

MAJA RITA RUDOLPH

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EDUCATION

Columbia University 2013 - Present
Digital Video and Multimedia Lab New York, NY
PhD student in Electrical Engineering
Advisor: Prof. Shih-Fu Chang

Massachusetts Institute of Technology (MIT) 2010 - 2013
B.S. in Mathematics, GPA: 4.7/5.0 Cambridge, MA

Delaware State University 2009 - 2010
Mathematics, GPA: 4.0/4.0 Dover, DE
Full Athletic Scholarship, transferred to MIT

RESEARCH EXPERIENCE

Columbia University, Department of Electrical Engineering 2013 - Present
Research Assistant, "*Probabilistic Modelling meets Optimization*" New York, NY
Advisor: Prof. Shih-Fu Chang

- My research interests include: Probabilistic modelling, variational methods for approximate inference, collaborative filtering, and recommendation systems

Indian Institute of Science, Department of Mathematics Summer 2012
Student Research Assistant, "*Brain-Computer Interfaces*" Bangalore, India
Advisor: Prof. Govindan Rangarajan

- Implemented brain-computer interface and tested its functionality as EEG-based spelling device
- Performed statistical analysis and studied randomness of the collected EEG signals
- Presented results in a poster session at the 2013 Joint Mathematics Meeting

MIT, Department of Mathematics Spring 2012
Undergraduate Research Opportunity, "*Hecke Algebras*" Cambridge, MA
Advisor: Prof. David Vogan

- Compared Hecke Algebra as functions on double cosets to the action of flag varieties on themselves
- Wrote an expository paper on motivations from Linear Algebra to study Hecke Algebras

MIT, Department of Mathematics Fall 2011
Undergraduate Research Opportunity, "*Kissing Numbers*" Cambridge, MA
Advisor: Prof. Abhinav Kumar

- Implemented an algorithm to search for a better bound on kissing numbers in 7 dimensional space
- Learned about applications of the problem to information theory and error correcting codes

Tel Aviv University, Department of Mathematics Summer 2011
Student Research Assistant, "*Wave Function Statistics*" Tel Aviv, Israel
Advisor: Prof. Zeev Rudnick

- Was in charge of either validating or invalidating number theoretic conjectures numerically
- Used Mathematica to compute and statistically analyze the eigenvalues of functions of interest

WORK EXPERIENCE

SAP Innovation Center
Software Intern

Spring 2013
Potsdam, Germany

- Contributed to efforts of leveraging in-memory database technology for life science research
- Evaluated and compared the performance of various machine learning algorithms in R and C++
- Implemented an interactive decision tree visualization tool
- Studied and presented various topics in bioinformatics including protein matching and structural search of chemical compounds

TEACHING EXPERIENCE

MIT, Department of Electrical Engineering and Computer Science
Lab Assistant, Mathematics for Computer Science Course

Fall 2011
Cambridge, MA

- Led and supported groups of 6-8 students during in-class problem solving sessions
- Helped faculty with the preparation of class materials

Local Primary Schools
Tutor and Mentor

2003-2006
Tuebingen, Germany

- Volunteered 3 hours per week tutoring socially disadvantaged children with migration background
- Supported the students to overcome language barriers
- Motivated discouraged children to do their homework and take active part in their education

SKILLS

Programming Languages Python, C++, awk, R, Matlab, OpenCV, Latex, SQL, Javascript, HTML, CSS
German, English, Hebrew (fluent); Latin (proficient); French, Spanish (intermediate)

HONORS AND AWARDS

- C. Hurd Scholarship for Mathematical Sciences, MIT 2010 - 2012
- Full Athletic Scholarship, Delaware State University 2009 - 2010
- German National Champion in Bridge, Category Schools 2007