V.S.P. Vijay Bhattiprolu

School of Computer Science
Carnegie Mellon University
5000 Forbes Avenue, Pittsburgh, PA-15232

vpb@cs.cmu.edu
http://vspvijay.com

Education

• **Ph.D.** In Algorithms, Combinatorics, Optimization, **Carnegie Mellon University**, Aug 2014 – May 2019 (Expected).
Advisor: Venkatesan Guruswami, **Department:** Computer Science.
Research Interests: Approximation Algorithms, Convex Programming, Sum of Squares Hierarchy, Inapproximability, Spectral Theory, Tensors, Geometric Functional Analysis, Geometry of Polynomials.

• **B.Sc.** In Math & CS, University of Illinois at Urbana-Champaign, Aug 2011 - May 2014 (Honors and Highest distinction)

Visits/Internships:

• Visited Pravesh Kothari at Princeton/IAS during July/August 2018.
• Spring 2018 Visitor at Center for Mathematical Sciences and Apllications at Harvard University.
• Visiting researcher at U. C. Berkeley hosted by Prasad Raghavendra. October 2017 – January 2018.
• Toyota Technological Institute - Summer 2017. Mentored by Madhur Tulsiani.
• Toyota Technological Institute - Summer 2016. Mentored by Madhur Tulsiani.

Publications and Articles:

• Approximating Operator Norms via Genralized Krivine Rounding. With Mrinalkanti Ghosh, Venkatesan Guruswami, Euiwoong Lee and Madhur Tulsiani. SODA 2019 (merged acceptance with below). https://arxiv.org/abs/1804.03644
• Inapproximability of Matrix p->q Norms. With Mrinalkanti Ghosh, Venkatesan Guruswami, Euiwoong Lee and Madhur Tulsiani. SODA 2019 (merged acceptance with above). https://arxiv.org/abs/1802.07425
• A PTAS for lp-Low Rank Approximation. With Frank Ban, Karl Bringmann, Pavel Kolev, Euiwoong Lee, and David Woodruff. SODA 2019. https://arxiv.org/abs/1807.06101
• Weak Decoupling, Polynomial Folds and Approximate Optimization over the Sphere. With Mrinalkanti Ghosh, Venkatesan Guruswami, Euiwoong Lee and Madhur Tulsiani. FOCS 2017. https://arxiv.org/abs/1611.05998
• Sum of Squares Certificates for Maxima of Random Tensors over the Sphere. With Venkatesan Guruswami and Euiwoong Lee. RANDOM 2017. https://arxiv.org/abs/1605.00903
• Approximate Hypergraph Coloring under Low-discrepancy and Related Promises. With Venkatesan Guruswami and Euiwoong Lee. APPROX 2015. http://vspvijay.com/hcup.pdf
• Separating a Voronoi Diagram via Local Search. With Sariel Har-Peled. SoCG 2016. http://vspvijay.com/s_voronoi.pdf
• Extending Parikh's Theorem to Weighted and Probabilistic Context-Free Grammars. With Spencer Gordon and Mahesh Viswanathan. QEST 2017.

Invited Talks:

• Berkeley Theory Lunch January 2018. On the approximability of p-to-q norms.
• Simons Workshop Fall 2017: Hierarchies, Extended Formulations and Matrix Analytic Techniques. On approximate optimization over the sphere.
• CMU Theory Lunch Spring 2017. On Approximate optimization over the sphere.
• CMU Theory Lunch Fall 2015. On Approximate Hypergraph Coloring under Promise.

Awards and Honors:

• Spring 2014: Recipient of C. W. Gear outstanding undergraduate award.
• Spring 2013: Recipient of James N. Snyder award for outstanding scholastic achievement.
• Spring 2012: Recipient of P.U.R.E (Promoting Undergraduate Research in Engineering) audience choice award.
• Fall 2011 – Spring 2014: Graduated with James Scholars Honors and Highest distinction.