# Deeban Ramalingam

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## EDUCATION

**Cornell University (Class of 2018)**
B.S. Computer Science (GPA 3.74)
Minor in Electrical and Computer Engineering
Minor in Pure Mathematics

Meinig Family Cornell National Scholar
McMullen Cornell Engineering Dean Scholar
Thomas Dinwoodie McMullen Scholar

*Relevant Coursework*
Machine Learning, Computer Vision (Graduate-level), Artificial Intelligence, Natural Language Processing (Graduate-level), Algorithms, Operating Systems, Linear Algebra (Upper Div. Math Dept.), Probability and Random Signals, Math of Signals and System Analysis

*Research Interests*
Machine Learning (emphasis on Deep Learning applications in the domains of Computer Vision, Audio Recognition, and Cloud Computing), Networked Distributed Systems and Cloud Computing, Signals and Systems Analysis

## SOCIETIES / HONORS

Meinig Family Cornell National Scholar (∼50 selected / year) — Aug 2014 - May 2018
McMullen Cornell Engineering Dean Scholar (∼50 selelected / year) — Aug 2014 - May 2018
Thomas Dinwoodie McMullen Scholar (1 selected / year) — Sep 2017 - May 2018
Dean's List for High GPA

## RESEARCH / WORK EXPERIENCE

**Microsoft Azure Networking R&D**, Redmond, WA — May 2017 - Aug 2017
*Software Engineer (Intern) for Geoff Outhred*

- Designed Multi-tenant Container-based Application Layer Load Balancing as a Service, presented to Azure Networking
- Proof-of-concept trumped existing application load balancers in functionality and speed

**Cornell University**, Ithaca, NY — Nov 2015 - May 2017
*Undergraduate Researcher for Dr. John Hopcroft*

- Designed algorithm using Maximum Mean Discrepancy (MMD) to traverse vectors between distributions in deep convolutional feature space
- Discovered how convexity of the kernel function used by MMD affects traversal path and destination, how richness and scale of unit function ball used by MMD affects traversal smoothness and convergence time
- Efforts related to *Deep Manifold Traversal: Changing Labels with Convolutional Features (https://arxiv.org/pdf/1511.06421.pdf)*

**NVIDIA**, Santa Clara, CA — May 2016 - Aug 2016
*Software Engineer (Intern) for Vijay Ramadoss*

- Designed debugging tool to communicate with HyperVisors on NVIDIA Grid Network (NGN) cloud compute clusters
- Designed automation pipeline to handle efficient deployments to storage nodes in NGN

**Hewlett-Packard R&D Lab**, Boise, ID May 2015 - Aug 2015
*Software Engineer (Intern) for Roger Baird*

- JetAdvantage Management (JAM) allows customers to centrally, remotely manage their fleet of print devices over a network
- Developed feature for JAM that allows customers to make changes to the configuration of any JAM client, critical for effective communication between JAM in the cloud and JAM client within customer corporate firewall

**Cornell University**, Ithaca, NY Jan 2015 - May 2015
*Undergraduate Researcher for Dr. Graeme Bailey (Now at Oxford)*
*Masters in Engineering Project: Media Enabled Research Interface and Database (MERID)*

- MERID enables researchers to run surveys and research investigations with respondents
- Investigations dealt with the subtleties of inter-orchestral communication between musicians during a performance / research was done jointly with Oxford University
- Designed real-time broadcaster/subscriber event-driven communication framework

**WhiteCloud Analytics**, Boise, ID May 2014 - Aug 2014
*Software Engineer (Intern) for Tim Ramey*

- Developed software to complement hospital administration and healthcare analytics

**Idaho Digital Learning Academy**, Boise, ID Feb 2012 - Jun 2014
*Software Engineer (Intern) for Ryan Gravette*

- Presented educational software to the Idaho Senate Committee of Education, received letter of recommendation from senator

## NOTABLE COURSE PROJECTS

**CS 6670: Graduate-level Computer Vision**, Ithaca, NY Aug 2017 - Dec 2017
*Unsupervised Image-to-Image Translation* (in progress), (Dr. Bharath Hariharan)

- Exploring unsupervised methods for non-linear low dimensional invariant feature space mappings for images

**CS 4701: Artificial Intelligence Practicum**, Ithaca, NY Mar 2017 - May 2017
*Neural Approach to Song Recognition*, course taught by Dr. Haym Hirsh

- Explored deep representation learning in the domain of complicated audio signals
- Designed non-conventional convolutional neural network to recognize name of song given few-second clip of the song in raw audio waveform
- Neural model outperformed Shazam's audio-fingerprinting algorithm in space and time complexity and duration of clip needed to make confident prediction

**CS 1610: Computing in the Arts**, Ithaca, NY Nov 2014 - Dec 2014
*Discovering Institutional Relationships among Research Papers using Map-Reduce Paradigm*, course taught by Dr. Graeme Bailey

- Designed distributed map-reduce job to produce similarity graph of papers and discovered how connectivity of graph illustrated patterns in institutional co-authorship

## EXTRA-CURRICULAR ACTIVITIES

**Cornell Data Science Project Team** Jan 2016 - Dec 2016
*Team Lead, Project Manager*

- Led team to design platform to collect student academic and extra-curricular schedule data to be used by AI system to optimize future scheduling plans

## HOBBIES

Reading latest papers on deep learning, spending time with family, teaching cs and math concepts to younger brother and friends, chess (placed at national tournaments in the past)