

**Rohan Chandra**    Email : rohan@cs.umd.edu

#### ACADEMIC DETAILS

Program	University	GPA(Last Two Years)	Class High
M.S. in CS, 2018	University of Maryland, College Park	3.667	-
B.Tech in ECE, 2016	Delhi Technological University, India	80.00	84.00

*Undergraduate Thesis: A Novel Architecture For A Band-Stop Notch Filter.* [Paper](#)

#### RELEVANT CLASSES

PhD level	Text(coverage)	Masters level
Optimization	<i>Boyd/Research Papers</i>	Linear Algebra
Machine Learning	<i>UML, FML, Murphy</i>	Prob. and Stats
Computer Vision	<i>Research Papers</i>	Statistics I
Spectral Methods and Reinforcement Learning	<i>Research Papers</i>	

#### NON-CONVEX OPTIMIZATION & MACHINE LEARNING

- **Phase Retrieval:** Created PhasePack, a library for various classical and contemporary phase retrieval algorithms. PhasePack's purpose is to create a common interface for a wide range of phase retrieval schemes, and to provide a common test bed using both synthetic and empirical imaging datasets.
- **Solving SDP's using Phasemax:** Phasemax solves a linear objective function with quadratic equality constraints, making the problem NP-hard. It does this by convexifying the problem by estimating solutions in the same parameter space. The aim of this research is to extend Phasemax to solve non-convex low rank matrix estimation problems with quadratic matrix equalities.
- **Texture Synthesis using Stacked VAE's:** Based on the success of DRAW - a generative model to create images, I am extending the concept to create textures.

#### COMPUTER VISION

- **Autonomous Vehicles:** Implemented the lane detection module and helped engineer a joystick enabled 3-wheeler. Also worked in navigation and localisation.
- **Structure from Motion:** Wrote code from scratch and successfully reconstructed a 3-D scene from multiple images using non-linear optimization of feature point triangulation, PnP, and finally bundle adjustment. Received highest points for this project.

#### TEACHING ASSISTANT

- Discrete Mathematics (Fall 2017)
- Intro to Object Oriented Programming (Spring 2017)
- Computer Networks (Fall 2016)

#### DEPARTMENTAL SERVICE

- Part of the fall 2017 **review committee** at UMD that screens applications for the Masters in CS program.

## STRENGTHS

- **Mental Math, Speed Math**

*Techniques I developed, and are recognized:*

- Faster method to mentally multiply numbers by 9, 99, 999... and so on (method co-authored with [Dr. Arthur Benjamin](#))
- Alternate method to square two digit numbers.
- Generalizing the "Find The Missing Digit Trick!"

- **Chess:** State Level Champion