Tahseen W. Rabbani

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Overview

- Exposure to a variety of applied and pure fields in mathematics through a wide breadth of coursework and research.
- Programming proficiencies include Java, MUMPS, Visual Basic 6.0, Java, and Mathematica. Coursework in R.

Education

2018 - Present **University of Maryland** College Park, MD, U.S.A. • Ph.D. Program in Mathematics

Activities:

- Graduate Student Government (GSG) representative of the Math department.

2017-2018 **New York University** New York City, NY, U.S.A. • Master's Program in Mathematics (no degree)

GPA: 3.81/4.00

Activities:

- Co-creator of the Courant Mathematical Sciences Seminar for Master's Students.

2011-2015 **University of Virginia** Charlottesville, VA, U.S.A. • Bachelor of Arts in Mathematics

GPA: 3.81/4.00 (Major), 3.64/4.00 (Cumulative)

Honors

- Distinguished Majors Program (**High Distinction**). Thesis: *p-adic Numbers and the Hasse-Minkowski Theorem.*
- Echols Scholar.

Relevant Employment

Epic Systems (Madison, WI, Sep. 2015 - May 2017)
Software Developer

Epic develops electronic medical record (EMR) software for hospital systems. I worked on a team primarily concerned with the preservation of database pointers during digital exchange of EMRs between hospitals. Primary languages: MUMPS, Visual Basic 6.

Awards & Grants

2018-2020 Dean's Fellowship (**$10,000**), University of Maryland (College Park), Dept. of Mathematics.

2015 Small Research and Travel Grant (**$636**, University of Virginia). **Topic**: "3-G Error-Correcting Codes."

2014 Research Grant (**$2500**, University of Virginia). **Topic**: "Integer representation by quadratic forms."

2013 Small Research and Travel Grant (**$480**, College of Arts & Sciences). **Topic**: "Existence criteria of Hadamard difference sets."

Publications & Papers

1. (To be submitted, with J. Davis, J. Dillon, J. Jedwab, K. Smith, T. Applebaum, J. Clikeman, and W. Yolland) Constructions of difference sets in nonabelian 2-groups. (2018)
2. Unique minimal forcing sets and forced representation of integers by quadratic forms. *Rose-Hulman Undergraduate Journal of Mathematics*, Vol. 17, **1** (2016).
3. Improving the Error-Correcting Code Used in 3-G Communication. *SIAM Undergrad. Research Online (SIURO)*, **8** (2015), 126-137.

Research

2015 **University of Virginia - Department of Mathematics** (Charlottesville, VA)
Researcher
Supervisor: Dr. Weiqiang Wang (University of Virginia)

Studied representations of the symmetric group. Jointly credited on Theorem 7.3 in Y. Li and W. Wang's "Positivity vs Negativity of Canonical Bases," Bull. of the Inst. of Math., Academia Sinica, Vol. **13** (2018), No. 2, pp. 143-198.

2014 **University of Virginia - Department of Mathematics** (Charlottesville, VA)
Researcher
Supervisor: Dr. Andrew Obus (University of Virginia)

Studied integer representation by quadratic forms. Established the existence several infinite families of positive integers without unique minimal forcing sets in Manjul Bhargava's minimal forcing set of the natural numbers.

2014 **University of Richmond - Dept. of Math. & Comp. Sci.** (Richmond, VA)
Independent Researcher
Supervisor: Dr. James Davis (University of Richmond)

Studied the properties of a [30,10,10] error-correcting code at the center of a 2011 patent infringement lawsuit between Samsung group and Apple Inc. Patent No: US7706348. I was able to produce a superior [30,10,11] code.

2013 **University of Richmond - Dept. of Math. & Comp. Sci.** (Richmond, VA)
Researcher
Supervisor: Dr. James Davis (University of Richmond)

Studied difference set theory and error-correction theory. Independently and collaboratively confirmed the (previously unknown) existence of $(256, 120, 56)$ Hadamard difference sets in 6 groups (out of 81 open cases) by the end of the summer.