

## RuQian ("roo-chien") Chen

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EDUCATION	<p><b>University of Washington (UW)</b>, Seattle, WA September 2016 - Present Ph.D. student in Mathematics. Research on topological data analysis and non-parametric statistics.</p> <p><b>University of Illinois at Urbana-Champaign (UIUC)</b>, Urbana, IL June 2016 Master of Science in Mathematics.</p> <p><b>Amherst College</b>, Amherst, MA May 2014 B.A., Mathematics, cum laude, Sigma Xi. May 2014.</p> <p><b>Budapest Semesters in Mathematics</b>, Budapest, Hungary Fall 2012, Spring 2013 Study abroad program.</p>
SKILLS	<p><b>Programming:</b> Java, Python, R, C (beginner).</p> <p><b>Language:</b> English, Mandarin, Spanish (intermediate), Portuguese (beginner).</p>
PROJECTS	<p><b>Sparse Crime Data Analysis using gradient descent and regression in R</b> Current • Implemented gradient descent for smooth and non-smooth cost functions from scratch. • Improved convergence speed using accelerated optimization methods including FISTA. • Incorporated cross-validation and Armijo backtracking to select related parameters. • Examined and implemented support vector machines from the logistic regression perspective.</p> <p><b>Face Image Comparator in R and Java</b> April, 2016 • Analyzed facial images of 70 people and selected proper image features for analysis. • Wrote naive Bayes classifiers and support vector machines (SVM) from scratch. • Utilized R packages to create random decision forests, naive Bayes classifiers and SVMs.</p> <p><b>Image Color Segmentation in R</b> March, 2016 • Led a group of 2 students to work on different aspects of algorithm implementation. • Implemented k-means clustering and expectation maximization algorithms.</p>
COURSEWORK	<p><b>Computer Science:</b> Algorithms and Computational Complexity, UW CSE 417, current; Computer Systems, Hardware/Software Interface, UW CSE 410, current; Data Structures and Algorithms, UW CSE 373, Autumn 2016; Applied Machine Learning, UIUC CS 498, Spring 2016.</p> <p><b>Statistics:</b> Statistical Learning with Sparse Regression, UW STAT 538, current; Statistical Inference, UIUC STAT 510, Spring 2016.</p> <p><b>Probability:</b> Applied Stochastic Processes and Markov Chains UIUC MATH 562, Fall 2015; Probability Theory and Stochastic Processes, UIUC MATH 560 and 561, Spring and Fall 2015.</p>
PAST RESEARCH	<p>Program for Interdisciplinary and Industrial Internships at University of Illinois, Urbana, IL Research on random matrices: Eigenvalue distribution on the 3-dimensional unit sphere. Advisor: Professor Boris Shapiro, Stockholm University.</p>
PUBLICATIONS	<p>[1] R. Benedetto, D. Bajpai, R. Chen, E. Kim, O. Marschall, D. Onul, Y. Xiao. <i>Non-archimedean Connected Julia Sets with Branching</i>. Ergodic Theory and Dynamical Systems (2015).</p> <p>[2] R. Benedetto, R. Chen, T. Hyde, Y. Kovacheva, C. White. <i>Small Dynamical Heights for Quadratic Polynomials and Rational Functions</i>. Experimental Mathematics 23 (2014).</p>