *Wrote (in C) a multi-threaded RFC-compliant IRC server, added reliability features such as out-of-order delivery & re-transmission to IP in order to replicate TCP, verifying functionality using Wireshark, and simulated a router.*

Theoretical Research and Background   Summer 2014 – Spring 2015
- *For the UChicago Summer Mathematics REU, researched and wrote a review paper on [The Discrete Log Problem and Elliptic Curve Cryptography](#) under the guidance of a Number Theory graduate student mentor.*
- *Studied data structures, divide and conquer methods, complexity, graphs, probability, cryptography, statistics, recurrences, and number theory in Discrete Mathematics, Algorithms, and Graph Theory.*

Architecture, Intro to Systems, and Intro to Programming   Summer 2013 – Fall 2014
- *Used forking and signals to program a basic shell, optimized matrix multiplication code for differing memory configurations after simulating a cache, and performed a text file of banking transactions using a hash table in C.*
- *Worked with lambda functions to apply color palette filters to images in a GUI app, implemented Huffman encoding using binary trees, and wrote a linked list implementation in Scheme.*

Statistical Models and Methods   Spring 2013
- *Programmed in R to explore datasets and perform statistical tasks such as regression, computing statistics and probabilities, and plotting and visualizing data. Used Matlab to do phase-plane analysis in Biology class*

Technical Skills and Knowledge

Programming Languages*: Used C for large projects since 2013; Some R work starting in 2013; Learned Python in 2014.*
Version control*: Used Git and Github for two major quarter-long projects & personal use. Expert in use of Subversion.*
Debuggers, etc: *Used GDB to step through binaries sans source code to defuse a "bomb" and used Valgrind/Helgrind to find memory leaks.*
Operating Systems: *Programmed mainly on Unix, using command line and SSH extensively. Proficient with use of Cygwin.*

Service Experience

Volunteer Tutor (NSP, Arrupe Service)   Fall 2010 – Summer 2012; Winter 2015 – Winter 2016
- *Ran an after-school mathematics club, with a partner, for 12 students at Hungarian public middle school.*
- *Bought and used base-ten blocks in special education classroom of 20 under-served middle school students in a CPS Level I school. Tutored mathematics, and all lower subjects in Evanston and Chicago public schools.*

Community Service Chair, Breckinridge House   Spring 2015
- *Organized "Fireside Chat" & discussion with 10 students and members of Chicago Coalition for Homeless*

One Week Chicago Urban Plunge (Arrupe Service)   Summer 2011
- *Volunteered at food distribution centers, soup kitchens, night shelters, and immigrant/refugee organizations.*